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Exchange-Rate-Based Stabilization

Tales from Europe and Latin America

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In high inflation economies exchange-rate-based stabilizations typically start with a boom, with the recession coming later. In contrast, in similar programs in the moderate inflation European economies, the recession generally appears upfront. When such programs result in a boom, it is driven by different forces than in the high inflation economies.

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This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to study adjustment policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 34303 (February 1993, 39 pages).

There is convincing empirical evidence that the cycle for exchange-rate-based disinflation in high-inflation Latin American economies typically begins with expansion and ends in recession — a surprising pattern. Ades, Kiguel, and Liviatan explore whether a similar cycle can be observed in exchange-rate-based disinflation in low-inflation economies.

They draw on empirical evidence from stabilization programs in three European countries in the early 1980s: in Denmark (1982), Ireland (1982), and France (1983). In these programs, the authorities fixed the central parity of the exchange rate band against the European currency unit (ECU). This represented a break from previous years when this rate was often realigned to accommodate inflation.

They find that the Irish and French programs followed the more traditional pattern. In the initial phase, there was a recession accompanied by a continuous, gradual reduction in inflation — followed by a second, more expansionary, phase. The initial recession was attributable to a lack of credibility about the *pace* of disinflation (reflected in an increase in real wages) and a reduction in aggregate demand resulting from tight monetary and fiscal policies.

Stabilization in Denmark, on the other hand, was expansionary. The key question is whether this expansion was similar to that in the high-inflation Latin American economies, in origins and characteristics. It has been argued that expansion in the high-inflation economies was caused by the perception that the program was temporary. Expectations of a future reversal led to an increase in spending and output. By contrast, expansion in Denmark appears to have been driven by opposite forces — by overconfidence about the speed of disinflation.

These findings support the view that the high-inflation economies are a group to themselves. In particular, disinflation in these economies is likely to face obstacles inherently different from those observed in most industrial, low-inflation countries.

In addition, the costs of exchange-rate-based disinflation are typically experienced at different times. The recession appears upfront in industrial countries, and at a later stage in the high-inflation economies.

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Exchange Rate Based Stabilizations

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Introduction

The traditional view is that disinflation programs are contractionary regardless of whether the nominal anchor is money or the exchange rate. Nominal price and wage rigidities are the fundamental cause of the recession.¹ The disinflation experiences in the United States under Volcker and the United Kingdom under Thatcher confirmed this view.

A recent study, Kiguel and Liviatan (1992), shows that in contrast to the traditional view, expansionary stabilizations have been the rule for a certain class of disinflations, namely, exchange rate based stabilizations (ERBS) in "chronic inflation" countries.² Almost every exchange rate based stabilization plan launched in Latin America over the last 30 years has been expansionary.³ Following the fixing or predetermination of the exchange rate, a boom in consumption and investment was observed. They argue that expectations of a future reversal in policies, including a devaluation, triggers a speculative spending boom. When agents expect an exchange rate based stabilization to be temporary they will shift part of their future consumption and investment expenditures to the present. One possible reason, as discussed in Calvo (1986), is that when the rates of devaluation and inflation are low, the cost of holding money (which is necessary to carry out expenditures) is also low, while the opposite is true for future periods when inflation is expected to resume. Alternatively, one can explain a shift of future expenditures to the present if it is expected that the failure to stabilize will be associated with a balance of payments crisis, a credit squeeze and quantitative import restrictions. All this will give rise to increased expenditures during the stabilization period, accompanied by a current account deficit and a real appreciation of the exchange rate.

¹ The recession can only be avoided if the change in policy is announced *and* believed several periods ahead. In this special case (unlikely in a high inflation country, as the government would not be believed if it announced a restrictive policy to go into effect in the future) the disinflation has no effects on output.

² A term coined by Pazos (1982) to refer to countries with a long inflationary history above the rates in industrialized countries, where labor and capital markets adjust to function in the inflationary environment.

³ Their sample of Latin American countries includes Argentina, Brazil, Chile, Mexico and Uruguay. They also study Israel.

In Kiguel and Liviatan (1992), *both* the fixing of the exchange rate *and* lack of credibility in its efficacy constitute necessary conditions for the emergence of a business cycle driven by speculative demand. This paper extends their sample of ERBS in an attempt to compare the experience of chronic inflation countries to that of low inflation countries. We thus take three European stabilizations of the 1980's that used the exchange rate as a nominal anchor: Denmark '82, Ireland '82 and France '83.⁴ Our starting point is the observation that the behavior of real variables during disinflation in the latter group has not always fitted the pattern described in Kiguel and Liviatan (1992). On the surface, the experience of Denmark looks similar to that of chronic inflation countries. There, the fixing of the exchange rate was followed by expanding output and falling unemployment. Instead, Ireland '82 and France '83 fit the classical recessionary scenario. We compare the Latin American and European experiences below.

Our main argument is that, to a large extent, the differences in outcomes are related to expectations about how the disinflation program would proceed. Credibility played in the outcomes of the ERBSs in our sample.⁵ We distinguish two types of credibility problems: (i) expectations of a total collapse of the plan with a future reversal of policies; and (ii) expectations that the program will eventually succeed, but that disinflation will proceed at a different *pace* than the one announced. Expectations about the pace could be either optimistic or pessimistic. We argue that the first concept is more relevant to the high inflation economies of Latin America, while the second one is better suited to understand disinflation in the European economies. In Latin America, the boom was fueled by the

⁴ There was a second Irish program in 1986. Of the two programs we only analyze the first, as that was the only one in which inflation was a concern.

⁵ Our approach should perhaps be seen as complementary to that of Giavazzi and Pagano (1990), that also tries to explain the contrasting experiences of Denmark and France during stabilization. These authors emphasize the fiscal aspects of the programs implemented in those countries and explain the aforementioned differences by subscribing to the "German view" on budget cutting. According to this view, fiscal consolidation has a benign impact on expectations if it is accomplished by cutting expenditures. According to Giavazzi and Pagano, Denmark's fiscal consolidation was achieved by cutting expenditures. This explains the Danish expansion.

expectation that the collapse of the program would be accompanied by a balance of payments crisis and the imposition of foreign exchange controls. In contrast, when the main concern was about the pace (that it would not be fast), there was a recession as a result of high real wages in the transition (as in France). Finally, over-optimism about the pace of disinflation will generally lead to a boom (as in Denmark).

The paper is organized as follows. Section 1 reviews the Latin American experience of disinflation and discusses the main stylized facts concerning the business cycles in ERBS. Section 2 does a similar thing for Europe. Our sample of European stabilizations includes Denmark '82, Ireland '82 and France '83. In dealing with these three European cases, we show that the exchange rate was indeed the nominal anchor chosen by the policy-maker. Section 3 highlights and explains the differences in the patterns observed in Europe. Section 4 compares and explains the differences between Latin America and Denmark. Section 5 summarizes the main results and concludes.

I. Latin America

Kiguel and Liviatan (1992) deal with the effects of disinflation in countries with a long history of inflation above the rates in industrialized countries, where labor and capital markets have adjusted to function in the inflationary environment. Their sample is based on a number of Latin American countries and Israel. Their main finding is that stabilization processes in "chronic inflation" countries do not usually follow the standard Phillips curve trade off in the medium run. Stabilization programs in these countries are often associated with what they call a "business cycle": after a small initial recessionary effect, or even with no effect of this kind, the reduction in inflation is associated with an initial expansion of output above the historical trend, and with a drop in unemployment. The expansionary phase can go on for a number of years ending in a recession. Their finding relates to programs which used the exchange rate as the main nominal anchor.

Kiguel and Liviatan (1992) deal with major stabilization programs undertaken over a period covering the past three decades in Argentina, Brazil, Chile, Uruguay, Mexico and Israel. In each decade, there was a group of stabilization programs which shared some important common elements concerning the diagnosis of inflation and the design of the appropriate policies to deal with it. This is seen, for example, in the stabilization programs of the 1980's, based on a *shock* treatment which took the form of a drastic stop of inflation supported by initial wage-price freezes. These programs were called *heterodox* because of the strong income policy component, but they also used the exchange rate as a nominal anchor.

