EBS/87/154

CONFIDENTIAL

July 9, 1987

To: Members of the Executive Board

From: The Secretary

Subject: Rapid Disinflation and External Adjustment

There is attached for consideration by the Executive Directors a paper that provides an overview of the development of inflation in four high inflation countries and of the design, implementation, and outcome of the programs themselves.

Mr. G. Johnson (ext. 8779) is available to answer technical or factual questions relating to this paper.

This study, together with a companion paper on high inflation, "heterodox" stabilization, and fiscal policy (SM/87/141, 6/25/87), and the background paper containing four case studies (EBS/87/144, 7/7/87), will be the subject of a seminar discussion after the Annual Meetings.

Att: (1)

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INTERNATIONAL MONETARY FUND

Rapid Disinflation and External Adjustment

Prepared by the Exchange and Trade Relations Department

(In consultation with Fiscal Affairs Department
and other departments)

Approved by L.A. Whittome

July 7, 1987

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I. Introduction

In the last two years Argentina, Bolivia, Brazil, and Israel, which had been experiencing very high rates of inflation, have adopted "shock" adjustment programs with the primary objective of a rapid eradication of inflation. 1/ In response to requests by Executive Directors that the experience with these countries' approaches to adjustment be reviewed, two staff papers have been prepared, both of which are based on case studies of the individual country programs that appear in a background paper. A companion paper "High Inflation, Heterodox Stabilization, and Fiscal Policy" (SM/87/141, 6/25/87), reviews some of the theoretical issues involved in such approaches, including the critical role played by fiscal policy. The present paper provides an overview of the development of inflation in the four countries and of the design, implementation, and outcome of the programs themselves. While it covers both domestic and external aspects, the latter are examined in greater detail.

The plan of the remainder of the paper is as follows. Section II considers the experience of the four countries in their previous attempts to deal with problems of high inflation and external imbalance and their circumstances on the eve of adoption of their shock programs. Sections III-V examine, respectively, the strategy and objectives, the implementation, and the outcomes of the shock programs. The paper concludes with some tentative observations on these country experiences. An appendix sets out the key features of the programs and their outcomes.

II. The Development of Inflation Prior to Adoption of the Shock Programs

The shock programs of Argentina, Bolivia, Brazil, and Israel all were undertaken in a context of very high and rising rates of inflation. The case studies in the background paper include descriptions of the nature of the inflationary process in the four countries and the experience with stabilization efforts that were undertaken prior to the adoption of the shock programs. This summary section draws on these descriptions to indicate the background against which the shock programs were designed and implemented.

1. Evolution of inflation

Argentina, Brazil, and Israel had experienced many years of high inflation prior to the adoption of their shock programs (Chart 1). In

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1/ Argentina (the Austral Plan), June 1985; Bolivia (the New Economic Policy), August 1985; Israel (the Economic Stabilization Program), July 1985; Brazil (the Cruzado Plan), February 1986.

Brazil, in fact, annual rates of inflation 1/ below the double digit level had not been registered in 30 years, and in Argentina inflation had fallen to single digits only once during that period. In each of these three countries, moreover, inflation had tended to worsen over time. Argentina's inflation rate had declined from very high levels recorded in the mid-1970s, but moved up again in the early 1980s reaching almost 700 percent in 1984. In Brazil, the inflation rate, after remaining around 40 percent during the late 1970s, moved up to 100 percent at the beginning of the 1980s. A further acceleration began late in 1982 and by 1984-85 the rate exceeded 200 percent. In Israel, inflation had moved into the double digits in the early 1970s. After several years in the range of 30 to 60 percent, the inflation rate climbed above 100 percent at the end of the 1970s. A further acceleration began late in 1983 and during 1984 the rate exceeded 400 percent.

The long history of inflation in these three countries had led to the development of elaborate institutional mechanisms for protection of those that entered into contracts denominated in domestic currency. These mechanisms imparted an inertial component to the inflationary process which added to the difficulties created by unfavorable expectations. Thus, when adverse shocks of internal or external origin pushed inflation rates up to higher levels, these rates seldom receded to their previous levels. Increasingly, comprehensive indexation mechanisms were developed, but at such high rates fluctuations in inflation inevitably resulted in substantial short-term fluctuations in relative prices 2/ increasing the urgency of bringing inflation under control.

In Bolivia, there had been a number of episodes of severe inflation in the past, but on each occasion inflation had receded to the low single digits. Inflationary pressures developed again in the late 1970s. There was little financial indexation 3/ and an acceleration of prices in 1982 was strongly reinforced by a rapid flight from domestic currency to the dollar. Inflation peaked at a rate of 23,500 percent in the year ending September 1985.

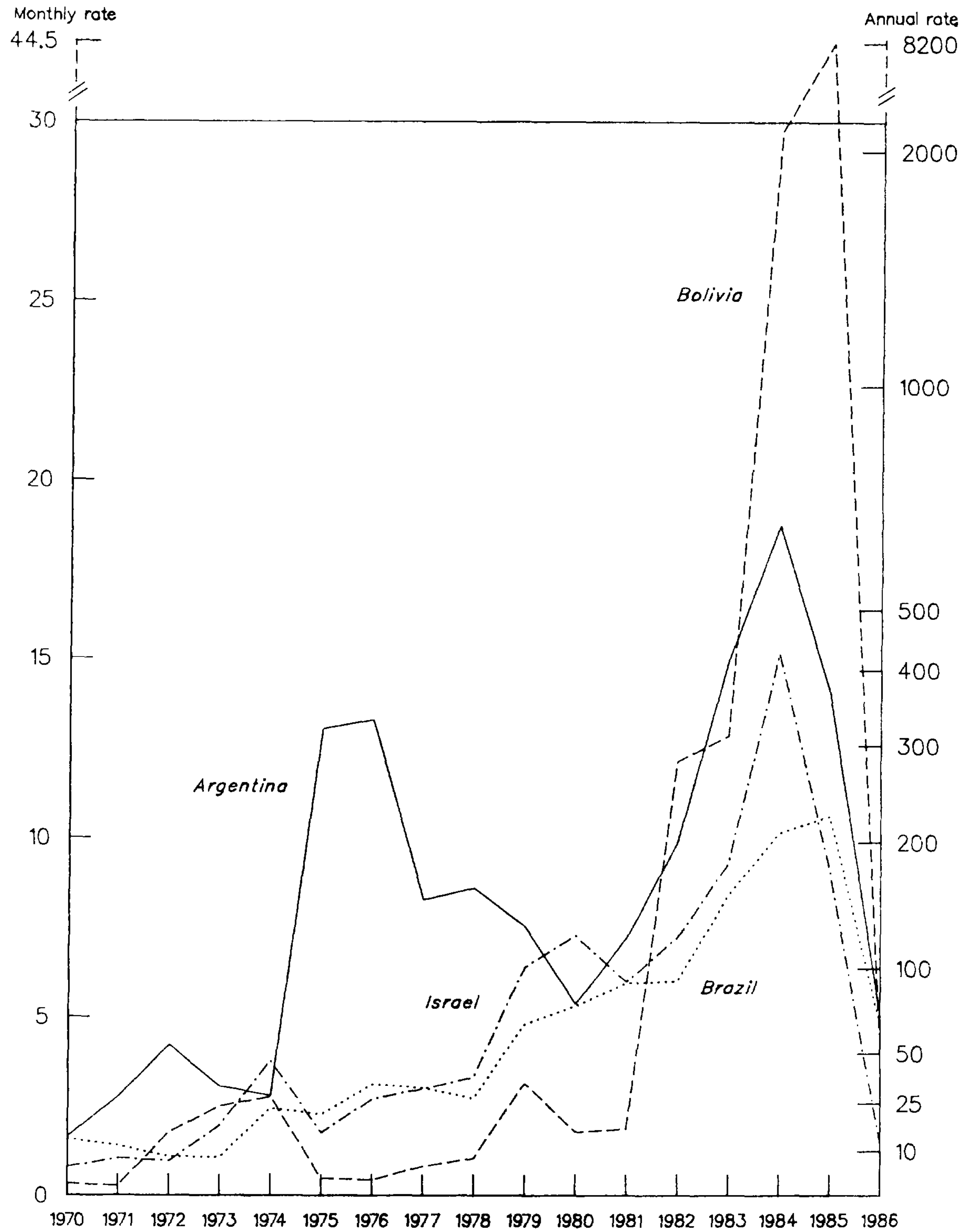
1/ All references here are to the consumer price index. The case studies note important differences between this index and other indexes.

2/ For example, while fluctuations in real wages associated with high and variable inflation rates can be mitigated by shortening indexation periods, there are limits to how far such shortening can feasibly be carried.

3/ Wages were given indexation protection in 1983, but the main protection for real wages when prices were accelerating was the power of unions to obtain ad hoc wage increases, rather than the lagged adjustments provided by cost-of-living clauses.

CHART 1
INFLATION, 1970–86 [1]

(Percent; average monthly rate on left scale; equivalent annual rate on right scale)



Source: IMF, *International Financial Statistics.*

[1]Changes in consumer price index (end-year data).

2. Factors in the acceleration of prices prior to adoption of the shock programs

The rise of inflation in each country reflected interacting effects of fiscal and monetary policies, institutional aspects and policies affecting wage determination, and external factors. The relative roles of these factors varied greatly both among the countries and over time. In each case, however, the surge in inflation that ended with the adoption of a shock program took place at a time of sharp decline in the current account deficit. This reflected the fact that expenditure-switching policies of currency depreciation (or external restrictions) were not provided sufficient support by policies with respect to demand management or wage determination; in some instances, in fact, demand policies were expansionary and efforts were made to increase real wages.

a. External aspects

All four countries found it necessary to reduce current account deficits at some point in the early 1980s (by amounts ranging from 4-8 percent of GDP), and the policy mixes employed to achieve the reductions resulted in the final surges of inflation before the shock programs (Table 1). 1/ In the three South American countries, the reductions were occasioned largely by an abrupt reduction in the availability of external financing in 1982. 2/ Israel did not experience such a curtailment of access to international finance, but also needed to correct an unsustainably large current account deficit.

