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Adjustment Uncertainty, Confidence, and Growth:  
Latin America After the Debt Crisis

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Abstract

Usual interpretations of the debt crisis identify the fall in foreign savings as the determinant of lower investment. In contrast, this paper presents a systemic interpretation of the crisis, based on adjustment uncertainty and confidence failures, in which capital flight and the contraction of investment and foreign lending are various facets of the same phenomenon. After exploring the macroeconomics of confidence gaps, a model is presented that generates endogenous adjustment uncertainty and identifies a concept of vulnerability as a key determinant of adjustment dynamics. Various policies to reduce vulnerability are reviewed, with particular emphasis on fiscal adjustment, indexation, and liberalization.

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<u>Contents</u>	<u>Page</u>
I. Introduction	1
II. The Macroeconomics of the Confidence Gap	6
III. Systemic Uncertainty and Coordination Failures	10
1. A general adjustment cost model	10
2. Waiting	15
3. A systemic interpretation of the debt crisis	16
IV. Dealing with Adjustment Uncertainty	17
1. A policy typology	17
2. Fiscal adjustment	19
3. Stabilization or indexation?	22
4. Should liberalization be postponed?	27
V. Concluding Thoughts	28
Table 1. Macroeconomic Balance of the Six Largest Latin American Countries, 1980-87	2
 Figures	
1. GDP Growth Rates for Six Largest Latin American Countries, 1982-88 vs. 1976-81	2a
2. Mexico: Index of Capacity Utilization	4a
3. Mexico: Difference Between Compounded Real Money Market Rate and Compounded Real Deposit Rate	4b
4. Saving and External Gap Equilibriums	8a
5. Investment Gap Equilibrium	10a
6. Equilibrium with Adjustment Costs	14a
7. Adjustment Uncertainty With Waiting	16a
8. Policy Shifts Under Coordination Uncertainty	18a
References	31

### Summary

The usual interpretation of the slowdown in growth affecting most Latin American countries since the start of the debt crisis is that the reduction of foreign savings arising from the abrupt reversal of external flows could not be offset by an increase in domestic savings. Hence investment has been crowded out. This interpretation appears to be inconsistent with available evidence for some countries, in which a sizable accumulation of short-term foreign assets by domestic residents, large excess capacity, and loose financial markets do not appear to corroborate a lack of domestic savings or foreign exchange.

This paper proposes a systemic interpretation of the growth slowdown, according to which the demand for private investment and the supply of private savings for domestic uses declined together with the supply of foreign savings, as a result of the same set of systemic factors that triggered the debt crisis. Inadequate domestic macroeconomic policies, together with large negative external shocks, gave rise to vulnerable financial conditions of the type found in bank-run situations. Next, a generalized loss of confidence occurred when it was perceived that an interruption of foreign lending and private investment could force countries to adopt adjustment policies at such large economic and social costs as to raise doubts about the ability of the political system to preserve financial commitments and to follow through on the set of policies required to maintain appropriate rates of return on new capital.

After providing a simple macroeconomic foundation to this confidence-gap theory, the paper presents a general adjustment-cost model in which two types of systemic uncertainty are endogenously generated: "political" uncertainty and "coordination" uncertainty. Under coordination uncertainty, the need to reduce "vulnerability" is derived as a main policy objective, and three types of policy measures are identified to achieve that objective. First are policies that strengthen the ability of the political system to withstand pressures against adjustment. Second are policies that reduce the costs of adjustment. Third are "rainy day" policies that limit the costs of adjustment or that raise political strength in the bad case scenario, while doing the opposite under favorable outturns.

The implications of confidence gaps are finally explored in greater detail in the context of three basic issues. The purpose of fiscal adjustment is reviewed, first, with particular emphasis on the quality of the adjustment. Experiences with generalized indexation are discussed later, and the question of whether indexation is a good way to deal with uncertainty is explored. Finally, the pros and cons of delaying structural reforms, particularly trade liberalization, are briefly reviewed in the context of large macroeconomic uncertainty.



## I. Introduction

Since the beginning of the global debt crisis in 1982, growth has slowed down considerably in most Latin American countries (Figure 1), and public and private investment have declined sharply (Table 1). 1/ The usual neoclassical interpretation of these phenomena is a "flow-savings gap" explanation, according to which the reduction in the availability of foreign savings--arising from the abrupt reversal of external flows--could not be offset by an increase in domestic savings. Thus, total available savings fell, crowding out investment and slowing down the growth rate. The weakness of domestic savings and the inadequacy of the domestic resource mobilization effort in the wake of the reversal of net foreign transfers have been traced, in turn, to the persistence of repressed financial systems, which have discouraged private savings, and to an insufficient fiscal adjustment. The latter has also boosted inflation, as the inflation tax has become the residual mechanism to extract the domestic resource transfer needed to service the foreign public debt. Table 1 shows the evolution, since the crisis, of the macroeconomic balance of the six largest Latin American countries. What emerges from these data is that total investment has indeed fallen significantly, with the decline being similar to the fall in foreign savings. 2/

The savings gap interpretation of the postcrisis slowdown in growth is, therefore, apparently consistent with the observed evolution of savings and investment. However, owing to some other developments that followed the debt crisis, this interpretation is not always applicable. Take, for example, the case of Mexico. 3/ First, capital

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1/ As noted by Tanzi (1989b), the decline in public investment was partly the counterpart of the public investment boom that took place before the crisis, often in large national projects of dubious returns. The magnitude of this decline may thus appear more impressive than what would be justified by its real impact on productive capacity. In contrast, the decline of private investment may be understated, first because private investment data include residential construction, which declined much less than investment in plants and equipment and, second, because no distinction is made between the replacement of equipment needed to maintain current productive capacity, and the purchase of equipment to increase capacity. Although firm statistics are not available, the latter appears to have declined much more severely.

2/ As the macroeconomic balance is expressed in current prices, it does not include the effect of worsening terms of trade, which further reduced real available foreign savings in many countries, particularly the oil exporters.

3/ A more detailed discussion of the postcrisis Mexican experience can be found in Ize (1989).

Table 1. Macroeconomic Balance of the Six Largest  
Latin American Countries, 1980-87 1/

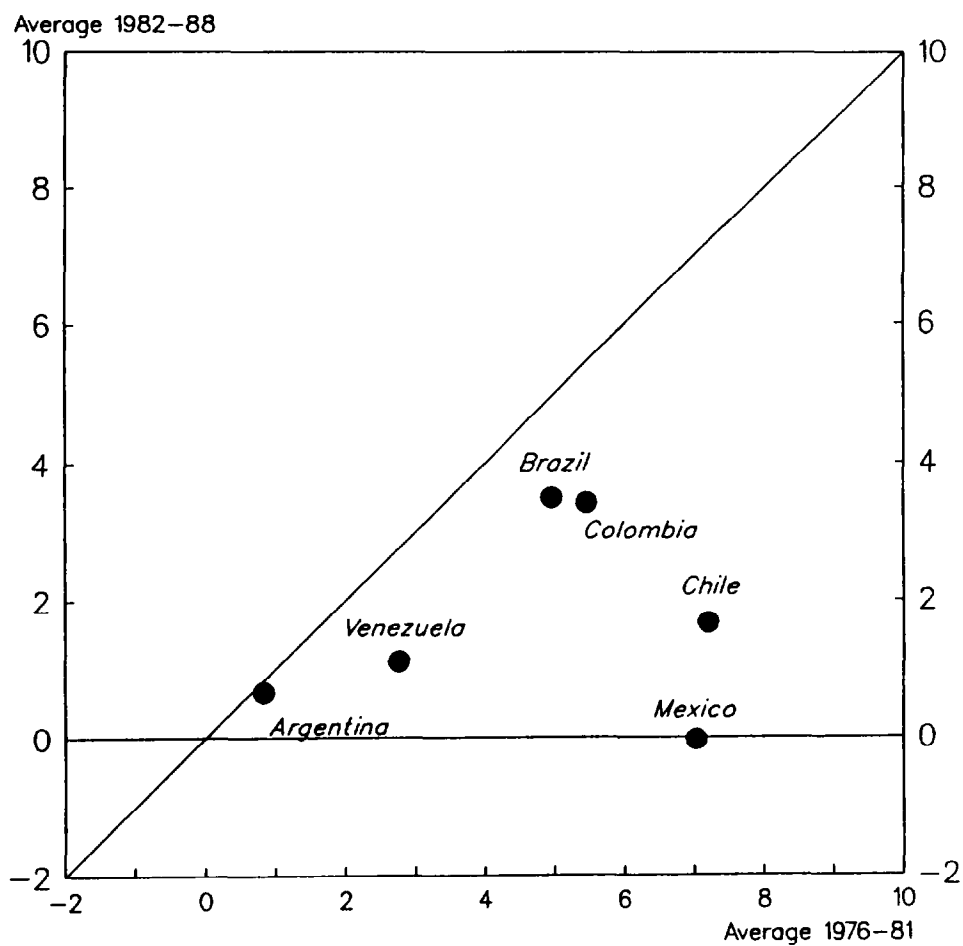
(As a percentage of GDP)

	1980	1981	1982	1983	1984	1985	1986	1987
Savings	<u>23.7</u>	<u>22.5</u>	<u>19.5</u>	<u>17.1</u>	<u>16.5</u>	<u>17.0</u>	<u>17.4</u>	<u>17.7</u>
External	<u>5.8</u>	<u>6.4</u>	<u>6.8</u>	<u>1.8</u>	<u>0.1</u>	<u>0.3</u>	<u>2.0</u>	<u>0.9</u>
Public	5.9	2.1	0.6	2.2	4.2	3.7	4.3	3.7
Private	12.0	14.1	12.1	13.1	12.2	13.0	11.1	13.1
Investment	<u>23.7</u>	<u>22.5</u>	<u>19.5</u>	<u>17.1</u>	<u>16.5</u>	<u>17.0</u>	<u>17.4</u>	<u>17.7</u>
Public	<u>9.4</u>	<u>10.0</u>	<u>9.6</u>	<u>7.9</u>	<u>7.0</u>	<u>6.6</u>	<u>7.0</u>	<u>7.0</u>
Private	14.3	12.5	9.9	9.2	9.5	10.4	10.4	10.7

1/ Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela.

Figure 1

**GDP GROWTH RATES FOR THE SIX LARGEST  
LATIN AMERICAN COUNTRIES, 1982-88 VS. 1976-81**







flight has been, and remains, very large, 1/ while the accumulation of foreign reserves has, at times, also been quite large. Second, rather than experiencing excess demand, the Mexican economy appears to have been operating since 1982 widely below its productive capacity (Figure 2). 2/ Finally, as shown in Figure 3, it does not seem that the credit market has been particularly tight since the crisis, 3/ except for a rather brief period, from the end of 1985 to the beginning of 1987, when the Mexico City earthquake and the oil shock compelled the authorities to adopt an extremely tight monetary policy to force private capital back into the country to equilibrate the balance of payments. 4/ These observations seem then to suggest that, rather than being constrained by a lack of savings, private investment fell because of a lack of willingness to invest that resulted from a "confidence gap."

In this context, a systemic explanation seems more appropriate to account at the same time for the decline in the private sector's willingness to invest and for the fall in available external savings, the latter taking the form of both lower foreign capital inflows and higher domestic capital outflows. According to one such interpretation provided by the debt overhang literature, 5/ the outstanding external debt acted as a disincentive to new lending, because the limited funds that countries were able or willing to use for debt servicing had to be allocated proportionally among all their outstanding creditors. In the absence of explicit seniority arrangements, the proceeds from any new and potentially profitable loan had to be shared equally, hence discouraging new lending.

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1/ See, for example, Morgan Guaranty (1988). Although some authors--see in particular Zedillo (1987)--have disputed the magnitude of the figures, there exists a consensus on the importance of the phenomenon.

2/ Some care is clearly needed in assessing the magnitude of this phenomenon on the basis of capacity indices, which may not always adequately reflect structural changes. However, Banco de Mexico survey data consistently ranked lack of demand as the main limiting factor to production during this period far above other factors. See Banco de Mexico (1986).