Contrary to the approach of the 1980's, the philosophy of the Southern Cone (Argentina, Chile and Uruguay) stabilizations of the 1970's embraced a free market approach that discredited the use of price controls and favored the liberalization of foreign trade and capital flows. These programs evolved in two stages. The first was aimed at stopping the accelerating inflation. It consisted of a fiscal-monetary package with a flexible exchange rate. The second implied a shift to targeting the exchange rate as the nominal anchor. It was motivated to some extent by the slow pace of disinflation in the preceding stage. In a more advanced stage, these policies took the form of a preannounced path of devaluations, commonly referred to as the *Tablita*. The sample also includes the Peronist stabilization of 1973-75 which resembles in some ways the Brazilian Cruzado plan. Both programs used comprehensive wage-price-exchange-rate freezes which were not supported by a proper fiscal adjustment and are usually regarded as populist policies.

According to Kiguel and Liviatan (1992), the main features that characterize a "typical" Latin American exchange rate based stabilization are the following:

a) *Real Activity*: In general, economic expansion starts quite soon after the initiation of the stabilization program. Usually, the behavior of unemployment is compatible with GDP growth, i.e., unemployment falls in the growth phase of the cycle. As Kiguel and Liviatan (1992) show, these

expansions in chronic inflation countries can be characterized as such also with respect to the long term trend. Most of the ERBSs were preceded by a recessionary period relative to trend. This indicates the existence of excess capacity which may have provided suitable conditions, from the supply side, for the upswing.

b) *The Balance of Payments:* It is characteristic of all ERBSs that they were associated with a deterioration of the trade balance in the course of the program. The normal case is that in the expansionary phase the current account goes into the red. The capital inflows which financed these deficits were, as a rule, reversed at some advanced stage of the boom where the recessionary phase began. It was the inability to finance the growing current account deficits that was, in most cases, the immediate reason for halting the boom.

c) *Relative Prices:* As a rule, real wages increased with the upswing of economic activity, but sometimes we observe a lag that can be due either to the fact that the real wage had been raised up front to take account of the anticipated erosion by the sluggish reduction in inflation (as in the Argentinean stabilization of 1967-70), or to the case that the real wage was kept, for some time, deliberately below its equilibrium level by income policies (as in Israel '85).

d) *Consumption and Investment:* Most of the expansions of output were accompanied by a "consumption boom". By this we mean that consumption grows faster than GDP when the latter accelerates (or is above normal). Investment played a dominant role in the Argentinean program of the 1960's, much of it being directly induced by government policies. In the programs of the 1970's it was the Chilean ERBS which was driven by a continuous investment boom. The role of investment was not significant in the ERBS of the 1980's. This was partly related to the reduction in capital inflows following the debt crisis.

e) *Fiscal Stance:* In Kiguel and Liviatan (1992), fiscal variables do not appear explicitly related to what explains the boom. They note that normally the stabilization cycle appears in spite of a

sharp reduction in the fiscal deficit. However, they do not make any distinction about what the main source of the fiscal consolidation was, namely, tax increases or expenditures cuts.

Table 1 and figure 1 show the behavior of main economic indicators during the 1978-81 Argentine stabilization. As we can see, it fits the pattern described by Kiguel and Liviatan (1992).

Tabl. 1. Main Economic Indicators During Argentine 1978-81 Stabilization

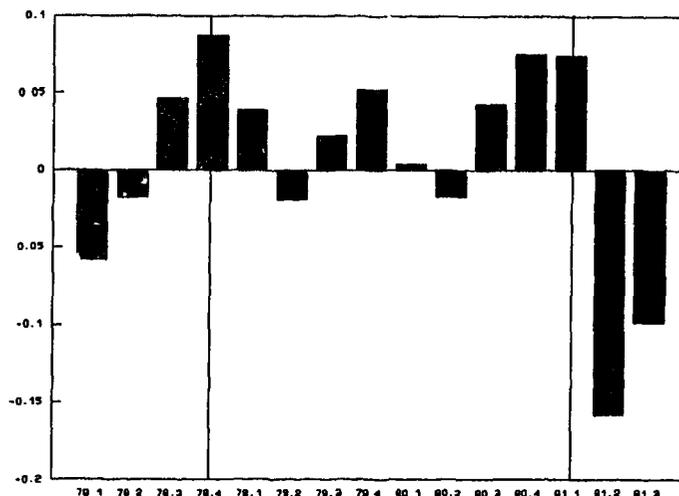
Indicator	1950-70	1978	1979	1980	1981
GDP Growth	3.6	-3.4	7.6	1.1	-6.3
CA Surplus/Exports		24.5	-5.8	-48.3	-43.8
Real Effective Ex. Rate	94.9	102.9	77.2	69.2	87.0
Real Wage Index		72.3	83.0	92.8	83.0
Inflation Rate	23.8	175.5	159.5	100.8	104.5
Public Sec. Surplus/GNP		-3.2	-2.7	-3.6	-8.1
Growth of Private Consumption	3.22	-3.07	14.39	5.59	-3.64

Source: Ramos (1986)

The main conclusion of Kiguel and Liviatan (1992) is that the expansionary phase of ERBS can be explained as a speculative boom that builds on the expectation of future reversals of policy. The role that credibility plays is that of being absent. In their view, it is *because* agents expect the stabilization to be only temporary that they shift future consumption and investment⁶ expenditures to the present. This behavior soon leads to a real exchange rate appreciation, current account deficits and the collapse of the plan.

⁶ Investment and durables consumption are the components of expenditures that are most affected by speculative activity. They are also both greatly affected by falls in real interest rates, as the ones observed in the "tablita" stabilizations during the late 1970s.

Figure 1. Argentina: Growth of Total Consumption (Quarterly). Source: FIEL Database.



The Brazilian Cruzado Plan, implemented in February of 1986, also illustrates the important role that temporariness plays in generating speculative booms. The plan rested on the premise that the high rates of inflation were driven by inertia and indecision.⁷ The key elements of the plan were, thus, a strong incomes policy, with loose fiscal and monetary policies. Soon after the announcement, it became clear that the program was unsustainable. If agents hold rational expectations, we should observe a negative correlation between the size of the speculative boom and the duration of the plan.⁸ This prediction is borne out by the Brazilian experience. During the Cruzado plan (which lasted for less than a year) private consumption increased by 9.3 %.

⁷ See Cardoso (1991) for a good description of the Brazilian experience.

⁸ See Calvo (1986).

II. Denmark, Ireland and France

There were large differences in rates of inflation across Europe in the early eighties. The second oil shock affected these countries in quite different ways. In Germany and the Netherlands the rate of CPI inflation never exceeded an annual rate of 6.8 per cent and was already close to 3.0 per cent in 1983. Instead, CPI inflation reached 12.31 per cent in Denmark in 1980, 13.4 per cent in France in 1981, 17.97 per cent in Great Britain in 1980, 20.43 per cent in Ireland in 1981 and 21.28 per cent in Italy in 1980. In addition, in most of these countries inflation did not come back to values close to 3 per cent at least until 1986.

It has been argued that the Exchange Rate Mechanism of the European Monetary System (EMS) itself may have been responsible for the inflation reduction and convergence which member countries have experienced. Empirical research has not been able to provide conclusive evidence on the importance that EMS membership had for the speed and cost of disinflation. One strand of research has tried to identify if EMS membership has conferred special disinflation advantages in the sense of accelerating inflation convergence. The evidence is not conclusive. Both K. Rogoff and S. Collins emphasize that inflation convergence did not occur in the first few years of the EMS. A tendency towards convergence only started after 1982, at a time in which, mostly through income policies and monetary restraint, many countries had already brought down considerably their inflation rates from their peaks in 1980 and 1981. Dornbusch (1989) follows a different approach. He focuses on sacrifice ratios⁹. If EMS membership conveys special disinflation advantages, he argues, we would expect lower sacrifice ratios for EMS members. Dornbusch's conclusion is that EMS membership does not make for small sacrifice ratios. The evidence bears out the view that EMS membership can make disinflation cheaper.