The reduction in current account deficits mainly took place through shifts in trade balances. 3/ In the case of Argentina, a sharp reversal of the previous improvement in terms of trade took place simultaneously (Table 2) and exports fell, so that the improvement in the trade balance was achieved through an import decline of over 50 percent. While there was no corresponding reversal of the previous improvement in Bolivia's terms of trade, imports also fell by more than 50 percent as

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1/ The accelerations began in Argentina late in 1981, in Bolivia early in 1982, in Brazil late in 1982, and in Israel late in 1983.

2/ Bolivia had lost its access to the international capital markets in the late 1970s; support from official bilateral creditors mitigated the effects of the loss in access in 1980-81, but was discontinued from 1982 onwards. Brazil lost its access to international capital markets in the general debt crisis of 1982. Argentina, which had already begun to reduce its current account deficit the previous year, was similarly affected; the war in the South Atlantic was also a factor in that case.

3/ In each case there had been a sharp rise in external interest payments through 1981 on account of increases in external debt and rising international interest rates. Thereafter, declining interest rates largely offset the continuing growth of debt.

Table 1. Current Account Transactions, 1978-1986

	1979	1980	1981	1982	1983	1984	1985	1986
	(In billions of U.S. dollars unless otherwise specified)							
Argentina								
Trade Balance	1.1	-2.5	-0.3	2.3	2.3	3.5	4.6	2.3
Exports, f.o.b.	(7.8)	(8.0)	(9.1)	(7.6)	(7.8)	(8.1)	(8.4)	(7.0)
Imports, c.i.f.	(6.7)	(0.5)	(9.4)	(5.3)	(4.5)	(4.6)	(3.8)	(4.7)
Services (net)	-1.7	-2.3	-4.3	-4.7	-5.8	-5.9	-5.5	-4.9
Of which: interest payments	(-1.2)	(-2.2)	(-3.9)	(-4.9)	(-5.4)	(-5.5)	(-5.1)	(-4.3)
Current Account Balance	-0.5	-4.8	-4.7	-2.4	-2.5	-2.4	-1.0	-2.6
(In percent of GDP)	(-0.9)	(-7.2)	(-8.2)	(-4.1)	(-4.0)	(-3.6)	(-1.5)	(-3.8)
Brazil								
Trade Balance	-2.8	-2.8	1.2	0.8	6.5	13.1	12.5	8.3
Exports, f.o.b.	(15.2)	(20.1)	(23.3)	(20.2)	(21.9)	(27.0)	(25.6)	(22.4)
Imports, f.o.b.	(18.1)	(23.0)	(22.1)	(19.4)	(15.4)	(13.9)	(13.2)	(14.1)
Services (net)	-7.9	-10.2	-13.1	-17.1	-13.4	-13.2	-12.9	-13.1
Of which: interest payments	(-5.3)	(-7.5)	(-10.3)	(-12.6)	(-10.3)	(-11.4)	(-11.2)	(-10.4)
Current Account Balance	-10.7	-12.8	-11.7	-16.3	-6.8	—	-0.3	-4.8
(In percent of GDP)	(-7.9)	(-8.1)	(-6.9)	(-8.9)	(-3.7)	(—)	(-0.1)	(-1.9)
Israel								
Civilian trade balance	-2.0	-1.5	-1.4	-1.8	-2.3	-1.2	-0.6	-0.8
Exports, f.o.b.	(4.7)	(5.8)	(5.9)	(5.6)	(5.5)	(6.2)	(6.6)	(7.6)
Nondefense imports, f.o.b.	(-6.8)	(-7.3)	(-7.3)	(-7.3)	(-7.7)	(-7.4)	(-7.2)	(-8.4)
Services (net)	-0.5	-0.6	-0.9	-1.4	-1.8	-2.2	-1.6	-2.1
Of which: interest payments	(-1.2)	(-1.8)	(-2.2)	(-2.6)	(-2.5)	(-2.8)	(-2.7)	(-2.5)
Civilian goods and services	-2.5	-2.1	-2.2	-3.2	-4.0	-3.3	-2.2	-2.9
(In percent of GNP)	(-14.5)	(-10.7)	(-10.5)	(-15.1)	(-16.7)	(-14.6)	(-10.4)	(-11.0)
Current Account Balance	-0.9	-0.8	-1.5	-2.0	-2.1	-1.4	1.1	1.4
(In percent of GNP)	(-5.0)	(-4.1)	(-6.8)	(-9.9)	(-9.3)	(-6.2)	(5.2)	(5.3)
	(In millions of U.S. dollars unless otherwise specified)							
Bolivia								
Trade Balance	-246	108	-99	250	166	232	71	-64
Exports, f.o.b.	(762)	(942)	(912)	(828)	(755)	(724)	(623)	(506)
Imports, c.i.f.	(-1,008)	(-834)	(-1,011)	(-578)	(-589)	(-492)	(-552)	(-570)
Services (net)	-192	-306	-442	-452	-427	-459	-452	-354
Of which: interest payments	(-148)	(-241)	(-334)	(-371)	(-320)	(-343)	(-325)	(-267)
Current Account Balance	-388	-142	-501	-156	-155	-138	-300	-323
(In percent of GDP)	(-9.8)	(-0.8)	(-11.8)	(-3.8)	(-3.9)	(-3.6)	(-8.0)	(-8.6)

Sources: Information provided by country authorities and Fund staff estimates.

Table 2. External Environment Indicators, 1977-1986

(Percentage change)

	Terms of Trade				
	Argentina	Bolivia	Brazil	Israel	LIBOR 1/
1977	-3.4	11.4	17.7	...	6.4
1978	-9.6	-0.9	-14.0	8.6	9.2
1979	6.7	13.3	-8.1	-6.8	12.2
1980	11.9	16.5	-17.7	-7.2	14.0
1981	13.7	0.9	-15.4	-1.1	16.7
1982	-13.8	-0.2	-1.8	3.3	13.6
1983	-4.0	3.3	-1.9	1.6	9.9
1984	8.3	-0.8	9.4	-1.7	11.3
1985	-11.5	-2.2	--	1.3	8.6
1986	-11.7	-25.0	25.9 2/	3.0	6.9

Sources: International Financial Statistics and information provided by country authorities.

1/ Average six-month LIBOR on U.S. dollar deposits.

2/ January-August 1986.

production problems reduced exports. 1/ In Brazil there was only a slight reversal of the previous sharp decline in terms of trade and, despite strong growth in exports, imports declined by 40 percent. Israel's terms of trade showed little change during the final inflationary episode and, with strong growth in exports, the decline in nondefense imports was relatively moderate.

To reduce trade deficits the four countries relied primarily on exchange rate action and intensification of import restrictions. 2/ Argentina carried out a substantial real effective depreciation in 1981 and 1982; Brazil made a major devaluation early in 1983; Israel did the same later that year. Though some short-run fluctuations in real effective rates occurred thereafter, by and large the three countries maintained the real depreciations that had been achieved by the initial actions (Chart 2). By contrast, Bolivia limited its imports through severe restrictions and the official exchange rate rose sharply in real effective terms. The other countries also tightened restrictions, though to a relatively limited extent. These policies had their expected effects on the relative prices of traded goods (or, in the case of restrictions, imported goods). As policies in other areas did not succeed in slowing the rate of increase of wages or other prices, the adjustment of relative prices was reflected in further rises in the general price level.

b. Wage determination

Consistency with the reductions in absorption and increases in competitiveness required for such large reductions in current account deficits would normally have implied some decline in real wages, particularly as there were minor, if any, increases in public sector