3/ The credit market indicator used in Figure 3 is the spread between freely determined money market rates and government-controlled deposit rates. A tighter credit market raises the money market rate relative to its floor level, as determined by the deposit rate.

4/ Although the real stock of credit to the private sector from the domestic financial system fell by 45 percent from end-1981 to end-1987, this decline appears to have been mostly related to a fall in demand for credit rather than to a fall in supply.

5/ On the debt overhang literature, see in particular Sachs (1988) and Corden (1988).

This explanation, which can convincingly justify the abrupt interruption of bank lending, even in the presence of a relatively small discount in the secondary market value of existing debt, has been extended to explain also the decline of new equity investment by foreign or domestic investors. The argument is that in order to service its external debt in the future, the public sector will need to tax private capital. Higher future taxes therefore lead to a decline in expected after-tax returns on capital, and hence to a fall in investment.

This debt overhang argument is not, however, as convincing in the case of equity as in the case of bank lending. It is difficult in particular to understand why increased taxation to service an external debt of 5 to 6 percent of gross domestic product (GDP) in the worst cases could disrupt private investment so severely, even in the unrealistic case in which all the additional taxes were levied directly on capital, rather than on labor or consumption. Tax increases of this magnitude or higher have occurred in the past without giving rise to such large investment swings. An interpretation of the investment collapse that would be based solely on the debt overhang argument therefore seems somewhat strained. 1/

One alternative explanation is based on the existence of multiple equilibria, which opens up the possibility of self-fulfilling pessimistic expectations, similar to bank-run situations. If all investors fear that difficult times lie ahead, they may stop investing, and, if so, the collapse of investment can become self-fulfilling. This collapse can occur because the tax rate on capital must rise to compensate for the decline in investment so as to maintain a minimum level of tax revenue. More generally, it can occur because the contraction of supply resulting from a fall in investment raises the political and social costs of adjustment and increases the odds that the political system will not be able to maintain stable policies and adequate business conditions, hence causing a further drop in investment. 2/

An additional explanation for the decline of investment has also been provided by the recent literature on investment irreversibility in the context of uncertainty. 3/ In a situation where agents can acquire information and reduce the uncertainty they face over time, waiting has an option value, and a rise in uncertainty can have a negative impact on investment, even with perfect risk neutrality. However, the reasons

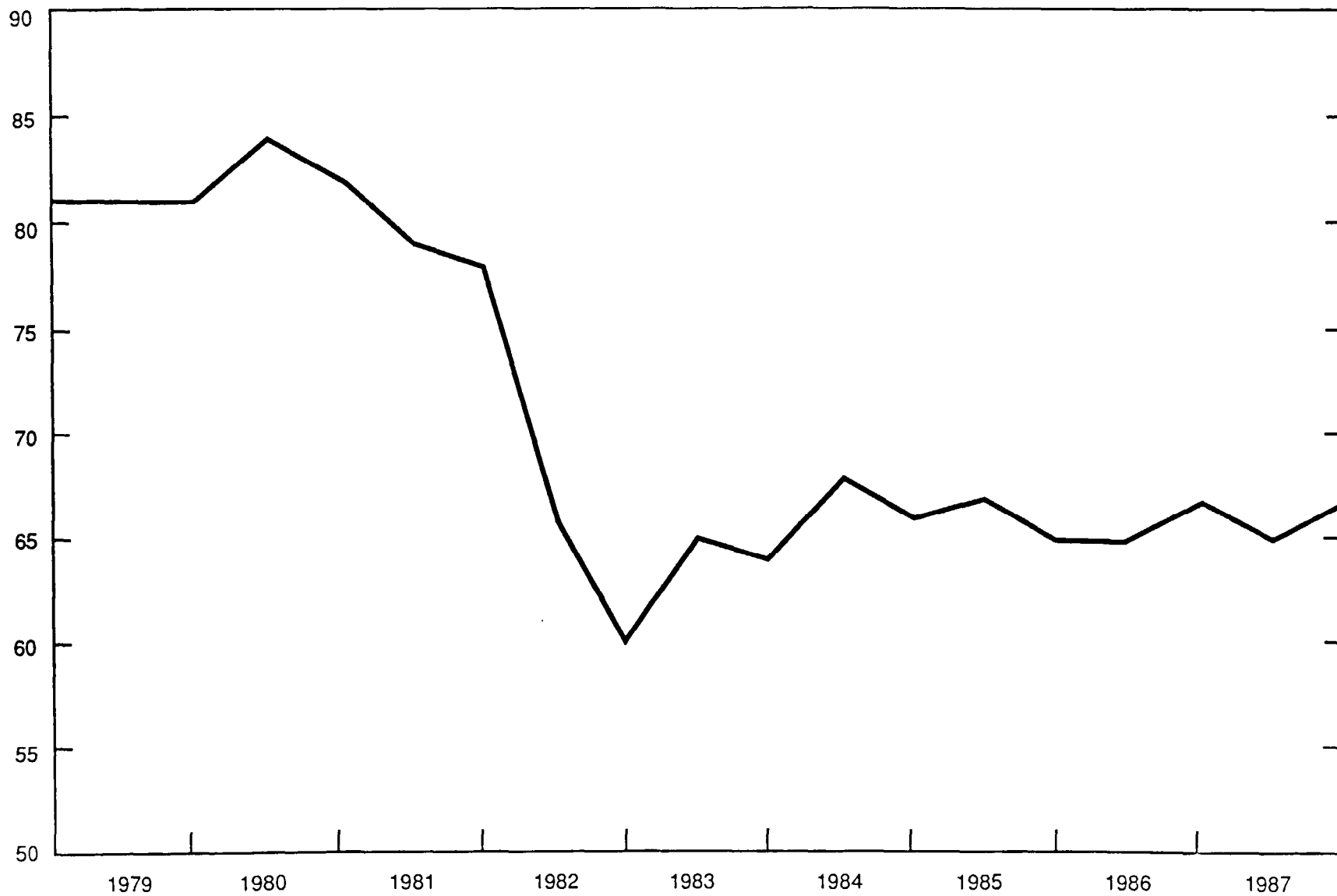
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1/ This conclusion is consistent with Borensztein's (1989) finding that credit rationing should generally be a much more powerful disincentive to investment than the debt overhang.

2/ Models that follow the first approach include Eaton (1987) and Helpman (1988a), while models that follow the second approach include Ize (1984).

3/ See in particular van Wijnbergen (1985), Pyndick (1986), Dornbusch (1988), and Dixit (1989).

Figure 2  
**MEXICO**  
**INDEX OF CAPACITY UTILIZATION**

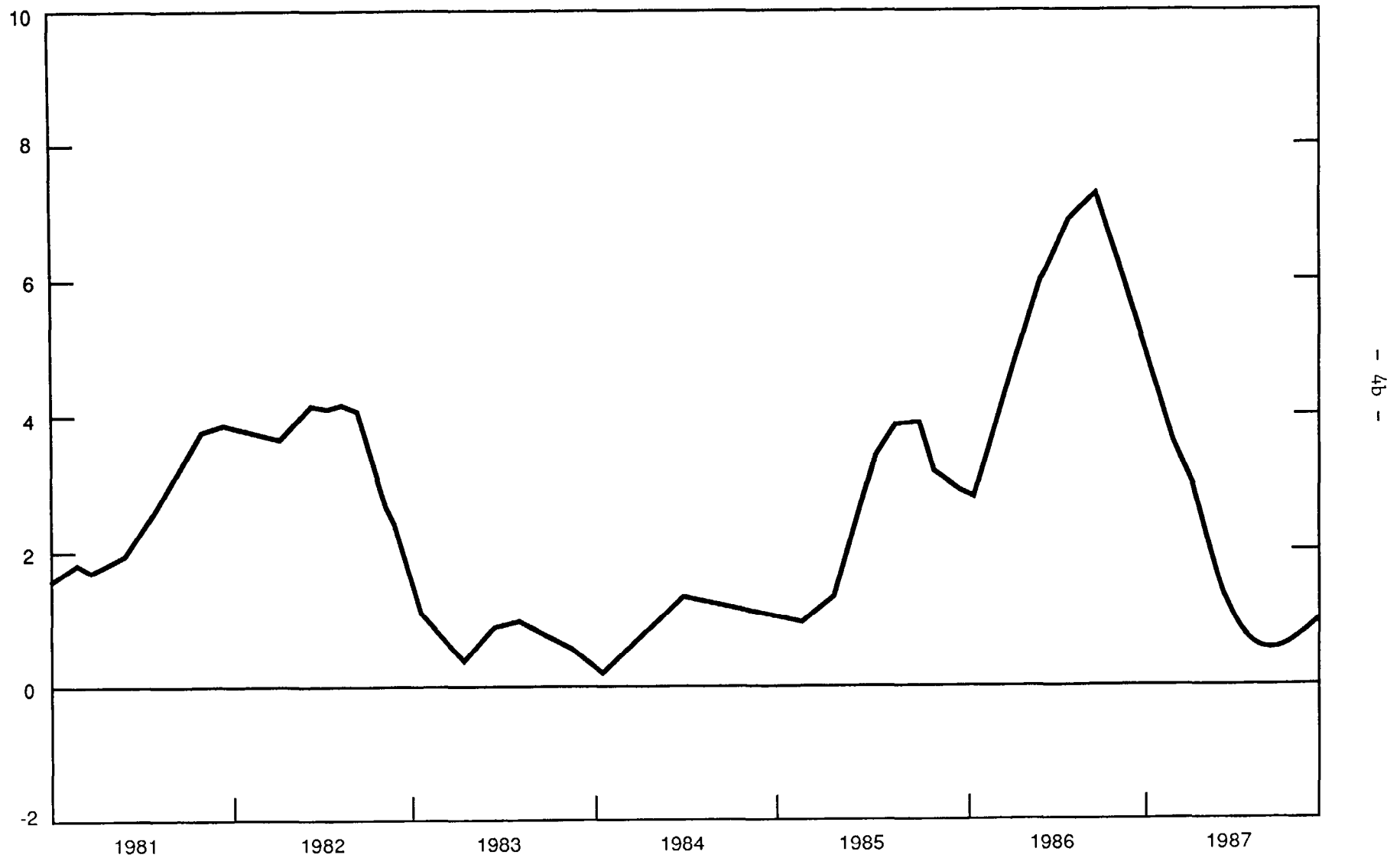


Source: Bank of Mexico.



Figure 3

**MEXICO**  
**DIFFERENCE BETWEEN COMPOUNDED REAL MONEY MARKET RATE**  
**AND COMPOUNDED REAL DEPOSIT RATE**





underlying the surge of uncertainty after the debt crisis must be spelled out. In particular, adjustment uncertainty can be derived from uncertainty about the state of the world, if the sustainability of government policies is contingent upon the realization of favorable exogenous outcomes. This is the approach that has generally been followed to model the debt crisis. <sup>1/</sup> But it can also be derived endogenously, as a result of ex ante uncertainty about the behavior of economic agents and about the reaction of political institutions.

The approach followed in this paper stresses endogenous uncertainty rather than state-of-the-world uncertainty. It derives the existence of self-fulfilling pessimistic equilibria from: (1) the limited ability of political systems to support the political and social costs of adjustment while carrying through, on a stable and predictable basis, the set of economic policies needed for a successful adjustment; and (2) the strong sensitivity of investment to the prospects of a protracted and uncertain adjustment, particularly when waiting becomes an attractive alternative. The "political" uncertainty attached to the strength of the political system is thus accompanied by "coordination" uncertainty, which arises when multiple equilibria exist and agents cannot predict which equilibria will guide other agents' expectations and behavior.

This paper describes the conditions under which one type of uncertainty or the other dominates, and analyzes policy implications in a situation in which it is not the availability of savings that determines investment, but agents' own willingness to invest. In the usual savings gap interpretation of the crisis, additional foreign lending, or a cut in the fiscal deficit, would tend mechanically to raise investment and growth. In contrast, when a confidence gap exists, the impact of additional resources essentially depends on whether such resources enhance the public's positive perception about the sustainability of adjustment policies and reduce systemic uncertainty, thus increasing the expected profitability of investment. In particular, policies that raise domestic savings may not necessarily increase investment if the political costs of these policies are perceived to be so high that the sustainability of the adjustment is jeopardized. Also, even though they may be relatively less efficient under favorable scenarios, "rainy day" policies can become desirable if they limit the costs of adjustment or raise political strength under unfavorable outcomes, thereby reducing the vulnerability of the economy to a shift in expectations.