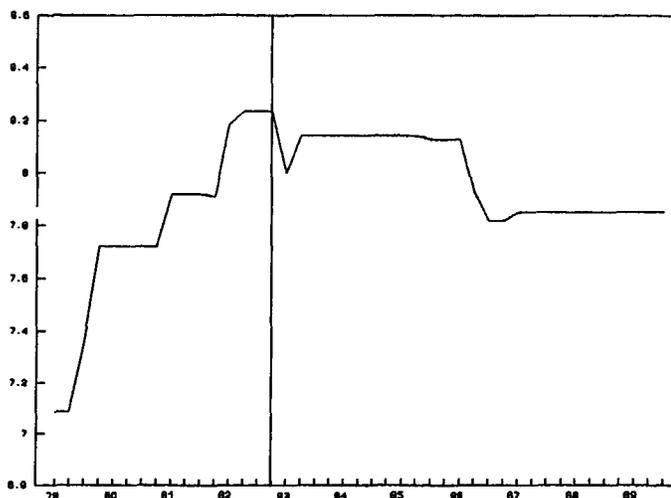
⁹ Sacrifice ratios are defined as the ratio of the extra percentage points of unemployment to the percentage points of reduction in inflation.

It seems, thus, that belonging to the EMS did not necessarily mean that a) the exchange rate was the nominal anchor chosen, or that b) credibility in the program was high. We therefore take three countries (Denmark, France and Ireland) that effectively *chose* and actively *used* the exchange rate as the nominal anchor. We do not assume credibility right away from the mere fact of belonging to the EMS. We argue, instead, that the higher or lower degree of credibility that the different programs enjoyed explains the different behavior that economic activity had in these countries.

2.1. The Exchange Rate as Nominal Anchor

Before 1982, there is very little evidence of any EMS country (except the Netherlands) actively using the exchange rate to disinflate. The situation changed quite drastically in 1982-83, especially in the three European countries in our sample. Determining which was the nominal anchor chosen in EMS countries is in many cases difficult to assess, particularly, if there was no announcement by the economic authorities. This was especially so in France, where if there was an announcement at all, it was to signal money as the anchor. There are, however, two "natural" indicators that show that the exchange rate was the nominal anchor chosen in Denmark, France and Ireland. These are the central parity against the ECU, and the bilateral real exchange rate (deflated by CPI) vis-a-vis the German mark.

**Figure 2. Denmark: Central Parity Against the ECU.
Source: European Economy.**



Figures 2 to 4 show a remarkable change in the behavior of the central parity against the ECU in all three countries. As we can see, while in France and Denmark this change seems to have taken place contemporaneously with the announcement of the stabilization plan, in Ireland this might have happened some time later, around March 1983.

The behavior of the bilateral real exchange rate vis-a-vis the German mark was consistent with the use of it as the nominal anchor. In the three cases, it experienced a severe appreciation. This was most dramatic in the case of Denmark and France, whose real exchange rates depreciated prior to stabilization.

Figure 3. Ireland: Central Parity Against the ECU.
Source: European Economy.

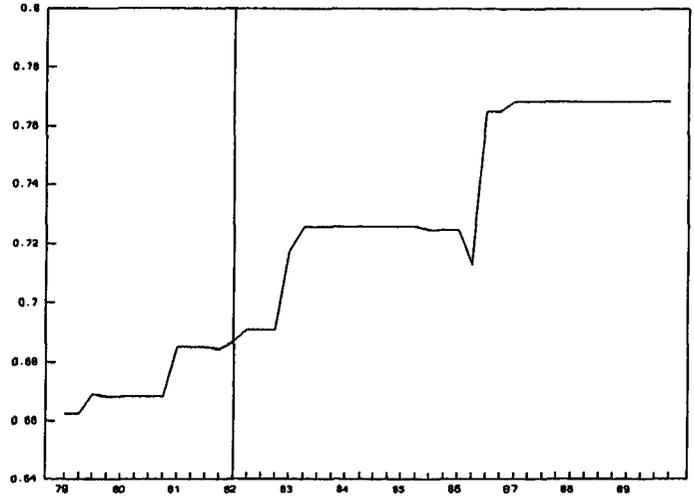
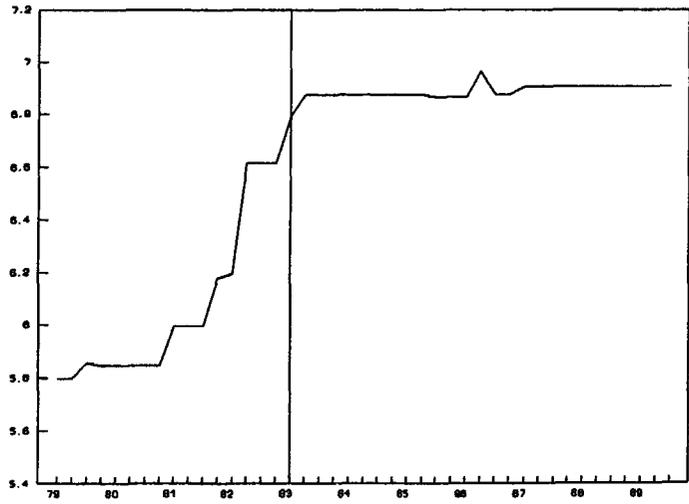


Figure 4. France: Central Parity Against the ECU.
Source: European Economy.



2.2. Inflation, Interest Rates and Fiscal Stance

By the end of 1982, economic performance looked quite somber in the three countries under consideration.

2.2.1. Denmark.

In Denmark, inflation was still above 10 per cent in 1982. This was lower than the 12.31 per cent peak of 1980, but it was still 5 percentage points higher than in Germany. Danish public debt was growing rapidly (from 29 per cent of GDP at the beginning of 1980 to 65 per cent at the end of 1982), fueled by high real interest rates and large primary deficits (3.1 per cent of GDP). Unemployment was 4.2 percentage points higher relative to 1979, and the current account had worsened, bringing external debt from 17.5 per cent to 33 per cent of GDP over the same interval. In October 1982, long-term interest rates reached 22 per cent.

At that time, a Conservative coalition formed a new government and presented its economic program at the opening session on October 5. The program featured strong measures on three fronts. First, income policies that implied wage freezes and limitations to indexation of wages and social transfers were implemented.¹⁰ The second front of action was the fiscal one. Giavazzi and Pagano (1990) report that "within four years, the turnaround in the in the full-employment primary budget was as

¹⁰A total wage freeze was imposed as from October 5, 1982, to March 1, 1983, with the possibility of an extension until April 1, when the current wage agreements in the public and private labor markets expire. Furthermore, the cost of living adjustment of wages and social transfers, with the exception of social pensions, would be suspended in the period January 1983 to 1985. Wage agreements covering the next two years were to be concluded in the public sector ahead of those in the private labor market. The wage increases for public sector employees were to be kept within a limit of 4 per cent per year. Wage agreements in the private sector would be carried through without government interference, but if the wage agreements resulted in increases of only about 4 per cent a year, the government would consider implementing a tax reduction. Income policies were supplemented in April 1983, when the government announced guidelines for an upper-limit of 2 per cent for the annual wage increase in the new two-year wage agreement.

large as 10 per cent of GDP, of which 2.8 per cent was accounted for by a fall in government consumption, 0.4 per cent by cuts in government investment and the rest by discretionary increases in taxes net of transfers."¹¹ Finally, in the monetary area, the package was accompanied by the announcement that *the exchange rate of the Danish kroner versus the German mark would henceforth be fixed.*

2.2.2. Ireland.

In Ireland, the height of instability prevailed at the beginning of 1982 when the government fell on the issue of a tight budget. Certainly the need for austerity had been clear at least since 1981. CPI inflation peaked during that year, reaching 20.43 per cent. Similarly, the long term interest differential with Germany increased sharply toward the end of 1981 and the beginning of 1982. Public finances were in much worse situation than those in Denmark. As a share of GDP, the primary-full employment budget deficit was 8.4 per cent, debt service absorbed 8.3 per cent, and total national debt was 87 per cent. This situation persisted until early 1982 when a political consensus emerged to push forward specific measures for disinflation, austerity and fiscal consolidation. According to Dornbusch (1989), the consensus supported four specific policy measures. First, a shift towards consistently positive and high real interest rates¹². Second, a fiscal policy of consistently reducing the primary deficit (by 1984 the full-employment primary deficit had been reduced by more than 7 percentage points of GDP) mostly through higher discretionary taxes. Third, partly as a result of rising unemployment, partly as a result of wage agreements, the increase in labor compensation slowed down from 18.1 per cent in 1981 to only

¹¹ According to our figures from OECD National Income Accounts and Economic Outlook, the fiscal consolidation implied an improvement of 6.1 per cent in the structural budget balance, of which 5.1 per cent was achieved through cuts in government consumption.