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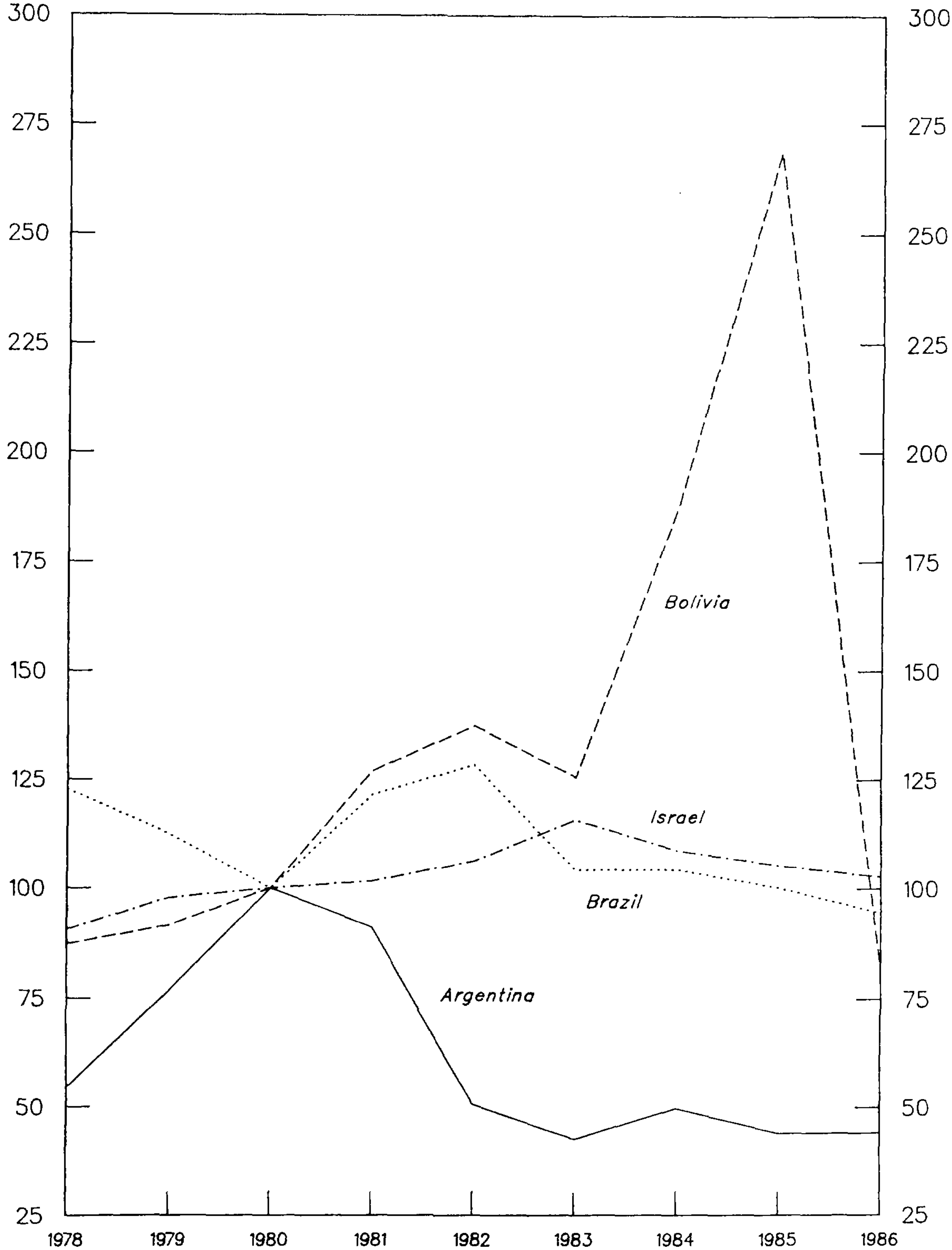
1/ As there appears to have been a considerable shift toward unrecorded exports and imports, the figures in Table 2 presumably overstate the decline in both.

2/ Previously, in each of the four countries real exchange rate appreciation had in effect served as a means of moderating inflation. Such a policy was most strongly pursued in Argentina and Israel during attempts to control inflation from the cost side. In Argentina, between 1978 and 1980 the fact that inflation, though declining, consistently exceeded the assumptions underlying the preannounced rate of currency depreciation resulted in a near doubling of the real effective rate. In Israel, the exchange rate policy pursued from 1981 to 1983 resulted in a more moderate real appreciation which accompanied a stabilization, though not a reduction, in the rate of inflation. In Brazil, after a brief attempt in 1980 to follow a preannouncement policy that resulted in a sharp real appreciation, the currency continued to appreciate through the end of 1982 in real effective terms because of its link to the appreciating U.S. dollar. In Bolivia, the real effective rate was permitted to rise considerably before external financing was cut off in 1982.

CHART 2

REAL EFFECTIVE EXCHANGE RATE, 1978-86[1]

(Annual average, 1980=100)



Source: Information Notice System.

[1]Trade-weighted index of nominal exchange rates deflated by seasonally adjusted relative consumer prices. Increase indicates appreciation.

savings. In some instances, moreover, there had previously been large increases in real wages that would have been unsustainable even in the absence of the need to reduce current account deficits. In each of the four countries, however, institutional factors or policy actions tended to result in increases in nominal wages that largely compensated (in some instances more than compensated) for the increases in the average price level that were taking place. The wage increases in turn fed back into rising inflation rates.

In Brazil, wage indexation was the primary factor involved. The indexation mechanism was modified a number of times during the period of accelerating prices, but in general provided for somewhat less than full compensation for cost of living increases and during 1983-84 there was a significant decline in real wages (Table 3). In Bolivia, by contrast, negotiated wage settlements between the Government and the labor federation resulted in large increases in real wages during the period of sharply accelerating prices. 1/ In Argentina and Israel there were frequent shifts in policy. In Israel, like Brazil, indexation provided partial compensation for price increases, but from time to time substantial additional increases were granted. In Argentina, a system of decreeing economy-wide wage increases provided a mechanism similar to indexation. At times the increases decreed were consistent with gradual declines in real wages, but during most of the period from mid-1982 to mid-1985 a key policy objective was the achievement of a predetermined increase in real wages through increasing nominal wages or controlling prices. (This was in part aimed at stimulating aggregate demand, in view of the sharp decline in output that had taken place in 1981-82.)

The limited degree of downward flexibility of real wages in part reflected a substantial politicization of the process of wage and price determination. All four countries had large public sectors, so that a substantial proportion of wages and of prices of goods and services were subject to direct public sector decisions. With the persistent problem of inflation, governments had also become increasingly involved in private sector wage setting, and private sector production was frequently subject to price controls or subsidies.

c. Fiscal and monetary policies

In each of the four countries, problems on the fiscal side had played a major role in the development of inflation over time. These problems continued during the final pre-shock program episodes of rising inflation. In general, adjustments in fiscal policy during these episodes were not commensurate with the reductions in absorption implied by the declines in current account deficits and the fiscal problems were themselves compounded by the increases in inflation rates.

1/ Measurement of real wages is particularly problematic in Bolivia, not only because of the difficulty of measuring them when nominal magnitudes are increasing so rapidly, but also because increases often took the form of a variety of bonus payments.

Table 3. Real Wages, 1977-1986

(Percentage change)

	Argentina 1/	Bolivia 2/	Brazil 3/	Israel 4/
1977	-9.5	3.0	2.8	...
1978	-4.3	0.4	8.3	1.5
1979	15.0	-1.3	2.2	9.5
1980	11.4	-8.2	2.8	-3.2
1981	-5.9	-8.7	3.2	11.0
1982	-9.2	-1.4	6.9	-0.1
1983	28.1	10.6	-9.1	5.0
1984	23.3	39.0	-1.4	-2.9
1985	-15.7	-45.6	6.3	-6.9
1986	-2.9	-39.2	9.5	11.6

Sources: Information provided by the country authorities and Fund staff estimates.

1/ Real hourly wage in manufacturing industry.
2/ Average real salaries
3/ Average real wage in the Sao Paulo industrial sector.
4/ Average monthly real wage per employee (public services and business sector).

In the case of Bolivia, in fact, real expenditures were increased *in 1982-84 by rising employment and real wages. Public sector* expenditures in Argentina were also affected by rising real wages and by the policy (particularly in 1982) of keeping the rise in public sector prices below the general rate of inflation. Israel was by and large pursuing a policy of price rationalization and wage restraint, but reversals of these policies from time to time added to the fiscal pressures. Only in Brazil was there a sustained reduction in the fiscal deficit during the period of sharply rising inflation, and even in that case some reversal of the decline took place in 1985 (Table 4). 1/

Rising inflation also added to fiscal deficits. One route by which this occurred was erosion of tax revenues, as collection lags reduced the real values of taxes. This effect appeared most dramatically in Bolivia, where taken together with declining revenues from exports and imports (partly as a result of an increasing overvaluation of the currency in the official market and movement of transactions to the informal sector), total public sector revenues declined from 14 percent of GDP in 1982 to 5 percent in 1984. This factor also accounted for much of the decline in revenues in Argentina, where the ratio to GDP declined by more than 5 percentage points between 1980 and 1984, and in Israel, where the ratio of tax revenue to GNP declined by a similar amount between 1982/83 and 1984/85. Brazil's revenues were also affected, but in that case new tax measures were sufficient to prevent a significant decline in the revenue ratio. This and other aspects of the linkages and feedbacks between fiscal deficits and inflation are discussed in the companion paper.

1/ Fiscal deficits are notoriously difficult to compare across countries and over time, as is discussed in the recent study "Inflation and the Measurement of Fiscal Deficits" (WP/87/17, 3/13/87). One caveat regarding Table 4 is the way domestic debt holders are compensated for the inflation-induced reduction in the real value of the debt. In Argentina, the figures include all interest payments or indexation adjustments: some government debt was indexed up to 1982 but not to any significant extent thereafter; the Central Bank, however, continued to issue some indexed liabilities. In Bolivia, the absence of financial indexation meant that interest-bearing liabilities did not play a significant role in domestic public sector finance when inflation was rising sharply. In Brazil, the "operational deficit" excludes "monetary correction," a government-decreed increase in the nominal value of interest-bearing obligations that in general reflects inflation. In Israel, fiscal statistics exclude the increase in public debt resulting from the uniform application of indexation to domestic bonds. While the measures of the deficit for Brazil and Israel used here are conceptually similar, differences in the size and structure of domestic government debt have important implications: in Brazil, the debt is largely short term, so that its refinancing is extremely vulnerable to shifts in public demand for such assets; in Israel, the amount of debt is relatively much larger but is predominantly long term.