Section II provides a simple macroeconomic foundation to the competing gap theories, which sets the conditions under which each gap becomes the binding restriction on growth. In Section III a general adjustment cost model with systemic uncertainty and a systemic interpretation of the debt crisis are presented, and the impact of

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<sup>1/</sup> See, for example, Dornbusch (1988).

waiting on investment is assessed. Based also on this model, Section IV examines policy implications. It first characterizes various possible types of growth-inducing policies and later explores in greater detail three policy issues. It first reviews the purpose of fiscal adjustment in the context of adjustment uncertainty, with particular emphasis on the quality versus quantity aspects of the adjustment. It later reviews the experiences with generalized indexation and explores the question of whether indexation is, indeed, a good way to reduce adjustment uncertainty, at least temporarily. Finally, it tackles briefly the issue of the timing of liberalization and structural adjustment. Section V provides some conclusions.

## II. The Macroeconomics of the Confidence Gap

The purpose of this section is to provide a simple analytical framework within which limitations to growth can arise, alternatively, from savings, investment, and external constraints. <sup>1/</sup> Such a framework illustrates the various circumstances that could have led to the current growth slowdown and examines the macroeconomic impact of shifts in uncertainty and confidence.

Define  $y^*$  and  $y$  as full-capacity output and actual output;  $\eta = y/y^*$  as the level of capacity utilization;  $v$  as the output/capital ratio;  $\delta$  as the rate of depreciation;  $s_p$ ,  $s_G$ , and  $s_F$  as private, public, and foreign savings, respectively;  $i_H$  as investment in physical capital in the country; and  $i_F$  as investment abroad by domestic residents, in both financial and physical assets, taking place through capital flight and excess reserves accumulation. All flows are expressed as a proportion of actual output. If  $\hat{\cdot}$  denotes rates of growth, the following identities can easily be derived:

$$\hat{y} = \hat{y}^* + \hat{\eta} \quad (1)$$

$$\hat{y}^* = \hat{v} + v\hat{n}i_H - \delta \quad (2)$$

$$i_H + i_F = s_p + s_G + s_F \quad (3)$$

Thus, full-capacity output growth increases with both the level and the rate of change of productivity, as measured by the output/capital ratio, with the rate of capacity utilization, and with the domestic investment ratio. In the absence of shifts in investments abroad by domestic residents, changes in domestic investment need to be associated with parallel changes in savings. Notice, however, that the direction of causality need not necessarily be from savings to investment, as in a

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<sup>1/</sup> Other, somewhat similar interpretations of the debt crisis within a three-gap model can be found in Ize (1989) and Bacha (1989).



classical savings-gap case. In the confidence-gap case, the direction of causality runs from investment to savings, or else a change in domestic investment must be offset by an inverse movement in investment abroad, with no change in overall savings.

Consider first the case of no adjustment uncertainty and assume, for now, no capital flight. 1/ The balance of payments equilibrium can then simply be written as:

$$s_F = CA(\eta^+, \bar{e}) = F, \quad (4)$$

where  $F$  is net foreign lending which is given exogenously.  $CA$ , the current account, worsens with an increase in the rate of capacity utilization and improves with a depreciation of the exchange rate,  $e$ .

Private investment is a negative function of the real interest rate ( $r$ ), so that total home investment is given by:

$$i_H = i_P(\bar{r}) + i_G, \quad (5)$$

where  $i_G$  is public sector investment. Private savings rise with the rate of capacity utilization, and government savings are given exogenously. The domestic macro balance may be expressed as:

$$s_P(\eta^+) + s_G + CA(\eta^+, \bar{e}) = i_P(\bar{r}) + i_G. \quad (6)$$

The behavior of the model is easily visualized in Figure 4. Let  $IS$  be the domestic macro balance schedule,  $BP$  the balance of payments equilibrium, and  $FE$  ( $\eta = 1$ ) the full employment line. It is readily checked that, whereas both the  $IS$  and  $BP$  schedules are positively sloped, the slope of the  $IS$  is steeper. 2/ To the left of  $IS$ , investment demand exceeds available savings (if  $\eta < 1$ , capacity utilization increases to restore balance and, if  $\eta = 1$ , prices are pushed up, reducing  $e$ ). To the right of  $IS$ , available savings exceed investment demand, reducing capacity utilization at any given real exchange rate. Above the  $BP$  schedule,  $CA > F$  with international reserves rising. The opposite takes place below the curve. Changes in the interest rate as well as changes in government savings and investments shift the  $IS$  curve, while the volume of long-term capital inflows ( $F$ ) determines the location of  $BP$ .

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1/ Assume, for example, a dual exchange market with a freely floating financial rate and no pass-through of capital flight to the commercial exchange market.

2/ This is so because, while an increase in  $e$  reduces foreign savings, an increase in  $\eta$  raises both foreign and domestic savings, restoring the domestic balance faster than the foreign balance.

Developments similar to those that followed the debt crisis can be analyzed with the help of Figure 4. Assume an initial position of full-capacity utilization and a real exchange rate equal to  $e_0$ , which implies internal and external balance at point E. The standard interpretation is that, at the inception of the crisis, long-term capital flows were abruptly cut off and the BP curve shifted upward to BP'. Since the new equilibrium at  $\bar{E}$ , along the same IS curve, cannot be reached, a successful adjustment would have required shifting the economy from E to E'. To obtain this result, a real exchange rate depreciation from  $e$  to  $e'$  was needed, as well as an increase in domestic savings, mainly through an increase in fiscal savings, to shift the IS upward to IS'. If both of these adjustments could have been achieved immediately, the level of investment and full-capacity utilization and, therefore, the rate of growth could have been maintained.

If governments, however, were not able to implement an adequate fiscal adjustment by increasing the rate of public sector savings to curtail aggregate demand, point E' was reached in a less than efficient fashion. "Inadequate" adjustment may have taken the form of a reduction in public investment, through budgetary cuts in capital spending, or through a contraction in private investment caused by restrictive monetary policies and the consequent rise in  $r$ . Although the short-run equilibrium position at E' is similar to the one in the case of efficient adjustment, the IS shift to the left was achieved now through contractions in  $i_G$  and  $i_P$  instead of an increase in  $s_G$ . The crowding out of investment led to a decline in growth rates even though full capital utilization was preserved and the real exchange rate had adjusted enough to restore external balance. <sup>1/</sup> This result, in which investment adjusted downward to meet available savings, is the usual saving-gap interpretation of the crisis.

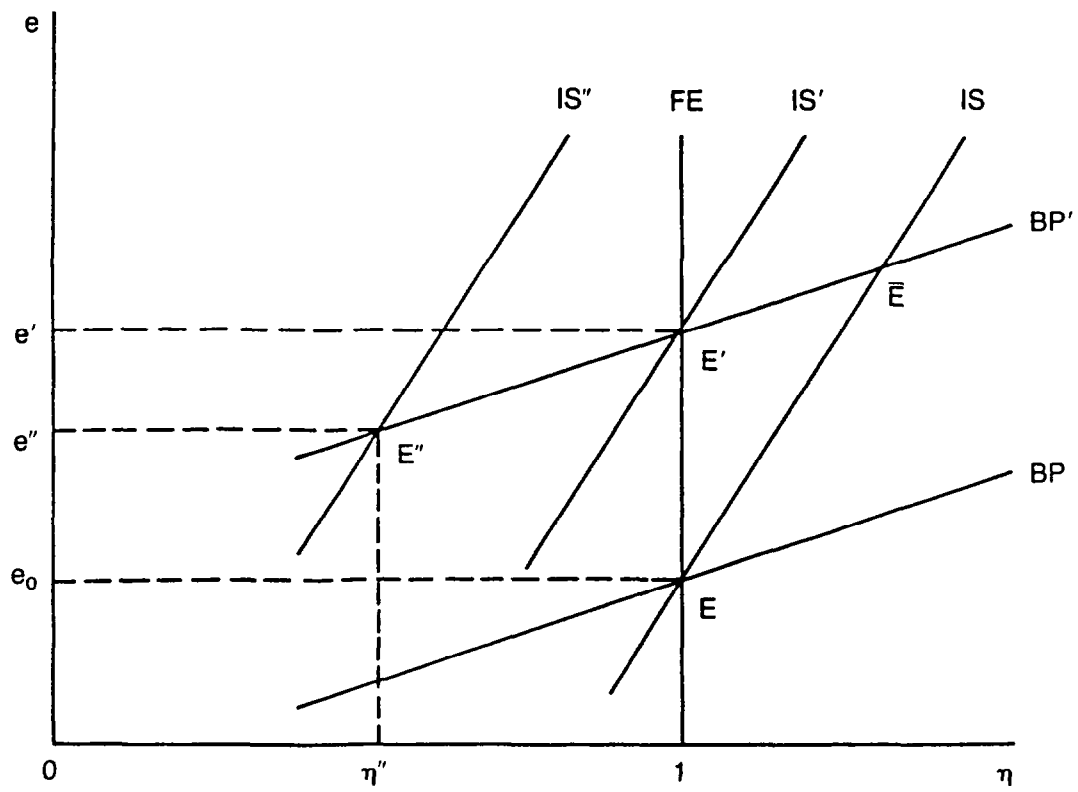
As fiscal rigidities have often prevented an adequate fiscal adjustment, rigidities in relative prices, particularly in real wages, could have prevented nominal exchange rate adjustments from being translated into lasting real exchange rate depreciations of the magnitude that would have been required to maintain full utilization of existing capacity at the new balance of payments equilibrium. If  $e$  rose only to  $e''$ , instead of to  $e'$ , the new equilibrium consistent with external balance was E'' instead of E'. The IS should then have been shifted upward beyond the IS', requiring higher cuts in aggregate demand through more restrictive fiscal and/or monetary policies, so as to adjust economic activity downward, to a level of capital utilization  $n''$  that is consistent with the scarcity of foreign

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<sup>1/</sup> Notice that, to the extent that the ex ante excess demand was not fully neutralized through the crowding out of investment, inflation would also have risen, so as to force domestic savings to adjust upward to meet investment demand.

Figure 4

# SAVING AND EXTERNAL GAP EQUILIBRIUMS





exchange. The equilibrium at  $E''$  was consistent with an external-gap interpretation of the crisis, in which output--constrained by foreign exchange--forced both savings and investment to adjust downward. 1/

Consider finally the case where adjustment uncertainty and lack of confidence exist. (The next section will explore the fundamentals underlying this case.) Assume, for now, that lack of confidence and adjustment uncertainty gave rise to a risk premium,  $\sigma$ , on both financial and physical domestic investments. Assume, also, for greater transparency of the argument, that there were no constraints on short-term capital flight, so that interest rate parity held:

$$r = r^* + \sigma, \quad (8)$$

where  $r^*$  was the international rate of interest. Equation (8) implies that, provided they were offered a risk premium  $\sigma$ , private agents were willing to hold their financial assets inside the country. Similarly, foreign lenders and investors in physical capital chose to reduce their investments unless they were also offered a premium, so that private investment demand and the supply of foreign loanable funds decreased as the level of risk increased:

$$i_p = i_p(\bar{r}, \bar{\sigma}) \quad (9)$$

$$F = F(\bar{\sigma}). \quad (10)$$

Assume now, again, that the pre-debt crisis equilibrium was  $E$  in Figure 5. If the path of domestic policies was viewed as inconsistent with the availability of foreign resources and, owing to systemic reasons, there was a sudden increase in the perceived risk,  $\sigma$ , there was, as in the previous case, a contraction in  $F$  and a shift of  $BP$  to  $BP'$ . However, at the same time that foreign lending was interrupted, domestic investors also perceived that the risk premium on domestic assets had increased. Therefore, both the demand for investment and the supply of savings for local uses shifted backward. The higher rate of interest and the higher risk reduced private investment, shifting leftward the  $IS$  curve at the same time that the  $BP$  curve moved. If the real exchange rate had adjusted, and if the shift of the  $BP$  curve had been equivalent to the shift of the  $IS$ , an equilibrium could have been reached again at point  $E'$ , which involved less investment and growth. However, if the  $IS$  shift was stronger, or there was simultaneously a strong fiscal contraction, the  $IS$  may then have shifted further upward, past  $IS'$ , all the way to  $IS''$ . In that case, even though the real exchange rate may have adjusted sufficiently, to  $e'$ , the lack of