¹² According to Giavazzi and Pagano (1990), ex-ante real interest rates not only fell in Ireland but, moreover, they turned negative.

14.4 per cent in 1982. Fourth, *the monetary authorities pegged the value of the Irish punt within the EMS and, thus, relative to the German mark*. It is especially significant, as Dornbusch points out, that in both 1982 EMS realignments Ireland maintained the central rate. Not taking advantage of an EMS realignment, he says, signified a shift from an accommodating exchange-rate policy to a determined effort to squeeze inflation by the use of the exchange rate.

2.2.3. France.

The case of France is somewhat different. The program of March 1983 constituted quite a drastic turnaround in the Socialist government's economic policies. Indeed, President Mitterrand enjoyed from the beginning more budgetary freedom of manoeuvre than was actually available to most other European countries because the bright side of the Giscard and Barre legacy resided in public finances. France's public debt (relative to GDP) was in 1980 one of the smallest among OECD countries. It is not surprising, as Sachs and Wyplosz (1986) conclude, that the Socialists took advantage of the fiscal prudence legacy. The first two years of the government of President Mitterrand were thus characterized by fiscal expansion with monetary accommodation, minimum wage policies, a reduction of the work week, and new laws concerning labor relations.

The evolution of the French economy during 1981-83 failed to conform to the Government's expectations. GDP growth was lower than forecasted, inflation was higher, unemployment did not fall and the Franc suffered several crises. Unlike other OECD countries, French GDP never fell during those years. On the other hand, inflation, that increased after the oil shock, increased again in 1982, while most other countries were achieving significant reductions. The government was also confronted with several speculative attacks on the franc, having to devalue in October 1981 and June 1982. This second time, the devaluation was accompanied by a price and wage freeze, a rise in social security contributions and a reduction in the targeted budget deficit to a level not higher than 3 per cent of GDP. A third

devaluation came in March 1983, and with it a reshuffling of the cabinet and a fundamental shift in economic policies. Citing *Le Point*, Sachs and Wyplosz (1986) say that when Mitterrand assigned new tasks in 1983 to Mauroy's new government, he asked him to 'bring down inflation to a rate compatible with our competitors...restore within two years our external trade balance...and respect the financial equilibrium of Social Security while maintaining the public budget deficit within its current levels'. OECD figures confirm the restrictive stance of fiscal policy after 1983: the structural deficit was reduced 0.5 per cent of GDP. This was achieved by freezing budget expenses and by raising taxes.¹³ Monetary policy also remained contractionary although the squeeze, according to Sachs and Wyplosz, came through high interest rates instead of through credit ceilings. The role of the exchange rate is more difficult to assess. Unlike the Danish and Irish plans, there was to our knowledge no official announcement that the exchange rate of the French franc versus the German mark would henceforth be fixed.

2.3. Outcome of the Three Programs

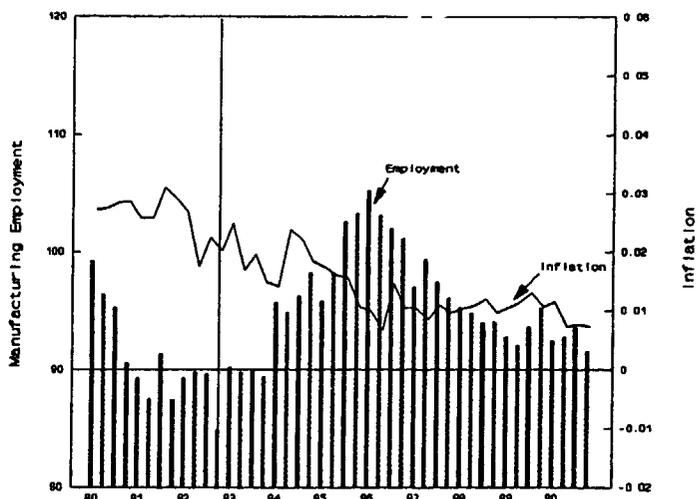
The reason for including Denmark, France and Ireland in our sample is not only that they were the three most clear cut cases of use of the exchange rate as nominal anchor. We were also motivated by the striking differences that we observed in the behavior of real variables among them and when we contrast them with the Latin American cases.

¹³ The fiscal package included a forced savings plan equivalent to an extra 10 per cent on income tax, a 1 per cent levy on taxable income and rises in the tax on alcohol and tobacco and higher prices for gas, telephone, electricity and rail transport, as well as higher wealth taxes. The main cuts in expenditure were earmarked to come from a reduction in subsidies to state owned energy and transport firms.

2.3.1. Denmark.

In Denmark, rather than reducing aggregate demand and income, disinflation was accompanied by an average growth rate of GDP of 3.7 per cent over the years 1983 to 1986. Growth was driven by domestic demand, with private consumption growing (over the same period) at an average of 4.4 per cent a year and business investment at 13.1 per cent (all data are drawn from OECD National Income Accounts). Figure 5 shows the spectacular behavior of manufacturing employment during stabilization, and table 2 shows the growth rates of GDP and its components over the same period.

Figure 5: Denmark: Manufacturing Employment and Inflation.
Source: IMFIFS.



As we can see, there was a quite important rise in GDP growth after stabilization.¹⁴ This was mainly led by a spectacular behavior of investment expenditures. There is a cycle as in Latin America.

¹⁴ For Denmark, the inflation series was smoothed using standard exponential smoothing techniques and a value of $\alpha=0.3$.

Two features make the Danish experience fundamentally different from that of most Latin American expansionary ERBS. The first, is that real wages fell during the initial stage of the program. The second, is that although the current account worsened (reaching a deficit of 5.4 per cent of GDP in 1986) it was brought under control and the plan did not end in a balance of payments crisis.

Table 2. Growth Rates of GDP and its Components in Denmark: 1978-90.

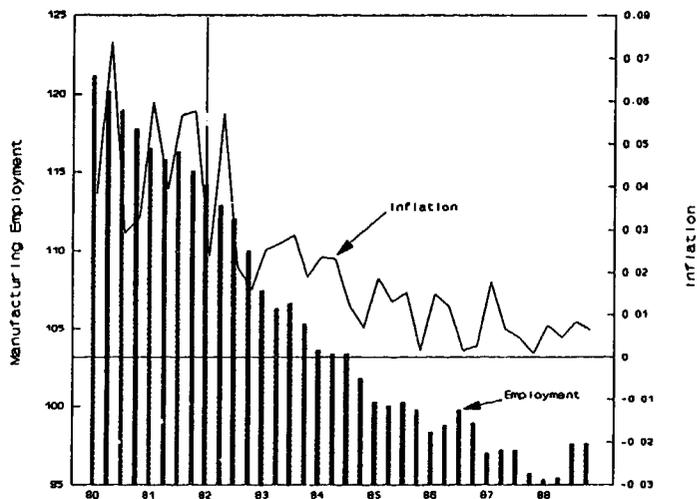
Growth of	GDP	Government Consumption	Private Consumption	Private Investment
1979-81	0.7	4.2	-1.5	-9.4
1982	3.0	3.1	1.4	19.9
1983	2.5	0.0	2.6	2.7
1984	4.4	0.0	3.4	12.1
1985	4.3	2.5	5.0	18.9
1986	3.6	0.5	5.7	18.8
1987	-0.5	2.5	-1.5	0.0
1988	0.9	0.2	0.0	0.0
1989	1.1	0.0	0.0	2.7

Source: OECD National Income Accounts.