Table 4. Financing of the Public Sector Deficit, 1978-1986

	1979	1980	1981	1982	1983	1984	1985	Prel. 1986
	(In percent of GDP)							
Argentina								
Overall deficit	6.8	8.0	16.7	18.0	12.2 1/	10.8	7.0	3.9
Domestic financing	5.0	6.5	10.1	10.3	13.3	7.9	2.5	1.5
Foreign financing	1.8	1.5	6.6	7.7	-1.1	2.9	4.5	2.4
Bolivia								
Overall deficit	8.7	9.0	8.1	16.0	19.2	28.1	12.4	3.8
Domestic financing	5.3	5.1	-4.7	15.9	20.0	22.3	7.6	-1.8
Foreign financing	3.4	3.9	12.8	0.1	-0.8	5.8	4.8	5.6
Brazil								
Overall deficit	8.1	7.1	11.5	16.7	19.9	22.2	27.1	9.9
Operational deficit	3.0	3.6	4.8	6.5	3.0	1.6	3.5	3.1
Domestic financing	(0.6)	(3.2)	(3.6)	(3.7)	(2.5)	(0.6)	(3.0)	(...)
Foreign financing	(2.4)	(0.4)	(1.2)	(2.8)	(0.5)	(1.0)	(0.5)	(...)
Monetary correction	5.1	3.5	6.7	10.2	16.9	20.6	23.6	6.8
	(In percent of GNP)							
Israel 2/								
Deficit (before grants)	20.4	20.5 3/	26.3	19.3	23.4	29.2	20.6	16.3
Foreign grants	8.9	8.9	7.3	5.0	8.0	13.9	19.3	15.7
Financing requirement	11.5	11.6	19.0	14.3	15.4	15.3	1.3	0.6
Domestic bonds (net)	(6.7)	(8.3)	(10.3)	(3.9)	(3.9)	(6.2)	(5.1)	(3.2)
Central Bank credit	(-3.2)	(-1.6)	(3.7)	(5.3)	(7.0)	(9.0)	(-2.7)	(-1.1)
Foreign borrowing	(8.0)	(4.9)	(5.0)	(5.1)	(4.5)	(0.1)	(-1.1)	(-1.5)

Sources: Information provided by the country authorities, and Fund staff estimates.
1/ Break in series starting 1983.
2/ Fiscal years starting April 1.
3/ Break in series starting 1980.

Fiscal deficits were also affected by the growing accumulation of public debt. Consistent with the decline in current account deficits, external budgetary financing was, in general, considerably lower during the final inflationary episodes than it had been earlier. Domestic borrowing continued, however, and interest on domestic debt rose in Brazil, Israel, and, up to 1982, Argentina. 1/ In Bolivia, domestic financing was almost exclusively in the form of money creation.

The growing fiscal deficits were by and large accommodated by monetary policy, so that they readily fed back into rising inflation. In Bolivia, as noted, monetary accommodation took the form of printing money and, with no mechanism such as indexation available for protecting holders of domestic currency assets from inflation, the result was a sharply declining demand for real financial assets in domestic currency. In the other three countries, various kinds of indexed instruments were available and monetary accommodation effectively took the form of attempting to keep interest rates low enough that private activity was not crowded out, but high enough to prevent flight from such assets.

In some instances monetary policy went beyond accommodation. An example is the major alteration of Argentina's financial system in July 1982, which was aimed at providing debt relief to certain sectors of the economy. Monetary expansion at that time led to a sharp acceleration in prices. While indexation of some loans and deposits was introduced, regulated interest rates were sharply negative in real terms and considerable financial disintermediation took place.

3. Economic situations prior to adoption of the shock programs 2/

The pre-shock program episodes of sharply rising inflation left the countries in widely varying economic situations immediately prior to adoption of the shock program. Brazil had made considerable progress toward a sustainable domestic and external position. Argentina and Israel had also made progress, but in intermittent and incomplete fashion. Bolivia's economic policies were in complete disarray.

1/ After 1982 in Argentina, most public sector financing was interest-free. Interest paid by the Central Bank on its liabilities, however, resulted in losses that are reflected in the figures in Table 4 from 1983 onwards.

2/ The tables in this paper are limited to annual data, but in some cases there were significant changes in the months or quarters before the programs commenced (see the case studies for details). Some measures that were important for the programs' success were undertaken shortly before the programs were formally begun; discussion of their impact is deferred to the following sections. (This was particularly the case for Argentina and Israel and the discussion here relates to the situation at the end of 1984, some months before the shock programs were formally adopted.) See also Appendix Table 6.

In Brazil, inflation seemed to have stabilized at a rate somewhat above 200 percent per annum in 1984 and the early part of 1985. Growth had resumed in 1984 after three years of recession (Table 5). Investment remained much lower than at the beginning of the decade, however, though in part the decline was the natural consequence of completion of some very large investment projects. Externally, the current account was in balance and, in contrast to the other countries, international reserves were at comfortable levels. On the policy side, the operational budget deficit had been reduced and a substantial decline in the real effective exchange rate and in real wages had taken place. In the course of 1985, however, there was some relaxation of fiscal, monetary, and wage policies. By the end of the year the operational deficit had increased significantly and prices appeared to be accelerating once again, raising questions about the sustainability of the high rate of growth and of current account balance.

Argentina at the end of 1984 was still experiencing rising inflation. Economic growth had been positive from mid-1982 to mid-1984, but this had not proved sustainable and output remained well below the level of 1980. Investment was continuing a sharp decline. The current account deficit had been reduced, but remained unsustainably large and there were substantial external arrears. On the policy side, a considerable real effective depreciation of the currency had taken place in the course of 1981 and 1982, but subsequently there had been a partial reversal. Real wage rates had risen sharply in 1983 and 1984. Considerable further reduction in the fiscal deficit was needed.

Israel was experiencing sharp fluctuations in the rate of inflation in response to frequent shifts in the stance of policies. Israel had not experienced the sharp reduction in the availability of external resources that the other three countries had, and similarly had not experienced such severe recession. Nevertheless, economic growth had been slow for three years and unemployment had risen substantially. Investment levels were declining, though not as sharply as in the other three countries. Little progress had been made toward containing the fiscal deficit, but with real depreciation of the currency and some correction of real wages the current account deficit was beginning to decline; further action was clearly needed in all these areas, however.

In the middle of 1985, Bolivia was experiencing runaway inflation and had suffered for several years from sharply declining output and investment. On the external side, the currency was severely overvalued with imports limited by restrictions; many of the country's external transactions took place outside official channels; there were major arrears on external debt service. The rise in real wages and employment in the public sector, a major contributor to fiscal problems, had not yet begun to be addressed.

The adjustment problems faced by the four countries at the time they embarked upon their programs of rapid disinflation thus varied considerably. While all four had serious problems with <u>inflation</u>, in

Table 5. Supply and Demand, 1978-1986

(In percent of GDP, unless otherwise indicated)

	1978	1979	1980	1981	1982	1983	1984	1985	Prel. 1986
Argentina									
Gross domestic expenditure	94.2	95.8	102.4	100.4	96.8	95.1	96.9	93.0	97.6
Consumption	69.2	73.4	79.6	82.2	78.7	77.2	81.0	79.5	83.0
Investment	25.0	22.4	22.8	18.2	18.1	17.9	15.9	13.5	14.6
National savings	(27.8)	(21.9)	(19.4)	(13.5)	(12.5)	(14.0)	(11.6)	(12.4)	(11.3)
Foreign savings	(-2.8)	(0.5)	(3.4)	(4.7)	(5.6)	(3.9)	(4.3)	(1.1)	(3.3)
Real GDP growth (percent change)	-3.4	6.6	2.6	-6.8	-4.6	2.8	2.6	-4.8	5.5
Bolivia									
Gross domestic expenditure	106.3	105.9	96.0	102.4	96.2	97.2	96.7	99.0	102.1
Consumption	85.9	87.8	81.9	90.0	86.4	93.6	90.3	94.8	92.6
Investment	20.4	18.1	14.1	12.4	9.8	3.6	6.4	4.2	9.5
National savings	(11.6)	(8.3)	(13.3)	(0.6)	(6.0)	(-0.3)	(2.8)	(-3.8)	(0.9)
Foreign savings	(8.8)	(9.8)	(0.8)	(11.8)	(3.8)	(3.9)	(3.6)	(8.0)	(8.6)
Real GDP growth (percent change)	3.4	1.8	1.1	-0.4	-5.6	-7.2	-2.4	-4.0	-2.9
Brazil									
Gross domestic expenditure	101.2	102.0	102.1	100.4	100.7	97.6	94.4	94.9	97.4
Consumption	78.6	79.5	79.7	78.2	80.1	80.5	77.9	76.9	76.9
Investment	22.6	22.5	22.4	22.2	20.6	17.1	16.5	18.0	20.5
National savings	(19.1)	(17.8)	(17.1)	(17.7)	(14.5)	(13.7)	(16.4)	(17.9)	(18.7)
Foreign savings	(3.5)	(4.7)	(5.3)	(4.5)	(6.1)	(3.4)	(0.1)	(0.1)	(1.8)
Real GDP growth (percent change)	4.8	7.2	9.1	-3.4	0.9	-2.5	5.7	8.3	8.2
Israel									
Gross domestic expenditure	113.6	114.0	116.4	118.5	119.9	118.8	115.8	114.9	115.2
Consumption	87.7	87.0	93.9	97.7	96.7	95.5	94.4	97.1	96.2
Investment	26.0	27.0	22.5	20.8	23.3	23.5	21.3	18.5	19.5
National savings	(18.5)	(22.2)	(18.7)	(14.4)	(14.1)	(15.5)	(15.6)	(23.3)	(24.6)
Foreign savings 1/	(7.5)	(4.8)	(3.8)	(6.4)	(9.2)	(8.0)	(5.7)	(-4.8)	(-5.1)
Real GDP growth (percent change)	4.4	3.7	3.1	3.6	0.5	2.3	1.7	2.8	2.2

Sources: Information provided by the country authorities; and Fund staff estimates.

1/ By accounting convention, transfers from abroad count as national savings; the increase in such transfers accounts for the bulk of the increase in Israel's national savings between 1983 and 1986.