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1/ Together with a depression, the downward resistance of some key relative prices, in particular the real wage, could also have led to an upward surge in inflation, sustained by monetary accommodation.

aggregate demand produced a Keynesian recession equilibrium at  $E'''$ , where the lower capacity utilization forced private savings down in order to meet existing investment demand. This situation, in which savings are determined by investment, depicts the confidence-gap scenario of the growth crisis. 1/

At that point, there was a current account surplus and external reserves tended to accumulate. Moreover, as it filtered through the money supply, the accumulation of reserves exerted a downward pressure on domestic interest rates. With perfect financial openness, interest rates must have remained pegged, however, and the excess money supply resulted in capital flight. At point  $E'''$ , a current account surplus can thus have coexisted with capital flight, as has been observed in several Latin American countries after the debt crisis. 2/

### III. Systemic Uncertainty and Coordination Failures

#### 1. A general adjustment cost model

Section II examined the macroeconomic implications of the confidence gap and adjustment uncertainty. This section will proceed one step further by exploring the sources of uncertainty and coordination failures in the debt crisis. In a context such as the one that followed the debt crisis, the preservation of growth, while maintaining low rates of inflation, requires a substantial cut in consumption and a significant change in relative prices--in particular a real exchange rate devaluation and a reduction in real wages. As these adjustments imply severe temporary income losses for some sectors, they carry with them high political and social costs. Given these costs, there are doubts and uncertainties about the ability of governments--given their political systems--to impose and sustain the type of fiscal and incomes policies required. This type of uncertainty leads investors to envisage the possibility that needed adjustments could be greatly delayed, giving rise to prolonged periods of high inflation, together with stop and go policies, and variable and unpredictable levels of

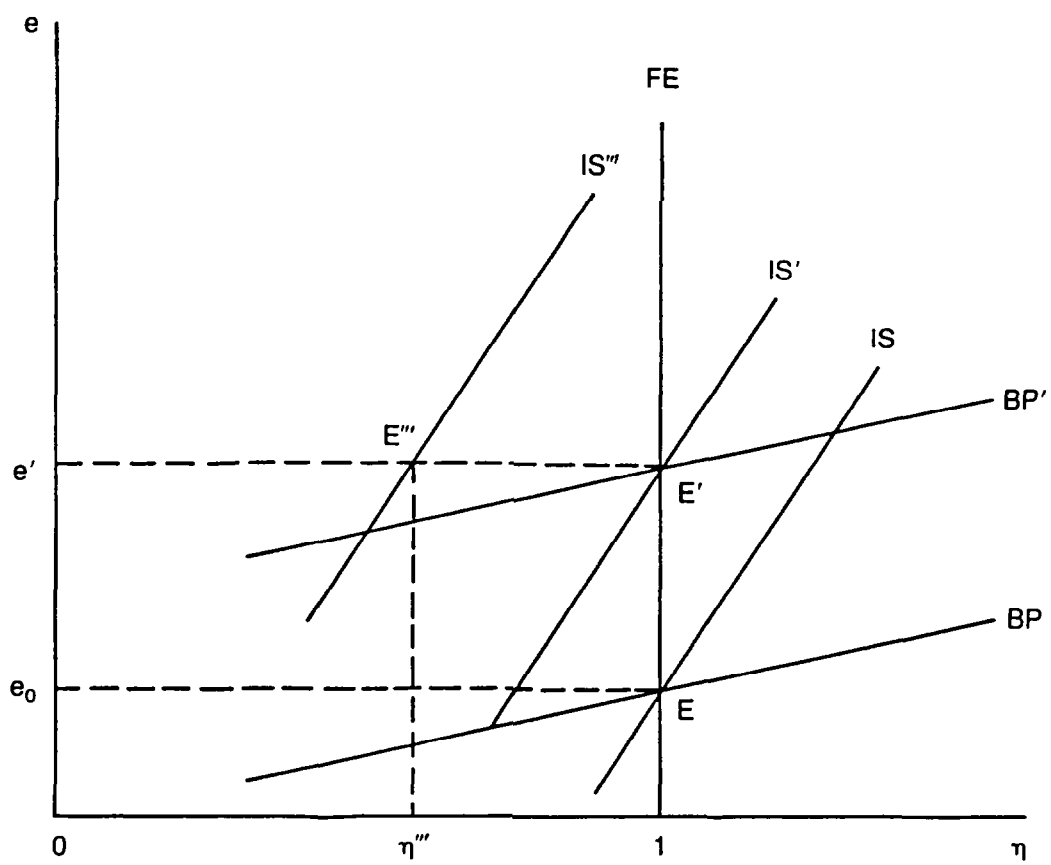
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1/ In this scenario, systemic risk can also lead to higher inflation, to the extent that a higher risk induces higher profit margins and, hence, with downward real wage resistance, stronger inconsistencies between ex ante claims. Also, in the presence of weak fiscal control, perceived risks of domestic asset taxation by the government--carried out through inflationary outbursts--can induce such high interest premia on domestic public debt as to render the fiscal debt burden untenable and, hence, can induce a self-fulfilling process of devaluation-cum-inflation. See Calvo (1988).

2/ Notice, also, that as long as the risk perception remains unchanged, the traditional policy mix recommendation, easy money-tight fiscal policy, can lead to capital flight and output losses, while the opposite mix can lead to capital inflows and output gains.

Figure 5

# INVESTMENT GAP EQUILIBRIUM







interest rates and real exchange rates. If the probability of such a protracted adjustment is thought to be high, the high uncertainty associated with the volatility of economic conditions will induce investors to reduce, delay, or cancel their investment plans. <sup>1/</sup> A collapse in investment, in turn, compounds the problem because, by reducing the supply response to the adjustment measures, it tends to raise adjustment costs. As the magnitude of the required cuts in demand is increased, additional measures are required to further reduce consumption and to lower real wages. Such an increase in the social cost of the adjustment makes it even more unlikely that it could be sustained over time. If a feedback effect of this sort is strong enough, it may result in a self-fulfilling vicious circle, since incipient crises can be magnified and become unmanageable, thus validating, ex post, the breakdown of expectations.

Uncertainty underlying the crisis would thus be of a "systemic" nature rather than "state-of-the-world" uncertainty, since it is linked to the behavior of the system itself rather than to an outside source of disturbance. While in the case of state-of-the-world uncertainty the reaction of the system to exogenous shocks is well known but the timing and nature of the shock itself is not known in advance, in the case of systemic uncertainty, the shock has already occurred but has thrown the system into a reaction range that has not been observed in the past and is therefore not known in advance. The reaction of the system depends on the reaction of each participant, and, in turn, each participant's reaction is a function of his expectations about other participants' behavior. This gives rise to the possibility of coordination failures and self-fulfilling expectations, as a crisis can be triggered by a small shock, or can even occur without any shock at all, if the economy is in a vulnerable state in which a small loss of confidence is sufficient to generate a collapse.

This systemic uncertainty interpretation can be formalized as follows. <sup>2/</sup> Let  $\hat{e}$  and  $\hat{c}$  be the required real exchange rate depreciation and reduction in domestic consumption, respectively, which are perceived to be needed to attain a successful level of adjustment. Let  $a$  be the adjustment cost, defined as the perceived short-term direct welfare loss

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<sup>1/</sup> The variability and unpredictability of relative prices, even in a context of a largely indexed economy, seem to have been one of the main deterrents to productive investment in economies experiencing high levels of inflation. See Section III.2 below.

<sup>2/</sup> Other models of investment and coordination failures can be found in Ize (1984), Eaton (1987), and Helpman (1988a). Obstfeld (1988) relates capital flight and coordination failures. Dornbusch (1988) presents a model with endogenous political uncertainty, which has somewhat similar features to the one presented here, although it does not envisage the possibility of coordination failures.

to society related to the implementation of the adjustment effort;  $a$  is a positive function of  $\hat{e}$  and  $\hat{c}$ , since these measures are geared to cut real wages and domestic absorption: 1/

$$a = a(\hat{e}, \hat{c}). \quad (11)$$

Let  $P$  then be the ex ante probability, as assigned by investors, that the political system will be able to withstand the pressures against the adjustment and therefore to sustain the fiscal, monetary, exchange rate, and income policies required to carry it out. Presumably, the larger the cost of successful adjustment, the smaller the probability that the political system will be able to sustain it; hence:

$$P = P(\bar{a}), \quad P \in [0, 1]. \quad (12)$$

Investors decide how much to invest in the country as a function of expected profitability,  $R$ :

$$I = I(R). \quad (13)$$

Let  $r$  be the expected return to capital in the case of successful adjustment, and  $\delta$  the cost associated with the unstable and depressed economic conditions that would prevail in the case of delayed or failed adjustment.  $r - \delta$  is then the expected return in that latter case, so that:

$$R = Pr + (1-P)(r - \delta) = r - \delta + \delta P. \quad (14)$$

Finally, it is postulated that the magnitude of the perceived adjustment effort increases as investment slackens. Lower investment in fixed capital implies lower future output, while a contraction of working capital investment reduces current output. Hence, for a given balance of payments constraint, the reduction of investment leads to lower current and future consumption. 2/ Moreover, lower investment also implies lower export capacity and, hence, lower exports for the

1/ It is implicitly assumed that an effectively carried out adjustment effort entailing an adjustment cost,  $a$ , will actually ensure success. Uncertainty related to the effectiveness of the measures and to the underlying economic theory is assumed away.

2/ It may be argued that lower investment can lead, in the short run, to higher consumption. However, this possible substitution between consumption and investment may not lower perceived adjustment costs, even in the short run, given that the income classes that can invest are generally not the ones that have been most affected by the crisis. On the other hand, the substitution between investing domestically and investing outside the country seems, in most cases, to have been much more important than the consumption-investment substitution.

same real exchange rate, or the need of higher real exchange rate depreciation to attain the same level of exports (which is needed to meet the import volume required by full-capacity output). Thus:

$$e = e(\bar{I}) \quad (15)$$

$$c = c(\bar{I}). \quad (16)$$

To solve this system, substitute equations (15) and (16) into equation (11) to obtain the adjustment effort as a decreasing function of investment:

$$a = a(\bar{I}). \quad (17)$$

Then substitute equation (14) into equation (13), and equation (13) into equation (17), to obtain the adjustment effort as a function of the probability of success:

$$a = a(I(r - \delta + \delta P)). \quad (18)$$

Equations (12) and (18) determine endogenously the level of adjustment and the level of systemic adjustment uncertainty. Equation (12) is the political side of the model, since it depends on participants' assessment of the systems' ability to withstand political pressures and to sustain the adjustment effort. <sup>1/</sup> Equation (18) is the economic side, which is based on the postulated behavioral and functional relationships. Together, they form a simple, dynamic system, which can be analyzed with the help of Figure 6.

Curve  $P(a)$  represents equation (12), the probability of successful adjustment as a function of the intensity of the adjustment, while curve  $a(I(P))$  represents equation (18), the required adjustment as a function of the agents' perceived probabilities of success. The location and slopes of the two curves depend on the nature of the underlying functions. In cases (a) and (b), the  $a(I(P))$  and  $P(a)$  schedules do not cross. Take first case (a), in which the  $a(I(P))$  schedule lies to the left of the  $P(a)$  schedule. Suppose that the initial ex ante expectation of success is  $P_0$ . The required adjustment effort needed, given the realized level of investment corresponding to  $P_0$ , is  $a_0$ . However, for a level  $a_0$  of adjustment, the subjective probability of success rises to  $P_1$ . By iteration, it is easy to see that in this case, no matter what the initial subjective probability assigned by investors to a successful

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<sup>1/</sup> Notice that it is not the willingness of the government to carry out the adjustment effort that is questioned here, but its ability to do so. In contrast then with most of the existing credibility literature, the key issue here is not time inconsistency and dishonesty but simply political strength and ability to follow through on policy announcements. For a recent excellent survey of the credibility literature, see Blackburn and Christensen (1989).