3.3.2. Ireland.

The case of Ireland sharply contrasts with that of Denmark. While GDP did not grow on average during the period 1982-84 (after being negative in 1982 and 1983), consumption fell by 7.1 per cent in 1982 and remained almost flat during the following two years. Business investment experienced negative growth rates from 1982 to 1987. Figure 6 shows that the behavior of manufacturing employment and inflation fit the classical recessionary scenario. If the recession was not deeper, it was because in the 1982-84 period Irish exports fared exceptionally well on international markets.

Figure 6. Ireland: Manufacturing Employment and Inflation.
Source: IMFIFS.

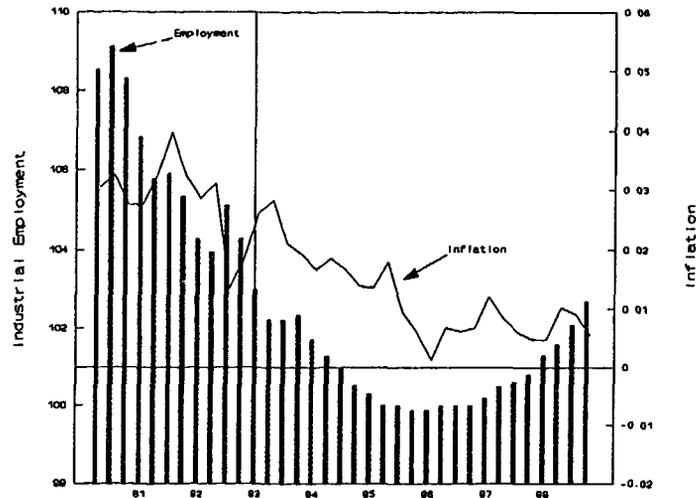


3.3.3 France

France is an intermediate case, though definitely more on the contraction side of the spectrum.

Contrary to the case of Ireland, GDP never fell. However, its growth rates were considerably below those of the OECD average until 1986. Although consumption growth fell, it was business investment that suffered the most dramatic blow, falling an average of 3.1 per cent per annum in the period 1983-84.

Figure 7. France: Industrial Employment and Inflation.
Source: IMFIFS.



Again, figure 7 shows that the behavior of industrial employment and inflation fit the classical recessionary scenario.

IV. Theoretical Aspects of Exchange Rate Based Stabilizations

Two questions arise after comparing the behavior of real variables during stabilization both among European countries and with Latin America. The first, is whether the expansion observed in Denmark after 1982 was of the same nature as those observed in Latin America and Israel. In other words, was it mostly speculative in nature, based on lack of credibility about the final success of disinflation?. If not, what explains it?. The second question is how to understand what happened in France and Ireland as opposed to what happened in Denmark. Why were the former contractionary while the latter was expansionary?. As we will see, the comparison of Denmark with France and Ireland provides important insights regarding the role that credibility plays in ERBS in low inflation countries.

4.1. *The Role of Credibility*

Stabilizations are periods during which major changes in agents' behavior take place. A reduction in the inflation rate changes the environment in which agents operate and affects their behavior. In addition, the mere announcement by the government of a disinflation package is usually enough to trigger drastic changes in expectations. The behavior of economic agents will reflect the changes in both the environment and their expectations. In turn, the performance of the economy during disinflation will be determined by the way in which agents behave.

It is therefore important to keep in mind the different effects that can come into play during stabilization, and how they are conditioned by agents behavior and expectations:

a) *On the demand side*, we can have: (i) "speculative effects", that build on future reversals of policy, and that cause a shift of future consumption and investment expenditures to the present, (ii) "permanent income effects", that can be optimistic or pessimistic, and are motivated by the effects that the disinflation is thought to have on future output, (iii) "uncertainty reduction effects", that cause an increase in demand through a reduction in precautionary savings, and (iv) "fiscal effects", that arise from the fact that disinflation usually suggests (though not always entails) fiscal austerity; fiscal effects can act directly upon demand in a Keynesian way (by affecting government expenditures and taxes) or indirectly, by affecting expectations à-la-"German view"¹⁵.

b) *On the supply side*, we can have two type of forces: (i) an expansionary force, originating from the strong leveling effect that exchange rate stabilization usually has on prices, allowing an increase in efficiency through the reduction of excessive variation in relative prices and through a shifting of resources out of financial and speculative activities, and (ii) a force acting through changes in real wages

¹⁵ A reduction in inflation can also have favorable distributional effects, as argued by Dornbusch *et al.* (1990), as inflation is a highly regressive tax.

(generated by expectations of future inflation and/or inflation inertia) that cause movements along the demand curve for labor and have strong effects on unemployment.

Of course, not all of the effects mentioned above will necessarily be present in every stabilization. Two factors determine the importance that each of those effects will play:

The first, is the rate of inflation at the time of stabilization. If the inflation rate is within the three digit range, effects like those described under a(iii) or b(i) above are bound to be present and large. Instead, if the inflation rate is close to 10%, those forces, though perhaps also present, are not likely to have large effects on output.

The second factor is the way in which agents' expectations react to the stabilization announcement. To a great extent, this reaction will be determined by past stabilization experiences. In an environment where failed stabilizations are the rule, agents are most likely to be skeptical at about the final success of the stabilization effort. Kiguel and Liviatan (1992) argue that this has been the case for most Latin American experiences, where agents expected a total collapse of the plan in the medium run. In those cases, credibility problems implied the expectation of policy reversals in the near future and led to speculative booms with effects such as those described under a(i). Instead, where failed stabilization experiences are not the rule, or in economies where government behavior is conditioned by international agreements, credibility problems are likely to take a different form. We argue that in these cases agents might have doubts about the *pace* of the disinflation. Under such circumstances, effects as those described under b(ii) play an important role. In addition, "permanent income effects" as those described under a(ii) might also act on the demand side.

A comparison of Denmark with France and Ireland, and Denmark with Latin America shows the importance that the effects mentioned above have played during the different stabilization experiences in our sample. The model develop in Calvo (1986) proves useful to illustrate the difference between the two types of credibility. An anticipated complete reversal of the initial disinflation will lead agents to

substitute present consumption for future one, as the cost of the latter is larger in the context of a cash in advance model. In contrast, when there are expectations of a slower pace of disinflation than the announced one, it will lead to a substitution of consumption from the present to the future, thus creating a recessionary tendency at the early stage.

4.2. *Denmark vs. France and Ireland*

In Denmark, disinflation was accompanied by an average GDP growth of 3.7 per cent over the years 1983 to 1986. Instead, in France and Ireland the reduction of inflation to levels compatible with those of other OECD countries brought about severe reductions in output growth and employment. What explains this difference?

Expectations seem to have played an important role. This role was not similar to that played in Latin America. There, the issue was whether the stabilization would be long lasting or not. This question mark was not present in Europe. Instead, agents' expectations operated through two different channels, explaining the striking differences in the behavior of real variables:

The first channel was an "*over-confidence*" effect observed in Denmark. The mere announcement of the disinflation program by the government triggered very optimistic hopes for future activity. These expectations operated on the demand side, and explain the increase in consumption expenditures and the spectacular behavior of investment. These optimistic expectations are consistently revealed for the case of Denmark by various indicators of future economic activity¹⁶.