Brazil this appeared to be largely the result of the inflationary inertia associated with wage indexation, although the relaxation in demand-management policies that had taken place in 1985 was worrisome. In the other three countries there was a clear need for tighter demand management, as well as attention to inertial factors, particularly in Argentina and Israel. With respect to economic growth a key requirement in all four countries was to increase domestic savings to permit a higher level of investment; availability of greater external resources would also be important to growth-oriented adjustment, particularly in the case of Bolivia. Concerning balance of payments viability, Brazil appeared to have achieved a sustainable position, aside from the possible effects of the relaxation of policies in 1985. In the other countries, demand restraint, exchange rate action, and attention to wage policy were needed to strengthen the current account; also, international reserves needed to be increased, restrictions relaxed, and, in Argentina and Bolivia, external debt regularized. Israel was receiving considerable external financial support; the adjustment process of the other countries, particularly Bolivia, but also Argentina and Brazil, would also be facilitated if such support were available.

III. Program Strategies and Objectives

The four shock programs shared the objective of stopping inflation but they varied widely with respect to other objectives and the strategy to be followed. 1/

1. Disinflation strategies

The history of high inflation in the four countries had resulted in the entrenchment of inflationary expectations, and achievement of a decisive break in such expectations was considered essential to the strategies of all four countries. 2/ By achieving such a break it was hoped that the transition to low inflation would be made quickly, without the prolonged period of low or negative growth and high unemployment that tends to accompany more gradualist approaches to disinflation.

1/ The availability of information on objectives and strategies varies among the four countries. Fund documentation of Argentina's program is particularly complete, as the program was supported by a Fund stand-by arrangement from the outset. Bolivia's program was partly developed in consultation with the Fund, but the request for a stand-by arrangement came after the shock program had been initiated. Neither Brazil nor Israel requested use of Fund resources in support of their shock programs. In all cases, however, Article IV consultations provided an opportunity for discussion of the programs.

2/ The companion paper includes a discussion of the role of expectations in perpetuating inflation.

In Bolivia the strategy chosen focused on "fundamental" policies. There was to be a sharp slowing of the rate of credit expansion, mainly through elimination of domestic financing of the public sector deficit. This was to be accompanied by the development of incentives for the public to hold domestic currency assets, particularly through freeing interest rates and the exchange rate in a context of external liberalization, so that the rates of return on domestic currency assets relative to those on dollar assets could find their market-determined levels. Private sector wages, employment, and prices were also to be freed to seek their market-determined levels. Public sector relative prices were to be rationalized through elimination of subsidies and reductions in real wages and employment.

The strategies of Argentina, Brazil, and Israel combined such actions as were considered to be necessary with respect to fundamental variables with actions to limit the effects of institutional factors, particularly indexation, which in those countries had given substantial inertia to inflation. A key ingredient in this approach was to freeze some key prices temporarily, including the exchange rate; this contrasted sharply with the liberalization inherent in Bolivia's approach.

The difference between the strategy adopted by Bolivia and those of the other three countries reflected their initial situation with respect to inflation. First, Bolivia lacked elaborate indexation arrangements; even the wage indexation that had applied since 1983 had become less relevant as cost-of-living adjustments had been largely replaced by ad hoc adjustments won through strikes. More generally, the other three countries all had long relied on consensual approaches to wage and price determination involving consultation among government, labor, and employers. Second, in Bolivia the economic disruptions associated with hyperinflation had become so severe that public resistance to the policy reforms of the shock program, while not insignificant, could be overcome without the need for elaborate mutual commitments among government, business, and labor. In Argentina, Brazil, and Israel, however, the public was long accustomed to dealing with high inflation, and while inflation rates were rising they were not yet at such a level that it was considered feasible to undertake abrupt disinflation without providing the public with some assurance (explicit or implicit) that changes in relative prices would be limited or temporary or, more generally, that burden sharing would be equitable.

The effort to win public acceptance for the programs in Argentina and Israel manifested itself in a number of ways. A key element of the programs of the two countries was a temporary freeze on wage increases. (Brazil's program, though also freezing some key nominal variables, did not totally freeze wages, as discussed below.) Since much of the inflationary inertia was attributable to wage indexation, strict wage restraint alone might have sufficed to overcome it, provided the fundamental policy stance was appropriate; but controls on other prices, particularly the exchange rate, were seen as necessary for acceptance of the program. More generally, the freeze (particularly with respect to the exchange rate) was viewed as a commitment by the government to avoid resort to inflationary financing, an objective that would be facilitated by elimination of the losses in government revenues and increases in expenditures that had been caused by inflation.

A second manifestation of the effort to win public acceptance was the assurance (explicit in Israel) that wages would, after the freeze, be adjusted to take account of any continuing inflation--that is, indexation of wages was not eliminated (as was the case in Bolivia), but merely temporarily suspended.

A third manifestation was the fact that even with respect to the "fundamentals," the programs relied to some extent on temporary and reversible measures, such as fiscal savings schemes. (Such measures were intended to have a quick effect on domestic demand until more enduring measures could be implemented and have their effects. They also implied a sharp shock to demand at the time of the freeze to reinforce the adjustment of expectations.)

A further aspect of the strategies pursued by Argentina and Israel was correction of relative prices prior to implementation of the shock measures themselves. Given the existence of indexation, the required increases in prices added to the rate of inflation; but, by the time the freeze was imposed, key commodity prices had been rationalized, real wages had been reduced (through the fact that indexation adjustments were less than 100 percent of the inflation rate), and the currencies had depreciated in real terms. Aside from attempting to ensure that the structure of relative prices that was frozen contributed to and was compatible with correction of the fundamentals and the elimination of inflation, these developments had the incidental effect of increasing public discontent with inflation and willingness to accept the shock programs that were eventually announced.

Brazil's strategy, like those of Argentina and Israel, involved the "heterodox" features of fixing prices and the exchange rate, but differed from the other programs in a number of important respects. These reflected a view that the fundamental macroeconomic policy stance was appropriate, and that all that was needed was to correct the inertial aspects of inflation. Thus, the strategy did not involve further action on fundamental policies, nor did it involve prior reductions in the real wage or the real exchange rate, both of which were lower than at the end of 1982. On the contrary, public acceptance of the program was sought through some initial increase in real wages and cancellation of planned increases in some public sector prices. While wage indexation was only to be partial (except in the case of a major increase in prices), no limit was placed on employers' discretion to give productivity increases at annual wage reviews.

2. The growth objective

As noted above, the decision to pursue abrupt disinflation through shock approaches in part reflected the expectation that such approaches would avoid sharp or prolonged recessions while inflation was brought under control. The immediate objectives with respect to economic growth varied from country to country, however. In Bolivia, the general target was a revival of economic growth after several years of sharp decline; but the need to carry out a major rationalization of the public sector would make it difficult for growth to resume immediately. Argentina and Israel had both experienced low rates of growth in recent years, but given the need in both cases to reallocate resources to the external sector and to create a mild "excess supply" situation to reinforce the decline in inflationary expectations, growth was not expected to revive immediately. Only in Brazil was a high rate of growth the immediate target, continuing the high rates recorded in the previous two years.

3. External objectives

As was noted in Section II, each country also faced issues in external adjustment that needed to be dealt with in the context of their shock programs. These were reflected in the objectives of the programs. Argentina, Bolivia, and Israel, but not Brazil, targeted reductions in current account deficits, external liberalization, or both. Argentina aimed to reduce its current account deficit to 2.7 percent of GDP in 1985 from its 1984 level of 3.6 percent, while eliminating most restrictions on payments for current international transactions, including arrears, and liberalizing the trade system. Israel also aimed to reduce its civilian goods and services deficit substantially (from about 15 percent of GDP in 1984), while partially reversing the intensification of restrictions which had taken place since 1982. Bolivia's program, by contrast, provided for an increase in the current account deficit in a context of external liberalization. This deficit was to be financed by reflows of flight capital and by renewed availability of external lending on concessional terms.

Prior to its shock program, Brazil enjoyed a comfortable international reserve position but in the other countries increases in reserves were sought. Argentina and Bolivia intended to regularize their external arrears, in large part through debt rescheduling and new money, and Brazil also expected that its adjustment effort would receive such external support. Israel's adjustment effort was to be supported by continued economic aid from the United States as well as by emergency assistance from that country. Argentina, Bolivia, and Israel all expected reflows of flight capital.

The short-term domestic and external objectives of the programs, if achieved, would be consistent with progress toward balance of payments viability over the medium term. Price stability was expected to facilitate balance of payments management. Regularization of external accounts, strong current account performance, and macroeconomic balance, would create an environment conducive to stabilization of net flows of capital (whether of external or domestic origin), fluctuations in which had been severe in the preceding years. Given the heavy burden of external debt, however, a reduced current account deficit (Argentina) or a balanced current account position (Brazil, Israel) had to be contemplated for the medium term, except in the case of Bolivia, where substantial concessional assistance was envisaged.

IV. Policy Implementation

1. Fiscal policy

Among the four countries, Bolivia undertook the most far-reaching fiscal actions and achieved the most significant reduction in the fiscal deficit, which declined from 28 percent of GDP in 1984 to less than 4 percent in 1986; in the latter year domestic financing was negative. Aside from the direct positive effects on the budget of the decline in inflation, 1/ an important source of improvement was increased efficiency in public sector operations through a sharp reversal of the increases that had taken place in real wages and employment, and through setting prices at levels that fully covered costs; a wide range of other expenditure and revenue measures were also undertaken. There was a brief lapse in fiscal control at the end of 1985 that led to a renewed surge of inflation, but control was reasserted early in 1986. A similar lapse at the end of 1986 was accommodated through reserve outflows; again fiscal control was soon reasserted.

Israel also achieved a major reduction in its fiscal deficit (before grants) from 29 percent of GNP in 1984/85 to 16 percent in 1986/87. In the latter year the deficit was almost completely covered by foreign grants, and there was in fact net repayment of external borrowing and of credit from the central bank. While much of the improvement resulted from substantial elimination of the negative effects of inflation on the deficit, there was also a wide range of measures, particularly on the revenue side but also affecting expenditures.