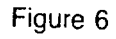
outcome is, the system should converge to  $P = 1$ , that is, full certainty about success, which means that, indeed, the adjustment will be eventually fully carried out. There is, in this case, a "credibility surplus," since at any level of the adjustment effort, the perceived probability of adjustment success is higher than the one actually required for success. If investors form their expectations rationally, they will perceive from the start that adjustment will be successful and upgrade their initial probability of success,  $P_0$ , directly to  $P = 1$  and carry out their investments accordingly. The crisis is then fully avoided, as economic agents never lose confidence about the ability of the political system to withstand pressures and to rapidly achieve a successful adjustment. <sup>1/</sup>

Suppose, on the other hand, that there is a "credibility gap" as the political and social system is perceived to be too weak to be able to fully implement a successful adjustment. This is depicted in (b), where the political schedule,  $P(a)$ , lies to the left of  $a(I(P))$ . This now implies that, for all levels of  $(a)$ , the probability of success needed to generate investments consistent with that level of adjustment is always higher than the subjective probability of success that investors attach to that level, given their perceptions about the political structure. By a similar reasoning, as in the case of (a), a rational investor would then immediately come to the conclusion that the probability of rapid adjustment is zero and act accordingly. The probability of success then drops to zero and adjustment will be expected to fail with full certainty.

But consider now the intermediate cases, where the political and economic schedules intersect. In case (c), the intersection is at  $E^*$ , with the economic curve,  $a(I(P))$ , steeper than the political one. Consider first, for greater clarity, the extreme case in which the  $a(I(P))$  schedule is vertical, so that the economic response is invariant to the probability of successful adjustment. In this case, the cost of adjustment,  $a^*$ , is known with certainty. However, at  $a^*$ , the political system may not be able to carry out the adjustment and  $E^*$  is a stochastic equilibrium, which, by the same reasoning as before, can be checked to be stable, that is, if disturbed, the dynamics of the model forces its convergency back toward  $E^*$ . Rational investors should perceive this and, by updating immediately the ex ante probability of success to  $P^*$ , should commit a level of investment that would require an adjustment effort,  $a^*$ . A similar reasoning can be extended to any configuration in which  $a(I(P))$  is steeper than  $P(a)$ . Because adjustment uncertainty arises here from doubts about the ability of the political system to resist pressures, it can be defined as political uncertainty.

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<sup>1/</sup> This case of immediate and relatively painless adjustment could perhaps apply to some of the most successful Asian countries, which adjusted so rapidly that they experienced practically no crisis at all (see Sachs (1985)).





Of course, the higher the intersection point of the two curves is, the better the solution becomes because it implies the need for smaller adjustment and a higher probability of success.

Consider finally case (d), in which the sensitivity of the investment response to changes in the perceived probability of success is high.  $P(a)$  is steeper than  $a(I(P))$ . Consider first again the extreme case in which the  $P(a)$  schedule is vertical, so that it is known that below a threshold  $a^*$  the political system will carry out the adjustment with certainty, while above  $a^*$  it will not. Although  $E^*$  is a possible equilibrium, it would be unstable and, if disturbed, there will be forces that would move the equilibrium away from it. In this case, there are two possible rational equilibria, one successful,  $E_S$ , and one unsuccessful,  $E_F$ . Uncertainty is caused by the inability of participants to predict other participants' behavior and to coordinate their actions. It can thus be defined as coordination uncertainty. If an optimistic "mood" is felt to prevail among investors, each investor may decide to go ahead and invest, reducing the actual adjustment needed, increasing the actual and perceived probability of success, and leading eventually to full adjustment. If a bearish mood is felt instead, there will be no investment, the needed effort increases, the probability of success falls, and, eventually, the program fails.

Although there is no purely objective way to form expectations in this case,  $P^*$  can nevertheless provide objective information. If  $P^*$  is felt to be close to zero, each individual investor knows that unless all other investors are extremely pessimistic, adjustment will succeed. Inversely, if  $P^*$  is close to one, adjustment will fail unless all investors are ex ante convinced that it will succeed.  $P^*$  can thus be interpreted as a measure of the degree of vulnerability of the economy. An increase in  $P^*$  raises vulnerability by reducing the range of ex ante  $P$ 's that would lead to successful adjustment, therefore increasing the probability of a sudden shift in confidence.

## 2. Waiting

The model can easily be extended to include the effects of investment irreversibilities and waiting. Suppose that investors can opt to keep their liquid assets out of the country and to wait for uncertainties to clear up. In particular, consider a two-period horizon, and suppose that the government's ability to carry out its reforms becomes known after one period. Assume, also, to simplify the notation, that the discount rate and the rate of return abroad are zero. An investor who commits his funds before knowing the government's actual strength faces expected ex ante returns  $r - (1-P)\delta$ , in the first and second periods. However, an investor who keeps his funds abroad during the first period and only repatriates them in the second period under a successful adjustment outcome faces expected ex ante returns of zero in the first period and of  $P_r$  in the second. Average expected ex ante returns are therefore  $r - (1-P)\delta$  in the first case and  $\frac{P_r}{2}$  in the second.

Assume that investment in the first period is a function of the spread between the two options  $r(1-P/2) - (1-P)\delta$ , which can also be written:  $(1-P/2) [r-\delta+(P-\sigma)\delta]$ , where  $\sigma = P(1-P)/2$  is the variance of the binomial distribution. When this expression is compared with equation (18), it should be readily apparent that waiting adds a risk premium factor,  $\sigma\delta$ , which increases with the level of uncertainty. As shown in Figure 7, this factor bends the economic reaction schedule in such a way that  $P^*$  is lowered in the case of political uncertainty, or raised, in the case of coordination uncertainty, lowering investment in the first case and, in the latter case, increasing the vulnerability of the economy to real or expectational shocks.

### 3. A systemic interpretation of the debt crisis

Based on this model, the debt crisis can then be interpreted as: (1) a gradual right-hand shift of the economic response schedule, owing to a growing foreign debt burden, higher world interest rates, and worsening terms of trade, generally unmatched by a parallel increase in export capacity; and (2) a gradual left-hand shift of the political schedule, as rapidly expanding public expenditures, unmatched by a similar increase in revenue, led to a perception of fiscal laxity and inadequate budgetary control, hence projecting images of weak governments. In a situation in which investors' behavior was sensitive to a deteriorating business climate, coordination uncertainty dominated. As  $P^*$  moved upward, it eventually reached the point at which a confidence crisis erupted. Investment collapsed as the economy switched abruptly to the pessimistic equilibrium.

In Mexico, however, capital flight preceded the collapse of bank lending and private investment by one to two years. This apparent contradiction with the simultaneity implied by a strict interpretation of the model may be reconciled in several ways. Explanations have been given by Khan and Haque (1985) and by Ize and Ortiz (1987), based on expectations of government intervention or asymmetric risk exposure. <sup>1/</sup> Hedging behavior may provide an additional rationality-based explanation, as transferring liquid assets out of the country was a virtually riskless and costless operation, while slowing down investment could have implied significant profit losses under a favorable outcome.

It also seems fair to recognize, however, that investors may have been taken by surprise, to a degree that depended upon their geographical location, by the unfolding of events, as one type of

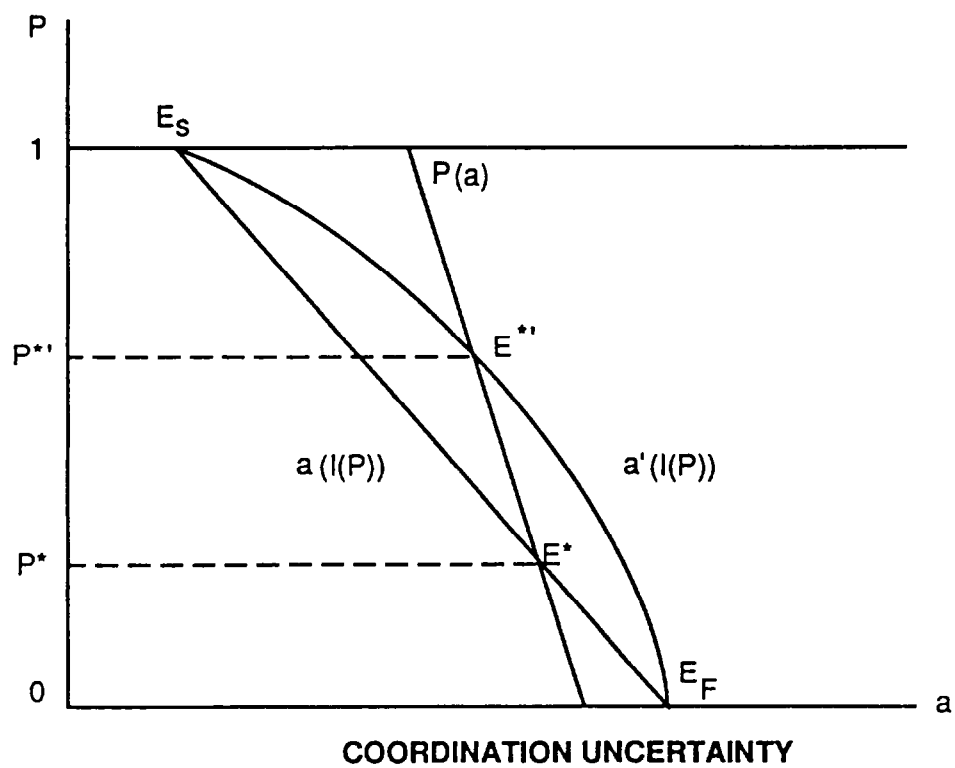
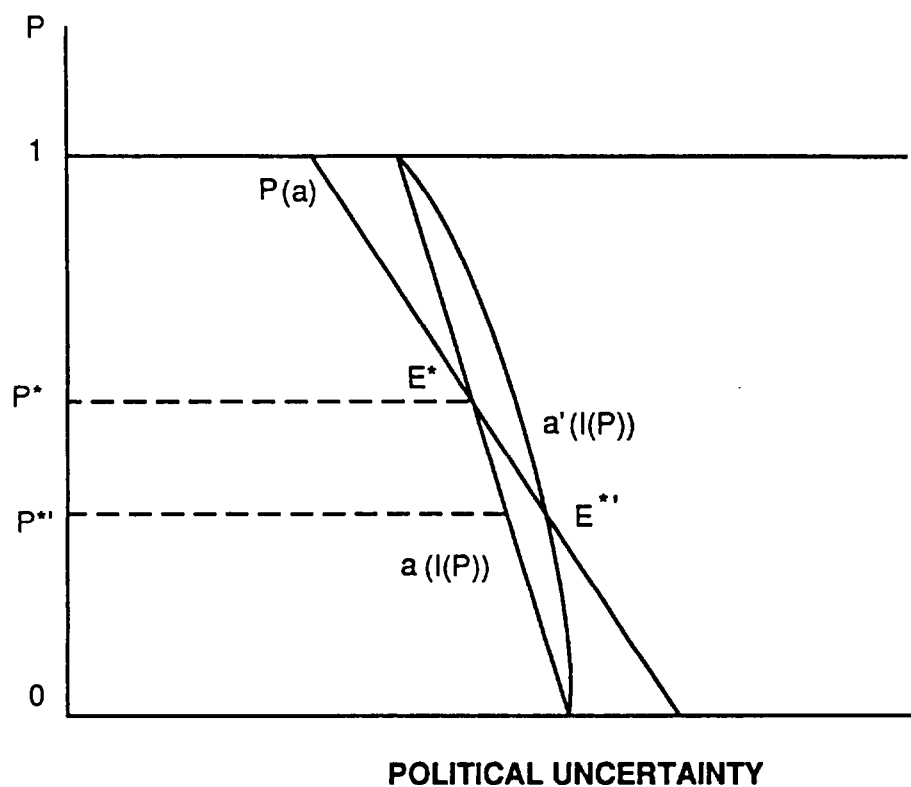
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<sup>1/</sup> Khan and Haque's (1985) explanation for the simultaneity of capital flight and investment is that entrepreneurs expected the government to intervene to avoid private bankruptcies, hence absorbing the risks incurred in physical investment. Ize and Ortiz (1987) explain the simultaneity of capital flight and foreign borrowing as the result of an asymmetry of exposure between domestic and foreign holders of public debt.