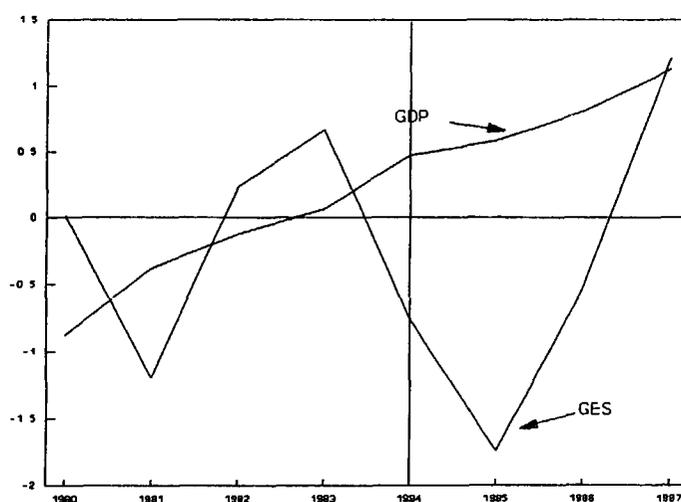
Figure 8 shows a comparison of the Index of General Economic Situation and real GDP. The Index of General Economic Situation (GES) provides a forecast of the following year's state of the economy.¹⁷

¹⁶ This section uses different indicators of consumer confidence published by European Economy Supplement B. See Appendix 1 for details.

¹⁷ The series shown in figures 8 to 10, and 12 have been standardized so that they all have a comparable variation. The rescaling procedure used was to subtract the mean and divide by the standard deviation.

Notice that the GES rose sharply in Denmark in 1983.¹⁸ Instead, the results for France and Ireland are dramatic. As figures 9 and 10 show, expectations about future economic performance were very poor in these two countries. Moreover, those expectations consistently underestimated the performance of the economy during stabilization.

Figure 8. France: GDP and General Economic Situation Forecasted at t-1.
Source: OECD National Income Accounts and European Economy Supplement B.



¹⁸ Notice that the forecast for 1984 was done in 1983. As the Danish stabilization was launched at the end of 1982, 1984 is the year we want to focus our attention on.

Figure 9. Ireland: GDP and General Economic Situation Forecasted at t-1

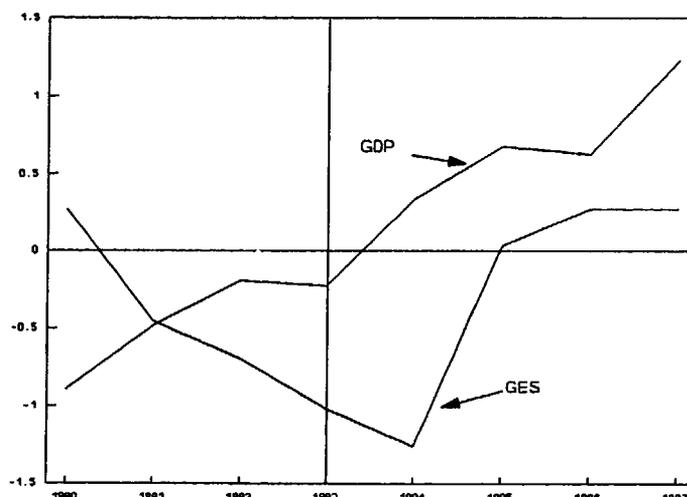


Figure 11 confirms that agents held pessimistic expectations about future economic activity in France and Ireland.¹⁹

It is important to compare the GES with actual GDP. In Denmark, the GES rose sharply after 1983. We have argued that the Danish expansion was dominated by an "over-confidence" boom. Bruno and Meridor (1991) simply refer, instead, to "confidence" booms when they analyze the last Israeli stabilization.²⁰ Figure 8 shows that optimistic expectations in Denmark were only granted to a limited extent. Indeed, both in 1984 and 1985 the value taken by the Index of General Economic Situation exceeded the actual value of real GDP.

¹⁹ The Consumer Confidence Index is an arithmetic average of the responses (balances) to the questions on financial situation of households and the general economic situation (past and future) and questions about the present major purchases of households. See Appendix 1 for more details.

²⁰ Bruno and Meridor (1991) assign an important role to optimistic expectations in explaining the behavior of consumption during the last Israeli stabilization. They say that when "a stabilization program succeeds in correcting fundamental factors, there will be an increase in perceived permanent income and wealth, which in turn will manifest itself in an increase in both consumption and investment".

The behavior of stock prices immediately after the announcement of the program can also be seen as an indicator of optimism or pessimism. Figure 12 shows a very different reaction in real share prices in Denmark as compared to France and Ireland. In Denmark, the real value of the Danish Real Industrial Share Price Index almost doubled in one year after October 1982.

But agents' expectations also operated through a second channel, which had important implications for aggregate supply. French and Irish agents seem to have had *doubts about the pace of the disinflation*. It was not, as we have already emphasized that agents had doubts about the final success of disinflation. Instead, the cases of France and Ireland show that economic agents thought the inflation targets of the policymaker to be too optimistic.

Figure 10. France and Ireland: Consumer Confidence Index.
Source: European Economy Supplement B.

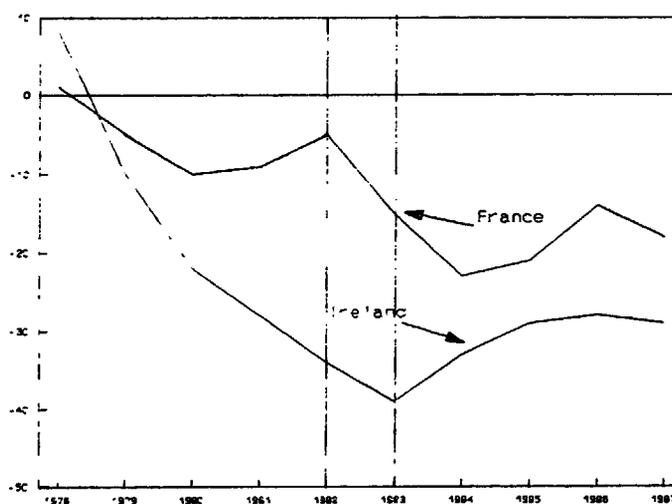
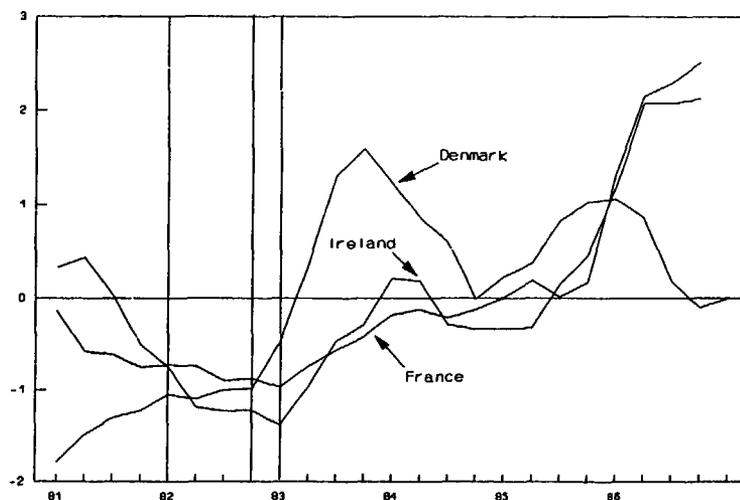


Figure 11. Denmark, France and Ireland: Real Share Price Index (normalized).
Source: IMFIFS.



Expectations about the *pace of the disinflation* play a significant role in the determination of both the real interest rate and real wages. For instance, if expectations turn to be pessimistic ex-post, we should observe an increase in both real wages and the interest rate. In turn, the behavior of the real wage and the real interest during stabilization explain much of output developments through their effect on supply.²¹ We thus focused on real interest rates and tried to discover any major shift at the time of the stabilization that could distinguish Denmark from France and Ireland. The evidence obtained by looking at ex-post real interest rates is shown in figures 13 to 15.

²¹ It might be worth having in mind the case of the chronic inflation countries in Latin America. The evidence provided by Corbo (1985) and Ramos (1986) is consistent in that real interest rates fell in the Southern Cone stabilizations of the late 1970's. However, Kiguel and Liviatan report that this feature was not shared by the stabilization programs in the 1980's. They also mention that real interest rates rose to extremely high levels in the course of the stabilization program that started in Argentina and Israel in 1985.

Figure 12. Denmark: Ex-post Real Interest Rates (annualized).
Source: IMFIFS.