In Argentina the fiscal deficit (including Central Bank losses) was cut from 11 percent of GDP in 1984 to less than 4 percent in 1986, but domestic monetary financing remained substantial. Strong revenue measures were undertaken, but expenditures increased by 3 percent of GDP. (The problems on the expenditure side were reflected in the fact that the deficit in the second half of 1985--the first six months of the program period--amounted to 4.3 percent of GDP, whereas the program's objective was 2.5 percent.)

1/ Such direct effects are discussed in the companion paper.

In Brazil, the preliminary estimate of the operational deficit for 1986 is that it remained at about the level to which it had increased in 1985, 3.1 percent of GDP.

2. Monetary policy

In the case of Bolivia, a principal mechanism for fiscal control was in fact credit restraint, with the expenditures of government and public sector enterprises limited to their cash receipts. The brief episodes of fiscal relaxation at the end of 1985 and again in 1986 were accommodated by monetary policy, but a nonaccommodative policy was reasserted following each episode. The role of monetary policy was strengthened through the freeing of interest rates.

Monetary policy was severely tightened at the outset in Israel and, in fact, there was a 7 percent reduction in real bank credit to the private sector through the end of 1985. Argentina's original program also called for strict limitations on credit expansion. Such restraint was reflected in high ex post real interest rates in both countries. This was a major factor in inducing a mild "excess supply" situation, reflected in a brief decline in output, that facilitated disinflation. 1/ Subsequently, there was some relaxation in credit policy. By mid-1986 Argentina's ex post real interest rates had returned to low levels. In Israel, ex post real rates remained high (around 30 percent) and the 22 percent increase in credit in real terms was in fact considerably less than the real cost of interest payments.

Monetary aggregates grew rapidly in Brazil after the introduction of the program and were reflected in increasing strains on the price freeze and an escalation of inflation after the price freeze was lifted. Monetary policy aimed at maintaining the basic nominal interest rate in the range of 15-17 percent; this was intended to result in sufficiently high real interest rates in a noninflationary environment. In fact, with continuing inflationary pressures, the result was sharply lower real rates. Some increase in interest rates took place starting in mid-1986 but total financial assets continued to grow rapidly; by the end of 1986 they were 50 percent higher than in the month prior to the introduction of the program.

3. Wage and price policies and institutions

a. Initial actions

As noted, Bolivia's policies with respect to wages and prices were, aside from a prohibition of wage indexation, largely focused on market determination and, in the case of the public sector, rationalization of

1/ This point is discussed at length in "Fighting Hyperinflation: Stabilization Strategies in Argentina and Israel, 1985-86", Bléjer and Liviatan, (WP/87/7, 2/18/87).

costs and prices. The other three countries addressed their more complex processes of wage and price determination through transition mechanisms. In Argentina and Israel, wage indexation was temporarily suspended, with the suspension explicitly limited to three months in the latter case; in both countries real wages had declined prior to the initiation of the programs. In Brazil, wage indexing was modified: cost-of-living increases were to take place annually rather than semiannually and the mandatory minimum increase at that time was limited to 60 percent of the previous year's inflation, down from the average of 92 percent that previously prevailed. 1/ (Adjustments to wages at the outset of the program, however, involved increases in real wages.) Most prices and the nominal exchange rate were frozen until further notice in Argentina, Brazil, and Israel, although the freezes were viewed as temporary measures; in Israel, the maintenance of the exchange rate freeze was made conditional on wage developments.

To avoid the distortions that could arise when inflation is abruptly stopped through controls, all three programs sought to coordinate the implementation of policy measures with respect to nominal variables. Care was taken to ensure that the levels of key variables would be consistent. In Argentina and Israel, prices were frozen only after a period during which price controls had been relaxed. 2/

b. Subsequent developments

With respect to price controls, Israel began to dismantle them as planned some six months after they went into effect. Argentina relaxed price controls in May 1986, ten months after they were introduced, but tightened them again in September 1986; a new freeze was introduced in February 1987. Widespread shortages developed in Brazil in the course of the program; some price adjustments were made toward the end of 1986, ten months after the program began, and considerable liberalization took place in early 1987.

With respect to wages, Israel's wage freeze ended as planned in October 1985 and wage indexation resumed on a partial basis.

1/ Additional productivity increases could be freely negotiated. In addition, a fully compensated wage adjustment was to be triggered automatically whenever the cumulative price increase since the preceding annual wage negotiation or automatic adjustment reached 20 percent.

2/ Measures were also taken with respect to financial indexation. Mechanisms for conversion of financial assets to new currencies in Argentina and Brazil were intended to remove the expected inflation component of nominal interest rates for the remaining period of contracts agreed prior to the programs. In Brazil, indexation of short-term financial assets in the new currency was to be suspended for one year except for savings accounts. Israel maintained indexation of long-term financial assets but the scope of indexation was narrowed for foreign-exchange linked deposits.

Argentina's freeze ended with a government decree of economy-wide adjustments in January 1986 and further adjustments took place at three-month intervals thereafter (collective bargaining was permitted within government-decreed bands). In Brazil, where wages had not been frozen, full indexation effectively resumed with the return to high rates of measured inflation at the end of 1986. Thus, in all three cases, wage setting mechanisms effectively reverted to their previous form within a year.

Real wage developments varied sharply among the programs. In Bolivia, declines appear to have exceeded 50 percent. In Argentina, the substantial decline in real wages at the outset went further during the program to bring about a cumulative decline of close to 20 percent by the end of 1985 relative to December 1984; thereafter, real wages remained broadly unchanged through end-1986. In Israel, by contrast, the decline at the outset of the program was exceeded by increases over the course of 1986. Brazil's real wages increased substantially in 1986, continuing the increase begun in 1985.

4. Exchange rate policy and external restrictions

Bolivia floated its currency at the outset of its program and maintained a broadly market-determined rate thereafter. Following the sharp initial correction of the greatly overvalued official rate, this policy resulted in a further real depreciation of 10 percent by January 1986 and exchange rate stability from then on. 1/

The other three countries all fixed their nominal exchange rates vis-à-vis the U.S. dollar for a period. The freeze ended after 8 months in Argentina, when a crawling peg was introduced; after 9 months in Brazil, with a small step devaluation in October 1986 and daily mini-devaluations from November 1986 onwards; and after 18 months in Israel, with a 9 percent devaluation in January 1987. 2/ In each case some appreciation of the real rate was to be expected during the period of the freeze, to the extent that inflation was not completely curtailed. The decline in the U.S. dollar during 1985 and 1986, however, mitigated the real effective appreciation, particularly in Israel. In Argentina, there was nonetheless a substantial real appreciation through the end of 1986, which reversed much of the real depreciation that had occurred prior to the program; further exchange rate action was taken early in 1987. In Brazil there was also a substantial real appreciation, although the fact that underlying inflation was understated by official price indices makes measurement problematic. In Israel, by contrast,

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1/ See the case study for discussion of official intervention in foreign exchange auctions, which effectively resulted in reserve accumulation on a net basis until late in 1986 and loss in reserves thereafter.

2/ Israel switched to a basket peg (with, however, a large weight for the U.S. dollar) in August 1986.

the real effective rate remained approximately unchanged through the third quarter of 1986, subsequent to which a real appreciation took place which was corrected by the devaluation of January 1987.

With respect to external restrictions, Bolivia maintained its initial liberalization. Argentina carried out some liberalization, but at a slower pace than was envisaged in the program. Israel liberalized significantly at the outset of its program, with some further liberalization during 1986 and the early part of 1987. In Brazil's case, restrictions were tightened in the course of the program.

V. Program Results

1. Inflation and economic growth

All four countries achieved an initial sharp reduction in measured inflation, but the durability of the reduction varied considerably (Chart 3). Bolivia, aside from a period of renewed inflation around the end of 1985, maintained relatively low rates generally below 2 percent monthly. Israel also generally kept its monthly inflation rates below 2 percent even after price controls were substantially dismantled. Argentina had less success as monthly rates of inflation averaging 5 percent in 1986, and 7 percent in January-February 1987, were followed by the imposition of a new price freeze in February 1987. In Brazil, as noted, inflationary pressures continued while the price freeze was in effect and were reflected in widespread shortages; by early 1987 the rate of inflation was moving to levels even higher than those prevailing before the program was adopted.

With respect to economic growth, Bolivia's recession deepened, largely on account of the closure of tin mines following the collapse of the international tin market and a sharp decline in the terms of trade. Israel's growth remained low but positive. For Argentina, by the fourth quarter of 1985 a sharp recovery was underway. Brazil maintained its previous strong growth, though the structure of economy was affected by the price distortions that developed in 1986.