Figure 7

# ADJUSTMENT UNCERTAINTY WITH WAITING





hedging action eventually caused another, in a sort of domino sequence. Capital flight eventually forced foreign banks to stop lending, and the cessation of lending in turn led to a collapse of investment. <sup>1/</sup> Although few investors may have expected a crisis of such magnitude in 1980-81, hedging against a more limited crisis gradually brought about the conditions that led to the collapse of 1982 and to the persistence of the crisis that followed.

#### IV. Dealing With Adjustment Uncertainty

##### 1. A policy typology

In order to raise investment and growth, in the framework presented above, it is necessary to raise the probability of successful adjustment. In the case of coordination uncertainty, a discrete switch from  $E_s$  to  $E_F$  can be attained if investors' mood improves, or if they can agree simultaneously to alter their behavior. A reflow of capital flight, together with a renewal of bank lending and a resumption of private investment, is not likely to occur spontaneously, however, unless motivated by a change in the fundamentals underlying the model.

A change can occur in four basic ways. First, the political schedule may be shifted to the right, either by changing the public's perception about the government's decisiveness and strength, or by lessening political opposition, particularly by co-opting into the adjustment process some of the sectors that may be more severely affected or whose support is most needed for the adjustment to succeed <sup>2/</sup> <sup>3/</sup> (Figure 8-a). Although such a change, of course, is

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<sup>1/</sup> The latest step in this domino sequence seems to have been a flight of human capital out of heavily indebted countries.

<sup>2/</sup> The sectors that are most affected by the adjustment need not necessarily coincide with the sectors that have the most political power to block adjustment policies. It may be politically easier, however, to enforce these policies if society perceives them to be "fair," particularly if they do not excessively affect the poorest segments of the population.

<sup>3/</sup> A gradual political consensus for adjustment policies seems to have built up in many indebted countries since the crisis. Hyperinflation has in some cases greatly raised the cost of not adjusting, thereby reducing, in relative terms, the cost of adjustment. On the other hand, the unfavorable experiences of countries that have delayed their adjustments seem to have acted as a clear adverse example that has greatly reduced the apparent attractiveness of alternative policies.

largely achieved through plain politics, adequate fiscal management may also play an important role in achieving these goals. This issue is taken up below. 1/

A second class of policy actions is designed to shift the economic schedule leftward (Figure 8-b). This can be achieved again in two ways: by increasing the investment response to the crisis, acting on equation (13), and by reducing the cost of adjustment at a given level of investment, hence acting on equation (17). The first subset comprises policies that stimulate private investment by raising its profitability, for example increases in public expenditures in areas where public and private investment are complementary; 2/ and policies that raise the flow of total investment for a given level of profitability, in particular by raising the public share of total investment or by removing barriers to foreign investment. The second subset includes structural reforms that raise supply by improving resource allocation, in particular, privatization, public sector reorganization, and deregulation. It also includes policies that deal with the debt issue by ensuring a steadier flow of external finance or by facilitating debt reduction operations. Broad external support thus makes an obvious contribution toward successful adjustment.

The last two subsets of policies are most useful in the case of coordination uncertainty. They work by rotating the economic and political schedules in such a way as to lower  $P^*$ , even though they may raise the cost of adjustment or reduce political strength for high ex ante  $P^*$ 's (Figures 8-c and 8-d). These are a rainy day type of policy that may be relatively less efficient or more costly under successful scenarios, but that make the economy less vulnerable, by lowering  $P^*$ , than "blue sky" policies that would otherwise be optimal under favorable circumstances. One example of a blue sky policy is an across-the-board liberalization. Such policies may be harmful at an early stage of the adjustment because they can raise excessively the economy's vulnerability to speculative attacks. In contrast, one example of a rainy day policy is the provision of insurance mechanisms that can cut down losses to participants in bad outturn scenarios. Contingent agreements and limited indexation arrangements, particularly in the debt and financial areas, belong to this category. However, general indexation is probably not desirable because it may not be conducive to a sustainable reduction

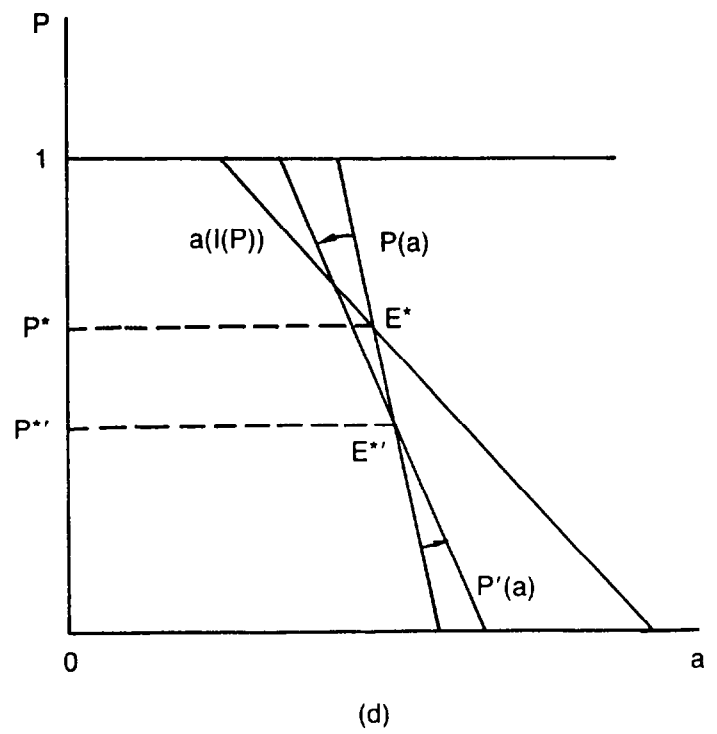
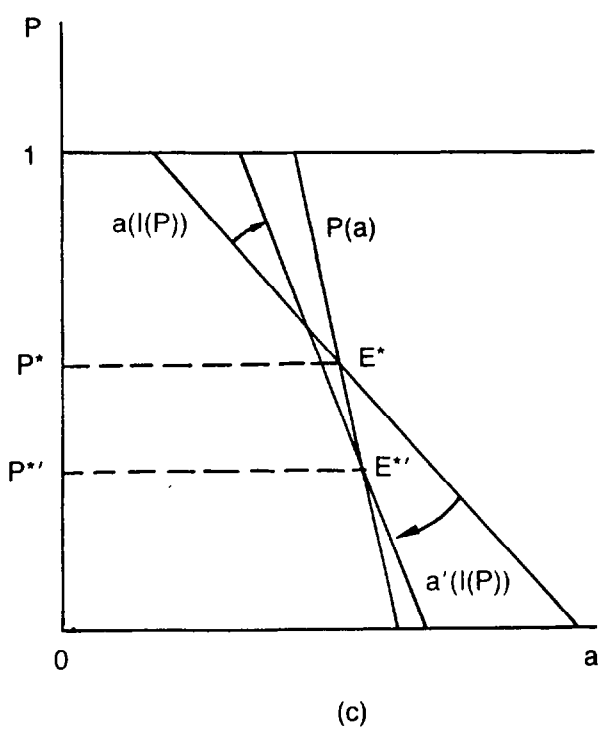
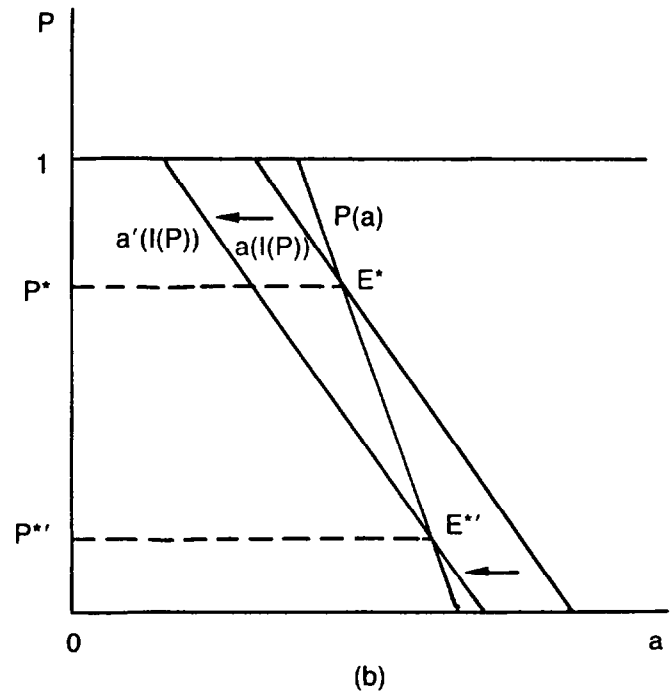
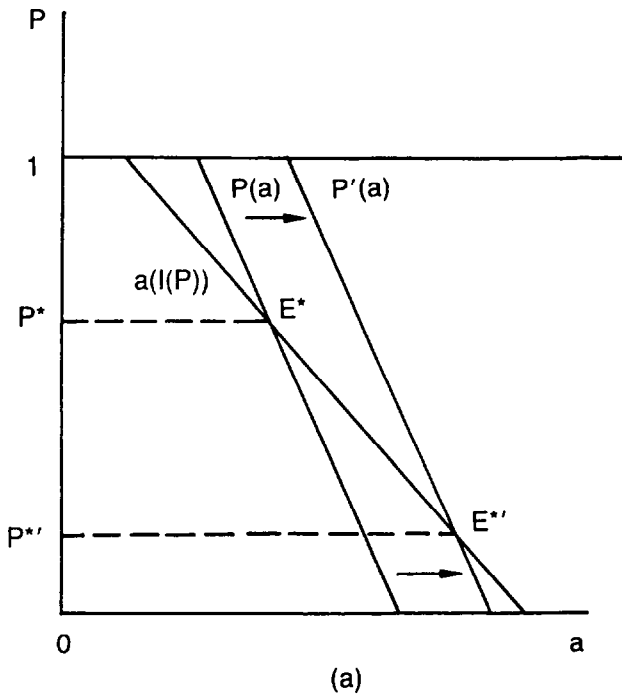
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1/ The imposition of price and wage controls in early heterodox attempts to control inflation may also have initially had a similarly favorable impact on credibility by enhancing the government's leadership image. However, the lack of accompanying policies in other areas, particularly in the fiscal area, often eroded what was initially achieved.

2/ On the complementarity of public and private investment, see Blejer and Khan (1984).

Figure 8

# POLICY SHIFTS UNDER COORDINATION UNCERTAINTY





of macroeconomic uncertainty. In fact, the opposite seems to have occurred in several recent experiences with indexation. This issue is also taken up in greater detail below.

## 2. Fiscal adjustment

Section II above showed that, in an investment-gap situation, as the private sector's willingness to invest falls owing to adjustment uncertainty, an increase in public savings through a fiscal contraction may not, by itself, increase investment and growth. Two obvious questions then arise: (1) under these circumstances, should fiscal adjustment proceed at a different pace than in the more traditional overheated economy; and (2) how can fiscal adjustment be better designed and more appropriately attuned to the macroeconomic context of a growth crisis of this type?

Possible answers to these questions must start with the recognition that in a confidence-gap situation, fiscal adjustment should achieve several other objectives, aside from the traditional ones. Usually, fiscal policy should aim, in the short run, at equilibrating macroeconomic accounts and avoiding the crowding out of private investment. The objective of such policies would be, therefore, to assure that the flow of public savings evolves in a predictable way in order to allow for a stable flow of private investment, given a known flow of foreign savings. In contrast, in the context of a confidence gap, the objectives are derived from the need to rebuild confidence and to reduce adjustment uncertainty. This could be done by (1) signaling in advance what the government's future behavior will be; and (2) providing, through fiscal intervention, ways to ease off unforeseen stumbling blocks along the adjustment path. Specific illustrations of these alternative aims can be given using the uncertainty framework developed in the previous section.