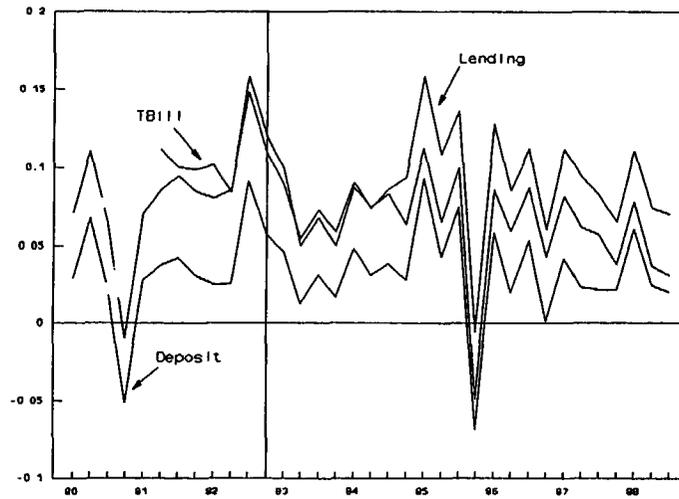
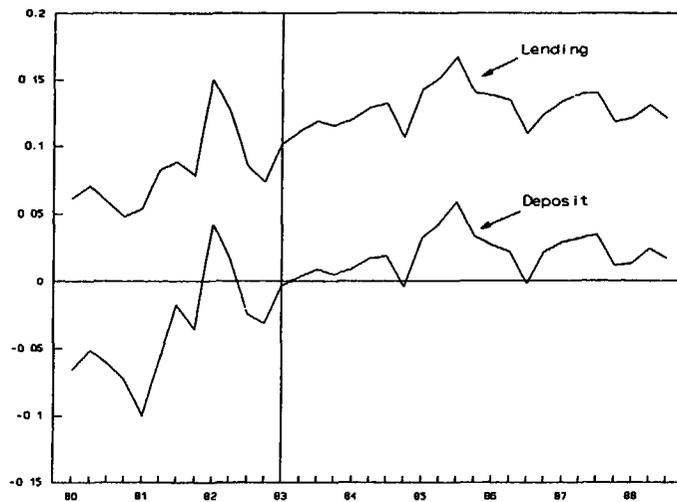
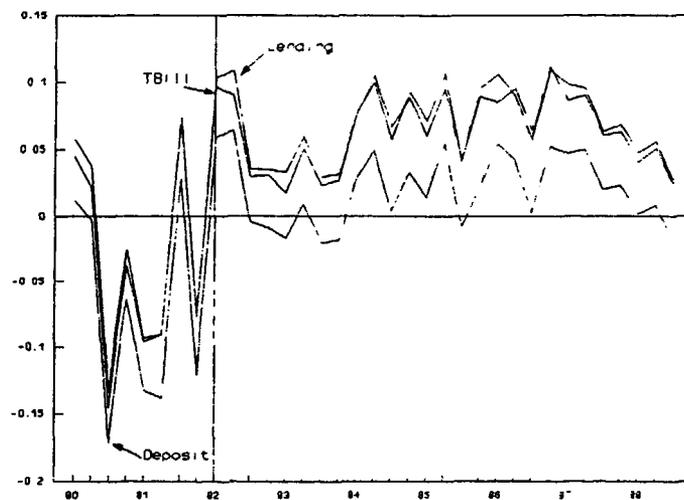


Figure 13. France: Ex-post Real Interest Rates (annualized).
Source: IMFIFS.



We computed ex-post real interest rates for the deposit, lending and treasury bill rates when available.²² The data shows that all types of real interest rates decreased in Denmark but increased in Ireland and France.²³

Figure 14. Ireland: Ex-post Real interest Rates (annualized).
Source: IMFIFS.



The behavior of real wages is consistent with that of the real interest rate. While real wages fell in Denmark post-stabilization, the opposite happened in France and Ireland. The behavior of real wages

²²The formula used was the following:

$$r_t = i_t - [(cpi_{t+1}/cpi_t)^4 - 1]$$

where r is the ex-post real interest rate and i is the nominal interest rate.

²³ This effect might be only part of the explanation. Monetary policy might also explain this difference between real interest rates. We tried to see if monetary policy was contractionary in France and Ireland, and if that could explain the apparent rise in interest rates. When we normalized the real growth of money to take account for GDP growth, we could not get any conclusive evidence.

in Denmark as opposed to France and Ireland can be easily understood if one thinks of the realized real wage in the following terms:

$$\omega_t = \mu + E_{t-1} \pi_t - \pi_t$$

where ω_t is the realized real wage at time t , μ is a target real wage, $E_{t-1} \pi_t$ is the expectation at time $t-1$ of inflation at time t , and π_t is the inflation at time t . In such a simple setup, the behavior of the real wage will be determined by the difference between expected and actual inflation.

Finally, long term nominal interest rates confirm this view as the fall was much less steep in France and Ireland as compared to Denmark.

The effects mentioned above explain the different patterns observed in real variables in the three countries in our sample:

In Denmark, the announcement of the disinflation program led to over optimistic expectations in terms of future output and inflation developments. These operated on the demand side, leading to a very strong investment boom. In turn, optimism about future inflation developments led to a fall in real wages and real interest rates, that had a positive influence on supply.

Instead, in France and Ireland the prospects for future output were believed to be somber. In addition, the policymaker was thought to be too optimistic in terms of inflation reduction. Pessimism about future output developments added to doubts about the pace of the disinflation had depressing effects on aggregate demand and aggregate supply. With regard to the first, they explain the lack of an investment or consumption boom. On the other hand, the increase experienced by all type of real interest rates and real wages operated on the cost side pushing the unemployment rate up in the classical unemployment fashion, i.e., moving along the demand for labor.

4.3. Denmark vs. Latin America and Israel

The second question that arises when comparing the behavior of real variables during stabilization in Europe and Latin America is if the expansion that followed Denmark's exchange rate based stabilization was of the same sort as those observed in chronic inflation countries, i.e. generated by the belief that the program was temporary only, and that a major reversal of policy would take place sooner or later. We gave already some sort of negative answer when we compared Denmark to France and Ireland. We there showed how the Index of GES and the behavior of the stock market seemed to indicate that Danish consumers and firms were confident about stabilization.

In this section, we intend to show that there are some other indicators that reveal that the Danish expansion was quite different in nature from those observed in Latin America. We acknowledge, however, the inherent difficulty of such pursuit. Several statistics that one can think of as good indicators of speculative behavior might only reflect optimism about future output trends.

Table 3. Real Share Prices in Chile and Denmark (Quarterly data)

Country	Factor by which Real Share Prices should be multiplied
Chile: 76.1 to 80.3	13.30
Denmark: 80.1 to 86.1	5.18

Sources: IMFIFS for Chile and Mexico; OECD Main Economic Indicators for Denmark.

The behavior of the stock market is one such indicator. Ramos (1986) notes that the stock market boomed during each of the Southern Cone Stabilizations. Perhaps, the magnitude of the boom may help us distinguish between speculative and optimistic behavior. We analyzed the cases of Chile during the Tablita, and Denmark. There are two quite astonishing differences among these two countries. The first is the dramatic reversal in real share prices experienced by Chile. The second, is the size of the boom

itself. We compared real share prices between the peak and the previous trough in Chile and Denmark. Our results are summarized in Table 3.

A second indicator that we use to distinguish between speculative and optimistic behavior is the growth rate of the *shares* of private consumption and investment to GDP. Demand booms based on the expectation of a future policy reversal will be characterized by strong consumption effects. Instead fears of future policy reversals will lead to low investment rates in the private sector. As argued in Morales (1991), "the persistent weakness of public finances may awaken fears of future confiscatory measures against the private sector through exchange-rate manipulations, punitive taxes, or outright expropriation". We should thus expect to observe different patterns in credible and non-credible expansionary stabilizations: in stabilizations of the first type, we should expect to see investment playing a leading role in the demand boom; instead, when expansions are of a speculative nature, consumption will dominate. We therefore averaged the annual growth rate of the *share* of private consumption to GDP for years of major stabilization programs in Latin America and Denmark. We did the same thing with investment. The results are, we think, quite striking. They are shown in Table 4.