2. External adjustment

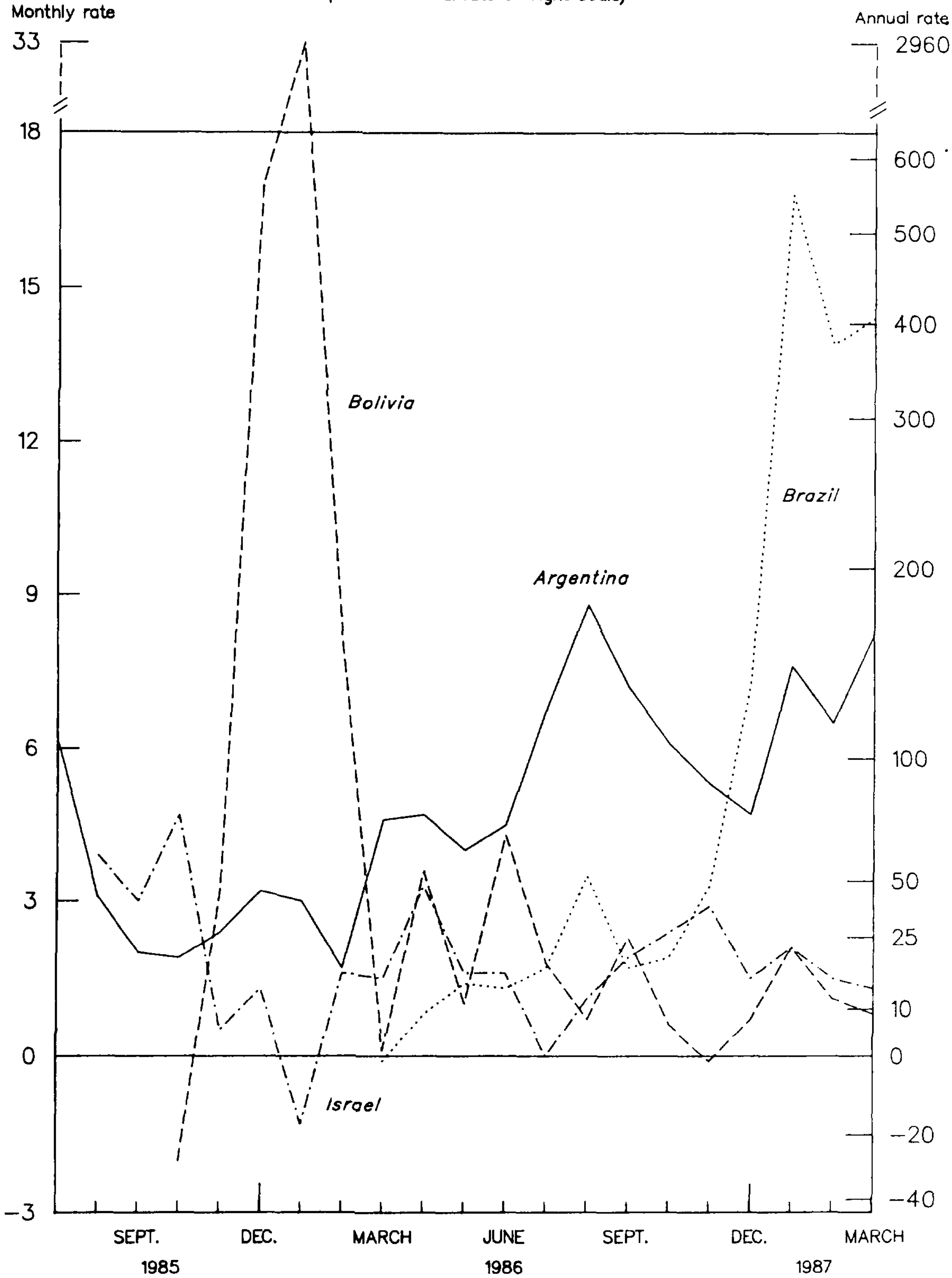
Under the shock programs, Bolivia and Israel made considerable progress with respect to their external objectives. Argentina made strong gains initially but problems developed later on. A year after adopting the cruzado plan, Brazil was facing severe external difficulties.

With weakness in export prices of tin and natural gas, Bolivia faced a severe deterioration in its terms of trade, which dropped by 27 percent between 1984 and 1986; export earnings declined, with only a minor offset from the reduction in interest payment obligations associated with the decline in international interest rates. Reflows of

CHART 3

INFLATION AFTER INCEPTION OF SHOCK PROGRAMS[1]

(Percent; monthly rate on left scale; equivalent annual rate on right scale)



Sources: Information provided by the country authorities.

[1]Changes in the consumer price index.

flight capital and progress in re-establishing financial relations with creditors and a consequent increase in the availability of external savings, however, made it possible to finance a current account deficit that increased from 3.6 percent of GDP in 1984 to 8.6 percent in 1986. 1/ The strengthening in external performance was also reflected in a near doubling of gross international reserves to a level equal to approximately ten months of imports at end-1986. Pending completion of debt renegotiations with commercial banks, however, payments arrears still remained.

Israel's deficit on civilian goods and services was cut from 14.6 percent of GNP in 1984 to 10.4 percent in 1985, increasing slightly in 1986 to reach 11.6 percent. The outturn in part reflected a small improvement in the terms of trade, but export volume also grew strongly. The remaining deficit was financed without net external borrowing, as official aid from the United States, which previously had come in part in the form of loans, was switched entirely to grants, and economic emergency aid totaling US$1.5 billion in 1985 and 1986 was added to the package.

In 1985 Argentina reduced its current account deficit by 2 percent of GDP to reach a level of 1.5 percent, despite a deterioration in terms of trade. The reduction reflected both a strong increase in exports and a compression of imports; declining world interest rates also contributed to the improvement. In 1986, however, slippages in demand-management policies and real appreciation of the currency, together with a further decline in terms of trade and weather-induced declines in agricultural production, led to a sharp reduction in the trade surplus; the current account deficit climbed back to 3.8 percent of GDP, similar to the levels recorded for 1982-84, despite further declines in world interest rates. External financing remained constrained, the current account deficit was partly financed through use of reserves, and external arrears continued to be a problem.

Brazil, which began its shock program from a position of current account balance, had a deficit equivalent to 1.9 percent of GDP in 1986, despite improving terms of trade and the decline in international interest rates. The trade surplus declined from a monthly average of US$1,150 million in the middle of 1986 to some US$150 million at the end of the year and international reserves fell by over US$4 billion during 1986. A moratorium on debt service payments to commercial banks was declared in February 1987.

1/ In part this reflects the return to official channels of previously unrecorded operations.

3. Accomplishments of the shock programs

a. Immediate results

The experience described above indicates that Bolivia and Israel were substantially successful in achieving the immediate objectives of their programs of rapid disinflation, while Argentina was less successful and Brazil largely failed to achieve its objectives. Bolivia achieved a very sharp reduction in the rate of inflation from the hyperinflation that had prevailed, and at the same time brought about an orderly adjustment of its external accounts, though the process of regularizing its external arrears remains to be completed. The deepening of its recession is attributable to the severity of the external shocks it experienced both before and during the program. Israel, which did not face such serious imbalances initially, also achieved a sharp cut in inflation while maintaining growth and reducing its external deficit. In Argentina, the sharp initial cut in inflation was followed by some resurgence, though inflation remained well below pre-program levels; the balance of payments situation, after a considerable initial improvement, also deteriorated subsequently. The renewed problems with inflation and the balance of payments were accompanied by a recovery of output and expenditure, but also led to a need to develop further adjustment measures, culminating in adoption of a new adjustment program early in 1987. High growth rates were maintained in Brazil, but at the cost of an overheating of the economy that led to inflation moving beyond pre-program levels and a marked deterioration in the external accounts.

Beyond these immediate results, however, lies the question of the extent to which the programs achieved a fundamental correction of their problems with inflation, growth, and external viability.

b. Inflationary expectations

While Bolivia and Israel both achieved a sharp and enduring disinflation, inflation was not entirely eliminated; in the early part of 1987 it appeared to be continuing at an annual rate on the general order of 20 percent. The question remains, moreover, as to whether inflationary expectations have been corrected to the same extent as inflation has been reduced. Persistence of such expectations leaves very little room for policy slippages (viz., the virtually immediate translation of monetary expansion into higher prices when Bolivia briefly relaxed its fiscal and monetary stance at the end of 1985). While direct observations of expectations are not available, one useful indicator is the interest rate on domestic currency assets relative to those on foreign currency. In Bolivia, interest rates fell sharply in the course of 1986, but at the end of the year local currency deposit rates were still considerably higher relative to dollar deposit rates than would have been justified on the basis of current inflation rates. Israel's interest rates also appeared to reflect an expected rate of future inflation considerably higher than current rates. This suggests that the effect on expectations of very high inflation rates cannot be corrected overnight. Rather, strict and convincing attention to policy fundamentals needs to be maintained over a number of years to eradicate the effects of such episodes.

c. Foundations for durable growth

Resurgent inflation and balance of payments problems in Brazil (and, to a lesser extent, Argentina) suggest that the high rate of growth recorded in 1986 cannot be maintained. Even more fundamentally, investment in each of the four countries remains well below the rates (in excess of 20 percent of GDP) that they had attained in the mid to late 1970s.

For the three South American countries, a return to high levels of investment would be facilitated by renewed availability of external resources, provided the right environment existed for their productive use. In all four countries there remained at the end of 1986 a need to increase domestic savings.

d. External viability

As noted, the programs of Bolivia and Israel had considerable success in correcting external imbalances. More generally, Bolivia's policies of fiscal restraint, exchange rate and interest rate flexibility, and internal and external liberalization facilitate a flexible response to external difficulties. While Bolivia is dealing efficiently with the external imbalances associated with the decline in terms of trade, the shortage of external resources remains a critical constraint.

Israel's domestic institutions and practices place greater constraints on the flexibility of policy, and continuing attention to real wages and the real exchange rate is needed if external competitiveness is to be maintained. However, in contrast to Bolivia, Israel has not experienced an interruption in the flow of external resources.

VI. Observations on the Experience with Programs of Rapid Disinflation

The complexity of the situations of the four high inflation countries that undertook programs of rapid disinflation in 1985-86 make it difficult to draw clear conclusions about the efficacy of such programs, particularly since in some aspects the programs are still continuing, at least in Bolivia and Israel. Some tentative observations on the programs may nonetheless be mentioned.

All four programs did succeed in virtually eliminating inflation for a time, but none succeeded in eradicating it. The disinflation achieved by Bolivia and Israel (and to a lesser degree Argentina) was substantial and, to date, durable.