Starting with the political side of the model, it was suggested above that governments could shift the political schedule P(a) to the right, and so raise the likelihood of success, by reinforcing the public's perception of the political system's ability to resist pressures and to adapt itself rapidly to the constraints imposed by adjustment. In that context, a strong up-front fiscal adjustment may be needed to send the right signal, even though it may temporarily result in excessive demand contraction.

However, for the credibility gap to be closed, it is not just the magnitude but rather the quality of the adjustment that matters.<sup>1/</sup> It is easier, in the short run, to reduce the deficit through a cut in capital expenditure than to restructure the public sector and to cut its labor force, but political strength and the willingness to adjust would

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<sup>1/</sup> On the importance of quality in fiscal adjustment, see Tanzi (1989a).

be perceived by the public as much weaker in the former case than in the latter. <sup>1/</sup> Therefore, fiscal measures that do not project a strong determination to change the sources of budgetary imbalance are not likely to shift the political curve enough to assure success. Moreover, policies that cut down productive investment can reduce the supply response of the economy, hence shifting the economic schedule to the right. If so, vulnerability may end up rising rather than falling.

Up-front tax reforms and expenditure restructurings may instead be a good way to signal the government's strength and to gain credibility, since they often involve substantial political and economic setup costs. Fiscal reforms, once in place, would also tend to reduce the perception of financial risk, since they would presumably result in an improved fiscal situation, which should reduce the likelihood of a government needing to default on its obligations or to confiscate private assets in order to close its accounts. <sup>2/</sup> Also, by rapidly clearing up uncertainties about the nature and level of the taxes that will be required to restore the fiscal balance, and by committing itself and announcing at an early stage the new rules of the game, the government can substantially reduce perceived postadjustment risk on physical and financial investments, hence helping restore confidence and growth.

In the process of reinforcing private sector confidence, there is also a role for policy announcements. However, they could have real impact only to the extent that they are credible. There is, in fact, a certain degree of risk involved in the attempt to manage perceptions through announcement effects. Although the pronouncement of ambitious targets may affect agents' behavior in a way that reduces the severity of the measures needed--and, therefore, that increases the likelihood of success--the cost of failure is probably higher than in the absence of the announcement, as future adjustments would be received with more skepticism and, therefore, would have to be even more dramatic to be credible. <sup>3/</sup> Therefore, governments that undertake stronger and

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<sup>1/</sup> It should nevertheless be recognized that an in-depth fiscal restructuring requires planning and time. In the presence of an unexpected shock, it may thus be unavoidable to carry out at first a relatively "inefficient" fiscal adjustment. It is important, however, to let the public know immediately that a deeper restructuring is underway and to proceed as rapidly as possible to carry it out.

<sup>2/</sup> This applies in particular to domestic public debt, which can be repudiated through a sudden burst of inflation following a jump depreciation of the exchange rate. See Ize and Ortiz (1987).

<sup>3/</sup> In terms of the adjustment model presented above, policy announcements may shift the political curve to the right, but a disappointment (real or perceived) can move the curve back to the left in the future, over and above its initial position. Governments with a history of failed adjustment attempts are thus caught in a credibility trap from which it may be quite difficult to emerge.



politically more sensitive policies could gain by announcing them, but only if they are reasonably certain that they can actually resist pressures to reverse these policies. Thus, while it can pay to take calculated risks and to gamble on success, ex ante odds should be favorable enough to make it worthwhile.

Beyond helping improve the financial outlook of the public sector and convey an image of strength and leadership, fiscal adjustment can serve a key additional purpose by providing a last-resort limited insurance mechanism against excessive sectoral losses by partially and temporarily compensating the losers in the adjustment process, when it is needed to ensure their continuous support. For example, it may be necessary to impose a wage freeze or to adopt some other measure that reduces real wages in order to speed up the adjustment process and to reduce its macroeconomic costs. However, if the burden of adjustment being borne by workers becomes--or is perceived as--politically untenable, it may become necessary to intervene through the budget by granting temporary and selective tax cuts or by subsidizing some basic commodities. While the alternative of allowing generalized wage increases to take place would, in all likelihood, exacerbate inflationary expectations, a limited fiscal intervention that compensates selected sectors could insure the continuous support of all participants without jeopardizing the ultimate objective of the program. The same sort of argument also indicates the need to fashion fiscal cuts so as to avoid a large increase in adjustment costs for those income classes that are already most affected by the process; otherwise, short-term fiscal gains may end up being counterproductive by making the political system excessively vulnerable. 1/

Similarly, sector-specific policies that directly encourage private investment, like tax breaks and other fiscal incentives, may also be desirable if they are aimed at sectors with strong externalities, in particular, those sectors that would contribute most to alleviating foreign exchange shortages. Accelerating the building up of basic infrastructure would be another way to directly encourage private investment, provided that it complements private investments by raising their ex ante profitability. The provision of adequate public services and the accumulation of human capital have been shown to have a strong crowding-in effect of this sort. Yet, public capital spending and spending in education have too often been deeply cut after the debt crisis. Also, privatization programs can often be important in signaling the public sector's willingness to disentangle itself from nonstrategic productive sectors, thus leaving an open and level field for private sector investment and raising the perceived profitability of private projects. However, given the limited private sector willingness to invest during the adjustment period, a policy of temporarily

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1/ Skillful political management is clearly needed, however, to avoid a race by competing groups for the most favorable fiscal treatment that could end up satisfying no one while being fiscally quite costly.

maintaining minority public shares in privatized enterprises may end up being more effective and fiscally less costly than one of selling the enterprises off at a loss completely and immediately. Increased minority participation of the public sector in other sectors could, in fact, be a desirable way to enhance private investment by sharing its risk.

In all of these examples, fiscal intervention and publicly provided compensatory mechanisms will bear fruit only if the financial situation of the government is perceived to be healthy enough to absorb additional fiscal burdens without increasing insolvency risks and becoming inconsistent with the other components of the adjustment package. <sup>1/</sup> It should be emphasized again, therefore, that large up-front fiscal adjustment is an essential precondition for generating an adequate margin of action for fiscal intervention.

### 3. Stabilization or indexation?

Stable prices can clearly reduce uncertainty. However, to be successful, an outright stabilization attempt requires the implementation of consistent and credible current and future macroeconomic policies. If credibility is already low, this objective may be difficult to attain. A vicious circle may then emerge, since price fluctuations generate a loss of confidence, which, in turn, makes stabilization attempts more difficult precisely because they are not credible. To break this cycle, an argument can be made in favor of indexing some key macroeconomic prices, notably the exchange rate and the interest rate. <sup>2/</sup>

As the argument goes, stable real macroeconomic prices that are achieved through indexation may effectively shield the supply side of the economy from the deleterious incidence of uncertainty, while unresolved ex ante macroeconomic inconsistencies (such as conflicting sectoral demands and misaligned relative prices) can be resolved ex post through inflation. In turn, high output growth made possible by a continuous expansion of supply will eventually resolve existing

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<sup>1/</sup> Fiscal policies that were inconsistent with the overall adjustment program have been often pointed out as the cause of adjustment failure. Notable examples are the collapses of the exchange rate-based programs in the Southern Cone in the late 1970s and of the heterodox plans of 1985-87 in Argentina and Brazil. It is possible that, although some of the measures in these programs initially shifted the economic curve to the left, the lack of consistency of the fiscal component and the high cost that would have been entailed to correct it ultimately also displaced the political curve to the left, largely reducing the probability of success.

<sup>2/</sup> On recent empirical and theoretical contributions to the indexation literature, see Williamson (1985), Fisher (1986), and Fisher and Summers (1989).

inconsistencies and allow for a relatively painless reduction of inflation over time. This is achievable because (1) in the fiscal area, higher GDP and revenue growth will facilitate the adjustment by allowing for a rapid reduction of the deficit-to-GDP ratio without requiring tax rate increases or painful cuts in the absolute levels of services provided; and (2) supply expansion and productivity increases will facilitate dealings with trade unions and the imposition of wage ceilings that do not imply excessive explicit real wage losses.

The validity of these arguments in favor of indexation, however, rests on two basic premises:

(1) the level of inflation, per se, is relatively neutral with respect to the profitability of investment; although inflation is known to be strongly associated with higher relative commodity price variability, the microeconomic uncertainty brought about by such relative price fluctuations is assumed to be less damaging for investment than the macroeconomic uncertainty attached to the variability of some key macro prices; and

(2) although, under indexation arrangements, inflation may be more difficult to reduce, it can be maintained within a stable zone with a reasonably low upper bound.

These two premises could, in fact, be easily violated. High inflation rates are rarely investment neutral. A clear first example is in the financial area. Sharp price increases have generally been observed to lead to a severe shortening of the maturity range of financial instruments, as increased microeconomic uncertainty puts a higher premium on liquidity. The longer-term financial instruments are therefore more heavily penalized, or tend to disappear altogether. This makes it more difficult to obtain appropriate financing for long-term projects, increasing costs and reducing investment profitability. This potential impact of high inflation on investment, therefore, cannot be overlooked. <sup>1/</sup> On the other hand, higher inflation has been shown to raise--quite sharply--the variance of relative prices at the macroeconomic level, independently of whether the main macroeconomic prices, exchange and interest rates, and even the prices of basic publicly supplied commodities are indexed or not. As input costs and other relative prices become more uncertain, the risk premium demanded by firms on their return on investment will tend to rise, hence lowering investment.

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<sup>1/</sup> Besides discouraging investment, the increased demand for liquidity forces governments to reduce the average maturity of their debts or to raise the premiums they pay on longer-term instruments, thereby increasing financial volatility or worsening the fiscal situation.

The indexation argument also requires that inflation takes care, ex post, of temporary sectoral, fiscal, and relative price ex ante inconsistencies without exploding, that is, without reaching hyperinflationary levels. But this is not always the case. Given reasonable values for the cost elasticity of the demand for money, high inflation has generally resulted in demonetization, requiring higher and higher rates of inflation in order to obtain the same inflation-tax revenue. This has been particularly true in countries with open financial markets, where the public can easily substitute domestic currency for foreign currency. Furthermore, in the presence of widely indexed financial investments, the public rapidly learns to use short-term bonds as quasimoney, reducing accordingly its demand for nonindexed money. On the fiscal side, recent experiences in high inflation countries have shown that indexation of conventional taxes has been generally lagging, causing real tax revenues to fall substantially with inflation. If so, the maximum of the overall revenue Laffer curve may be already reached at very low levels of inflation, and the revenue at that point may be too small to cover significant fiscal disequilibria at a sustainable inflation rate. 1/

In addition, for inflation to correct the relative price inconsistencies implied, for example, by a real wage that is too high for equilibrium, the frequency of wage adjustments needs to remain low and the adjustment mechanism needs to be backward looking. 2/ It is often difficult for governments, however, to resist pressures for more frequent indexation and for a reduction of indexation lags, particularly when other macroeconomic prices, such as the exchange rate or the interest rate, are more tightly indexed. In practice, what often occurs is an unhappy compromise in which wage indexation is accelerated while the indexation of other key prices--including the interest rate and the prices of government-supplied commodities--is slowed down, frequently through manipulation of the coverage and collection periods of the official price index used for indexation. As a result, inflation

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1/ However, higher inflation also often leads to lower real public expenditure, when expenditure appropriations are made in nominal terms and actual spending takes place a few weeks after the appropriations are freed by the Treasury. In this case, inflationary erosion has an automatic stabilizing impact by reducing the actual purchasing power of budgetary allocations. However, as a whole, real taxes seem to fall generally faster than real expenditures, and the net fiscal revenue effect of higher inflation has therefore often been very small or negative, leaving unresolved the competing claims for resources between the private and the public sectors.

2/ On the other hand, the use of backward-looking wage indexation mechanisms becomes self-defeating if the government attempts to stabilize prices, since, with falling inflation, real wages rise. It is often quite difficult at this point to convince trade unions to switch to a forward-looking mechanism, as workers feel, perhaps justifiably so, that they have been cheated.

accelerates, while, at the same time, the basic macroeconomic prices that were meant to remain stable in real terms start, in fact, to lag in a partially unpredictable way.