Table 4 shows two major differences between the roles that private consumption and investment played during the stabilization booms in chronic inflation countries and Denmark. The first, is that in Latin America the share of private consumption typically increased more than the share of investment during stabilization. This is especially so if one takes only the stabilization plans of 1970-90. For this sub-sample, the growth in the share of private consumption is almost 30 per cent higher than if one takes

Table 4. Average Growth Rate of Share of Private Consumption and Total Investment in GDP During Disinflation.

Sample	Private Consumption	Investment
Latin America and Israel: 1960-90	1.8 %	-0.24 %
Latin America and Israel: 1970-90	2.22 %	-3.9 %
Latin America in the 1960s	0.5 %	2.9 %
Latin America during the Tablitas	1.2 %	-0.11 %
Latin America in the 1980s	1.6 %	0.32 %
Israel	3.7 %	-4.1 %
Denmark: 1983-1986	0.7 %	9.4%

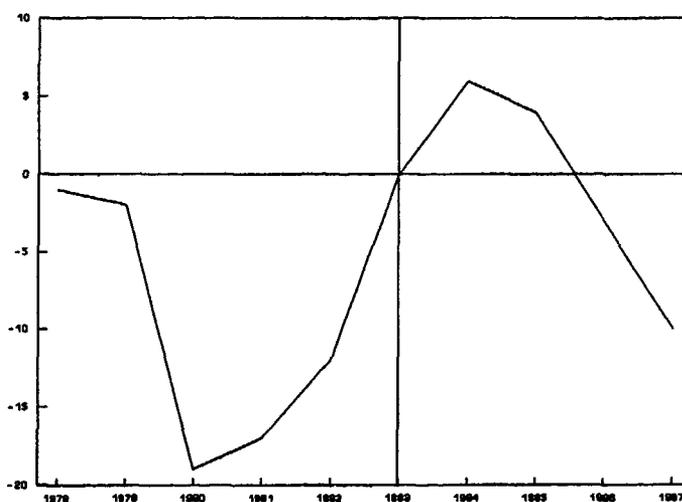
Note: For Latin America, Investment stands for total investment. For Denmark, we used Private non residential capital formation.

Sources: For Latin America and Israel, Kiguel and Liviatan 1992; for Denmark, OECD National Income Accounts.

the whole sample. These results are consistent with the idea that beliefs on future reversals of policy were grounded on previous failed stabilizations. This effect is expected to have become very significant since the 1970's.

The second major difference is that the roles of consumption and investment are drastically reversed in Denmark. Here, the increase in the *share* of investment is almost thirteen times as large as the corresponding consumption figure.

Figure 15. Denmark: Index of Consumer Confidence.
Source: European Economy Supplement B.



Finally, the best indicator of how confident were Danish agents about the stabilization is given by the Index of Consumer Confidence. This index clearly reflects a change in consumer's mood after stabilization was announced. As Figure 16 shows, Denmark's index rose sharply in 1983.

What explains the Danish boom? A combination of factors. On the one hand, optimistic expectations of future output trends led to a boom in aggregate demand where permanent income considerations played an important role. Also, optimistic views about the *pace* of the disinflation seem to have helped in reducing the real wage and keeping the real interest rate under control. These had favorable effects on supply, allowing for an output expansion that granted, at least partially, the initially optimistic expectations. Though Denmark did eventually suffer from current account problems, the

expansion in output, the cut in government expenditures and, possibly, the openness of its economy helped her avoid a balance of payments crisis. Finally, we should mention the possibility that considerations of the type described in Giavazzi and Pagano (1990) might have also played an independent role.²⁴

VI. Concluding Remarks

This paper compared the exchange rate based stabilization experiences in the high inflation economies of Latin America with those of Denmark, France and Ireland in the eighties. The analysis was motivated by the finding that during most of the programs in "chronic inflation" countries and in Denmark, a demand boom followed the fixing of the exchange rate.

We argued, following Kiguel and Liviatan (1992), that the initial expansion in the Latin American experiences is to a large extent due to lack of credibility. While the programs in France and Ireland were recessionary, it would be wrong to conclude that this resulted from "too much" credibility. In fact, these two programs faced problems that are typical of stabilization efforts in low inflation economies. Agents had pessimistic expectations about the *pace* of disinflation because there were nominal rigidities in prices and wages which the program was not expected to be able to overcome. In addition, the increase in real wages and real interest rates that followed the announcement of stabilization also operated in a contractionary fashion.

The pattern of disinflation in Denmark, on the other hand, at first sight looks similar to that of chronic inflation countries. The fixing of the exchange rate was followed by expanding output and falling unemployment. However, we showed that unlike the chronic inflation countries, Danish agents did not

²⁴ Giavazzi and Pagano explain the Danish expansion by subscribing to what is known as the "German View" on budget cutting. They argue that the leading factor explaining the expansion is that it was preceded by a fiscal consolidation that was accomplished by cutting expenditures. If the reduction in expenditures is understood to be part of a credible medium-run program designed to permanently reduce the share of government in GDP, it will have a benign impact in expectations.

expect a reversal of policies in the near future. The survey evidence provided by European Economy supports this view. If anything, Denmark suffered from a problem of over-confidence. The announcement of the plan was followed by very optimistic expectations about future output developments. Permanent income considerations can thus explain much of the demand boom. In addition, this boom might have been reinforced by effects of the "German view" type, as argued by Giavazzi and Pagano (1990). These demand side effects were reinforced on the supply side by optimism about the *pace* of disinflation, that led to a fall in both real wages and real interest rates.

One important implication of the present paper is that it provides supporting evidence to the view that the high inflation economies are a group in themselves. In particular, disinflation in these economies is likely to face obstacles that are inherently different from those observed in most industrialized, low inflation countries.

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Appendix 1

European Economy runs a consumer survey on a monthly basis. The results are published as the following 7 indexes:

- 1) Confidence Indicator
- 2) Financial Situation of Households: (i) over the last 12 months; (ii) over the next 12 months.
- 3) General Economic Situation: (i) over the last 12 months; (ii) over the next 12 months.
- 4) Major Purchases: (i) at present; (ii) over the next 12 months.

The questions asked are the following:

- How does the financial situation of your household now compare with what it was 12 months ago? got a lot better, got a little better, stayed the same, got a little worse, got a lot worse, don't know.
- How do you think the financial position of your household will change over the next 12 months? get a lot better, get a little better, stay the same, get a little worse, get a lot worse, don't know.
- How do you think the general economic situation in this country has changed over the last 12 months? got a lot better, got a little better, stayed the same, got a little worse, got a lot worse, don't know.
- How do you think the general economic situation in this country will develop over the next 12 months? get a lot better, get a little better, stay the same, get a little worse, get a lot worse, don't know.
- Compared with what it was 12 months ago, do you think the cost of living is now: very much higher, quite a bit higher, a little higher, about the same, lower, don't know?
- By comparison with what is happening now, do you think that in the next 12 months: there will be a more rapid increase in price trends, prices will increase at the same rate, prices will increase at a slower rate, prices will stay about the same, prices will fall slightly, don't know?
- How do you think the level of unemployment in the country will change over the next 12 months? Will it increase sharply, increase slightly, remain the same, fall slightly, fall sharply, don't know?
- Do you think that there is an advantage for people to make major purchases (furniture, washing machines,, TV sets, etc) at the present time? yes, now is the right time; it is neither the right nor the wrong time; no, it is the wrong time, the purchase should be postponed; don't know.

- Over the next 12 months, how do you think the amount of money you will spend on major purchases will compare with what you spent over the last 12 months? Will it be: much more, a little more, about the same, a little less, much less, don't know.
- In view of the general economic situation, do you think this is: a very good time to save, quite a good time to save, rather an unfavorable time to save, a very unfavorable time to save, don't know?
- Over the next 12 months, how likely are you to be able to save any money? very likely, fairly likely, fairly unlikely, very unlikely, don't know.
- Which of these statements best describes the present financial situation of your household? we are running into debt, we are having to draw on our savings, we are just managing to make ends meet on our income, we are saving a little, we are saving a lot, don't know.

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