Indexation has also complicated macroeconomic management and has led, in practice, to a total loss of nominal anchors, since money starts to accommodate passively the rhythm of inflation; and public budgets, which are initially readjusted automatically for inflation, end up being indexed as well. In such a situation, the rate of inflation can easily become indeterminate. In a situation of high and accelerating inflation, firms end up setting their prices according to their expectations of other prices in the economy rather than according to their actual cost changes. When this occurs, all anchors are lost and inflation starts to drift to wherever expectations push it. In particular, if inflation has been on a rising trend, it will continue to rise. 1/ 2/

The assumption that indexation can resolve--at least for some time--underlying macro inconsistencies without leading fairly rapidly to exploding inflation rates is therefore largely questionable. The risk of running into hyperinflation introduces then an additional source of adjustment uncertainty, which may well offset the gains obtained in holding steady some macroeconomic prices. As inflation accelerates, its microeconomic costs eventually become too high to be sustainable, and the public comes to expect a stabilization package. Whether the package is strictly orthodox or has some heterodox features, it is bound to severely affect the perceived profitability of investment because it introduces expectations of falling output, possibly appreciating exchange rates, compressed profit margins if price controls are used, and in all cases an uncertain probability of eventual success. Thus, despite indexation, the threat of future stabilizations may continue to loom behind investment decisions, or it may actually be intensified. Therefore, indexation and other mechanisms that help governments to "live with inflation" and to postpone the necessary fiscal and relative price adjustments constitute a short-run medicine that can hamper substantially the longer-run prospects of the economy. For that reason, it does not seem to be a worthy path to follow in the effort to restore sustained growth.

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1/ In such situations, revenue from the inflation tax ceases to be the residual parameter that adjusts to equilibrate the fiscal accounts, determining in the process the rate of inflation. It is, in fact, the rate of inflation, determined by drifting expectations, that sets the value of the inflation tax, and real borrowing from the private sector adjusts residually to close the fiscal accounts.

2/ Furthermore, if excessive inflation is expected to lead to a price freeze, firms will tend to raise their prices preventively, setting in motion an unstable upward inflationary spiral that will often end up, in a perfectly self-fulfilling manner, with a generalized freeze.

Indexation may be useful, however, in a more limited sense as an insurance mechanism for some transactions, particularly financial ones. In a situation of uncertain future prices and exchange rates, and, in particular, in the context of stabilization programs, indexed financial instruments eliminate the risk of an abrupt loss. That risk would otherwise be translated into excessively high ex post real interest rates if price stabilization turned out to be successful and achieved better-than-anticipated results. In this scenario, high ex post interest rates act as a short-run tax on investment and raise the burden borne by debtors, to the point of possible bankruptcies in the case of private debt, and of fiscal insolvency or unsustainable compression of noninterest expenditure in the case of public debt. Indexed instruments can, in theory, prevent this problem. 1/ In practice, however, recent experiences have shown that governments have not generally been successful in preserving financial indexation in the context of stabilization programs. One reason is that policymakers, who are concerned about engineering a clean break in expectations, feel that maintaining indexation would be self-defeating. This is, however, a dangerous bet, as the fiscal cost of eliminating indexation in the context of low credibility can jeopardize the package from the start. 2/ Another reason has been organized-labor opposition to packages that would insure financial wealth holders but at the same time leave wage earners exposed to losses. 3/ Finally, fears of dollarization and currency substitution, in the case of dollar-indexed instruments, seem to have also played some role. 4/

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1/ The use of indexed debt is suggested in Calvo (1988) in the context of a model in which expectations of high inflation turn out to be self-fulfilling because of the fiscal costs associated with high interest rates.

2/ The fiscal costs of deindexation can be particularly high when it includes deindexing tax payments.

3/ The rationale for labor opposition must be based, however, on purely political grounds, since labor in general should eventually benefit from financial indexation because such indexation should lead to higher investment and lower supply contraction. Furthermore, in the successful stabilization scenario, the transfer of resources from taxpayers and public-good beneficiaries to financial wealth holders may end up being extremely regressive anyhow.

4/ Another reason for avoiding indexed instruments is a practical one. There are operational difficulties in offering instruments with sufficiently short maturities to meet the public's strong preference for liquidity in the context of stabilization uncertainty. Using the domestic price level as an index runs into informational constraints, while using the financial exchange rate requires, to ensure liquidity, credible government intervention to stabilize the rate.

4. Should liberalization be postponed?

Although there is no consensus on the subject, it could be assumed that trade and financial liberalizations have a positive steady-state impact on growth. <sup>1/</sup> Even in the short run, it is conceivable that liberalization could induce efficiency gains and, by raising supply, could reduce adjustment costs and facilitate the adjustment. On the other hand, it is also possible that early liberalization increases uncertainty by making the economy more vulnerable to shifting moods and speculative pressures. It could thus be asked what is the best timing for a liberalization program, in the context of systemic adjustment uncertainty. Is liberalization a useful tool for adjusting successfully?

A comprehensive treatment of this issue goes beyond the scope of this paper, which will limit itself to outlining a few thoughts. <sup>2/</sup> First, for generalized liberalization to have significant early returns and, hence, to facilitate the adjustment process by expanding supply, private investment should expand quite rapidly to exploit newly offered opportunities. As credibility and confidence are essential preconditions, it is not clear that across-the-board liberalization is justified at an early stage of the adjustment process, when uncertainty is still very high. On the contrary, early liberalization could backfire and render the situation more volatile if, by reducing hedging costs and facilitating speculative behavior, it turns out to be destabilizing. Trade liberalization can lead to speculative purchases of imported goods, which, by exhausting scarce foreign reserves, can force the government to revise its policies. <sup>3/</sup> Similarly, financial liberalization can lead to capital flight and can exert pressure on the exchange rate and on domestic prices, thus invalidating stabilization attempts. Because they can make the economy more vulnerable, by lowering the cut-off point at which pessimistic expectations become self-fulfilling, overly ambitious liberalization programs may be unadvisable in the early stages of the adjustment process, even though liberalization would otherwise make perfect economic sense in a steady-state situation.

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<sup>1/</sup> See, for example, Rodrick (1988), and the literature on growth with increasing returns to scale, in particular Helpman (1988b).

<sup>2/</sup> A more formal analysis of this issue can be found in Calvo (1987), Froot (1988), and Rodrick (1989). On the issue of timing and sequencing of trade liberalization, and for a review of recent experiences, see Michaely, Choksi, and Papageorgiou (1989).

<sup>3/</sup> This is particularly crucial in a stabilization context where the exchange rate has been frozen in order to break inflationary expectation, making the government unable to use the exchange rate to equilibrate the current account.

Selective and targeted liberalization could be useful at an early stage of adjustment, however, particularly in the trade area. In the context of an announced stabilization program, liberalizing some sectors where price inertia is particularly important can help break inflationary expectations. <sup>1/</sup> This effect may be particularly desirable for wage goods, since it can prevent further falls in real wages in situations where wage cuts may have already constituted a large share of the adjustment effort. This type of liberalization may thus also be useful in reducing political uncertainty by lessening the expected opposition of wage earners. Another example of targeted liberalization that seems to make good sense in an adjustment context is the liberalization of intermediate imports used in the production of exportables, particularly when foreign exchange is scarce and the export response to a devaluation is sluggish.

Trade liberalization announcements can also be useful at the inception of the adjustment process because they reduce uncertainty by clarifying at an early stage what the new rules of the game are going to be, and because they may induce the needed commitment of resources to the process of changing the productive structure. They can help signal as well the government's strength and willingness to confront protectionist interests. However, announcements will be more credible if they are targeted rather than generalized. An overly ambitious program, announced in very general terms, may not be as believable as a more restricted one.

As a general rule, unless governments are extremely self-confident or have obtained enough foreign financing to cover any run against the currency, it may be advisable to restrict early liberalization to those sectors where it is essential to promote exports, stabilize prices, or minimize wage losses. However, trade policy announcements covering a longer horizon may be useful if they commit the government to open up in the future in a gradual, predictable, and credible way.

#### V. Concluding Thoughts

The dramatic slowdown in economic growth that took place throughout most of Latin America in the 1980s has been attributed to a large number of factors. What is clear is that the observed low, or negative, growth rates are ultimately related to the collapse of investment in the region and that, therefore, a resumption of growth would have to be achieved through policies that revive and promote capital accumulation, at least at the rate that prevailed prior to the current decade.

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<sup>1/</sup> Recent experiences show that the sectors that exhibit greater price inertia in the context of a stabilization program are those where producers and retailers can contract supply and mark up prices without fear of being identified as speculators. Competitive sectors such as textiles, food products, and services belong to that category.



This paper advances the hypothesis that the weakness of investment has been triggered neither by the unavailability of savings alone, nor exclusively by a dearth of external resources. The fall in investment--and, therefore, in growth--is traced here to the set of policies that were being implemented immediately before the debt crisis, as well as the policy requirements that followed it. These policies created an environment of uncertainty and lack of confidence, which depressed the expected profitability of investment and, at the same time, increased the risk of holding domestic assets, thus reducing the availability of domestic and foreign savings.

Although uncertainty factors have been frequently regarded as an important determinant of investment behavior, it is claimed here that the type of uncertainty that was so pervasive in the 1980s was of a somewhat different nature: rather than a state-of-the-world uncertainty (i.e., lacking full information about the type of exogenous events that could take place), the uncertainty in the 1980s was of a systemic nature, since it was linked to the behavior of the system itself rather than to an outside source of disturbance. More specifically, the uncertainty facing domestic agents sprang from the realization that domestic policies were on an unsustainable path and, therefore, that serious adjustment measures would have to be taken. In addition to the direct impact that adjustment programs could have had on investment decisions, it was the governments' lack of credibility in their ability to persevere and maintain over time a consistent set of policies that caused economic agents to avoid committing their resources to projects that matured over a medium- or long-term horizon.

Whenever political stability is perceived as fragile and adjustment measures (which are socially costly) are regarded as unsustainable, even if they are considered beneficial in the longer run, the prospect of a long period of disequilibrium accompanied by stop-go policies raises uncertainty and discourages investments, reduces the availability of foreign credit, and induces capital flight. In turn, the decline of investment increases the perceived costs of adjustment by aggravating the contraction of consumption and real wages, which are needed for adjustment. Equilibria with protracted adjustment and low investment can thus eventually be reached as a result of self-fulfilling pessimistic expectations.

In such a scenario, increases in capital inflows cannot, by themselves, raise investment and induce growth, unless they can substantially change public perceptions. New foreign loans and/or debt reduction schemes may positively affect these perceptions. However, they will only have significant and long-term beneficial effects if accompanied by domestic macroeconomic policies that not only restore equilibrium and are consistent with foreign and domestic finance, but are also regarded as politically viable and, therefore, are given a reasonable probability for success by economic agents.

The above does not mean that macroeconomic adjustment policies should be lax and accommodate all the conflicting political claims. On the contrary, to be credible and sustainable, they should be consistent with current and future available resources. On the other hand, they should also be flexible, providing policymakers with a margin for maneuvering and, at the same time, with a fair degree of control and with predictable options and results. Policymakers should be shown as having the necessary room to react quickly and to adopt the necessary policy changes in the event of unforeseeable shocks, but, at the same time, these policy instruments should be precise and transparent so that the rules of the game are not subject to uncertainty. Moreover, it is important that the public perceives that, while the government can change policies in response to evolving circumstances, the rules of the game themselves are not arbitrary nor excessively subject to bargaining.

The precise translation of these concepts into the realm of actual policy implementation should be discussed in each specific field. We have focused here, for illustration, only on a limited number of areas, such as fiscal and commercial policies. The overall message is the same, however: when the objective is to resume investment and long-term growth, it is not so much the quantitative aspect of the adjustment as the quality that matters. The design of policies should therefore consider what the sources of the crisis have been, and address those sources directly. In the case of the current crisis, it is adjustment uncertainty that derailed confidence, and therefore policies should be geared to assuring economic agents that there are mechanisms that eliminate, or at least minimize, the conflicts and inconsistencies in the implementation of adjustment policies. Aggregated measures that are financially sound but are not (or not perceived as) sustainable, given the political and social constraints, will not have the desirable result in terms of changing widespread negative attitudes and closing the confidence gap. On the other hand, popular measures that are not fiscally and financially viable will not be credible either and will therefore not succeed in generating investment and growth.

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