1. The importance of the fundamentals

The four programs combined, in varying degrees, measures to correct the fundamental imbalances in the economy and measures aimed purely at correcting the inertial and expectational elements in inflation. 1/ Bolivia's program focused mainly on the fundamental aspects, that of Brazil mainly on the inertial and expectational aspects, while those of Argentina and Israel involved measures of both types. The outcomes suggest that it is possible to achieve rapidly a lasting retreat from very high rates of inflation, but that an appropriate stance of fiscal, monetary, and external policies is a necessary condition for success. Bolivia and Israel both implemented strong corrections of fundamental policies, and both achieved a durable reduction in inflation. Argentina initiated a similar strong correction, but over time policy slippages resulted in a return to high levels of inflation, though not as high as before the program. In Brazil, the absence of restraint with respect to fundamental policies resulted in a resurgence of inflation to levels even higher than those that prevailed prior to the shock program.

2. The role of direct controls

The experience with the "heterodox" elements of the programs of Argentina, Brazil, and Israel suggests that direct controls on wages and prices can play a major role in overcoming the inflationary inertia associated with widespread indexation, provided that such controls are used in support of, and not in place of, needed changes in the fundamentals. Where the structure of real wages and other relative prices has become distorted, however, adjustments to appropriate levels need to be undertaken before the freeze is imposed. Moreover, the freeze should have built into it some procedure for early correction of clearly anomalous prices, and the duration of the freeze needs to be strictly limited. Israel's program appears to have broadly met these various criteria.

3. The feasibility of maintaining growth throughout the process of disinflation

An argument made in favor of heterodox programs is that they can achieve abrupt disinflation without loss of output, if inflation is solely attributable to inertia and expectations. The evidence does suggest that shock programs, whether heterodox or orthodox, have relatively small costs in terms of foregone output. Israel maintained growth, albeit at a low rate; and the deepening of Bolivia's recession

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1/ It needs to be kept in mind that changes in fundamental policies, provided they are convincing, are themselves the major force in changing expectations.

was surprisingly mild, given the severity of the simultaneous deterioration of the terms of trade and the need to carry out a major restructuring of the public sector. But some cost in terms of foregone output cannot be avoided--that is, a mild degree of "excess supply" appears to be essential to facilitate the disinflation process. This occurred in the initial stages of the programs of both Argentina and Israel, and in both cases a substantial degree of price stability was achieved without shortages or other evidence of repressed inflation; in Brazil, by contrast, shortages quickly developed.

4. Abrupt disinflation and monetary policy

The elimination of inflationary expectations can be expected to result in an increase in the demand for money that may provide room for credit expansion. 1/ As was noted in Section V, however, inflationary expectations cannot be eliminated overnight, and it is difficult to ascertain what rate of credit expansion can be regarded as noninflationary. Given this uncertainty, on balance it may be better to err on the side of caution, given the priority attached to dealing with inflationary expectations. In particular, it is important not to try to move nominal interest rates to "noninflationary" levels until there is evidence that inflationary expectations have come down. Thus, Brazil's policy of setting the interest rate structure relative to a floor of 15 percent, which would have been conservative if, in fact, inflationary expectations had disappeared, was in fact highly inflationary.

The argument for a cautious credit policy set out above is reinforced when the objective of strengthening the balance of payments is taken into account, since a shortage of domestic liquidity can be met through reflows of flight capital or other capital inflows, leading to a strengthening of international reserves. The availability of such resources, or of domestic assets denominated in foreign currency, to meet the demand for liquidity mitigates the downward risk of a tight credit policy. (The extent to which such flows could be a satisfactory substitute for domestic credit would of course depend on the efficiency of financial markets.)

5. Exchange rate policy in indexed economies

In Argentina, Brazil, and Israel, currency depreciation in the period leading up to the adoption of the shock programs contributed to the acceleration of prices. This was to be expected in the absence of strong support from fiscal and monetary policies and, when such policies in fact moved in the opposite direction, the acceleration was very large

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1/ If most financial assets are indexed, elimination of inflationary expectations might have little effect in the total demand for such assets. An increase in demand for non-interest-bearing assets and particularly currency, could still be expected, which would permit an expansion of central bank credit.

indeed. The experience of these three countries also suggests that wage indexation adds a further complication. In a nonindexed economy, downward rigidity of some or all prices may imply that adjustment of relative prices can take place only through movement to a higher general price level. 1/ Analogously, indexation provides a downward rigidity to the rate of inflation so that adjustment of relative prices can take place only with movement to a higher rate. The demand restraint required to stop this from happening might need to be very severe, particularly where indexation is a matter of government policy not just a market response to inflation. Thus, Brazil in its 1983-84 adjustment program experienced a sharp increase in its rate of inflation, even though over the course of the program there was a substantial cut in the operational deficit. In such circumstances, therefore, it may be essential to support the exchange rate action not only with an appropriate stance of macroeconomic policies but also through action on the institutional aspects.

6. Exchange rate policy in heterodox programs

Market determination of the exchange rate, which figured in Bolivia's program, was not considered a feasible option in the programs of Argentina, Brazil, and Israel; rather, an exchange rate freeze was considered a necessary quid pro quo for wage stability, as well as a signal that the authorities were determined to eliminate inflation.

A commitment to exchange rate stability as a means of achieving and maintaining public support for stable domestic policies has often figured in economic policy. 2/ It is vital, however, that the level at which the rate is fixed is a viable one, which may be difficult to determine ex ante in a country that is emerging from a period of high and variable inflation and severe external imbalance. In both Argentina and Israel, the exchange rate was pegged at a level that involved a significant real depreciation 3/ and there was also a decline in real wages so that a substantial boost to competitiveness took place. In Brazil, by contrast, the nominal exchange rate was frozen at a level that involved no real depreciation, while at the same time real wages

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1/ Price rigidity is never absolute, of course, and can be overcome through sufficient demand restraint--but perhaps at unacceptable cost in terms of foregone output.

2/ While Fund policy has adapted to the shift from the par value system that prevailed before the second amendment to the Articles of Agreement to the present regime of flexible exchange rate arrangements, exchange rate stability continues to be considered an important policy objective; in particular, the Fund is supportive of the pegging of the exchange rate whenever the conduct of domestic policies is consistent with the constraints posed by the peg.

3/ Measured in terms of relative consumer prices. In terms of relative costs (the proper measure of competitiveness) the real depreciation was enhanced by the cut in real wages.

increased, implying that a significant decline in competitiveness took place, with further declines thereafter as wages continued to increase.

Aside from the choice of the level for the peg, a further issue is the length of time that the exchange rate freeze can be maintained. Even in Israel, which had the most success with its heterodox program, the rate of inflation remained substantial, and competitiveness would have been very quickly undermined if it were not for the fortuitous decline of the nominal effective exchange rate because of the tie to the U.S. dollar. 1/ If prolonged maintenance of an exchange rate freeze is considered essential to the success of such a program, therefore, it may be important to build a substantial degree of "overshooting" into the initial exchange rate action.

7. The framework for wage and price determination

One of the most striking features of the three countries that undertook heterodox programs is the extent to which government had long been actively involved in decisions on wages and prices, particularly in their large public sectors, but also in the rest of the economy. This involvement increased over time through efforts to cope with inflation, but also may itself have contributed to increasing inflation.

While this role of government has come to be seen as an integral part of the socioeconomic fabric of the three countries, the fact that the government is seen as taking a degree of direct responsibility for wages and prices, albeit in consultation with labor and management, is a constraint on policy-making that requires exceptionally close attention to the details of economic policy. From this perspective, a possible weakness in the three heterodox programs, in contrast to Bolivia's program, is that they did not move decisively toward a greater role for market forces in wage and price determination. In particular, the practice of indexation, which was strongly influenced by government policies, not just market forces, was suspended only temporarily, and has since been resumed, subjecting wage determination to powerful political forces that may conflict with economic realities.

8. Summary

In sum, the experience of Argentina, Bolivia, Brazil, and Israel with their shock disinflation programs demonstrates the importance of attention to the fundamentals of macroeconomic adjustment if disinflation is to be achieved. It also demonstrates that with such attention, it may be possible to achieve disinflation without severe or prolonged recession. Where wage indexation is widespread, action to break its inertial effect, such as through direct controls on wages, prices, and the exchange rate, may be essential to the disinflation process. Such controls, however, place particularly strong demands on macroeconomic policy formulation, since demand pressures can quickly

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1/ In part, of course, the continuing inflation was itself attributable to the decline in the nominal effective rate.

undermine the positive effects of the anti-inflation package on inflationary expectations and also lead to allocative inefficiency. More generally, the history of inflation in these countries and their past experience with inflation control suggests that a substantial degree of government involvement in the policies and institutions governing wage and price determination, which may act as a stabilizing factor in favorable circumstances, can exacerbate inflationary pressures in more difficult circumstances, particularly when external adjustment needs to be undertaken.

Table 6. Position Prior to the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
<u>Target Variables</u>				
Inflation	Monthly inflation rate at 32% in month program was introduced.	Monthly inflation rate at 66% in month prior to program.	Monthly inflation rate at 14% in month prior to program.	Monthly inflation at 15% in month prior to the program.
Balance of payments	Current account deficit at 3.5-4.0% of GDP in 1983-1984. Gross reserves at 10 months of imports at the end of June 1985 (disposable reserves at about 4 months); large external payments arrears.	Current account deficit 3.5-4.0% of GDP in 1982-84. Gross reserves at seven months of imports at end-1984 (disposable reserves at about 1 month of imports); external arrears, reached $1 billion (25% of GDP) by mid-1985.	Current account equilibrium in 1984 and 1985. Gross reserves at 9 months of imports (end-1985).	Civilian goods and services deficit at 14.5% of GDP in 1984 compared with 11% before the external shocks of 1981-82. Gross reserves declined from 6 months of imports (end-1982) to 4 months (end-1985).
Growth	GDP grew at 2.6% in 1984; during the year ended in mid-1985 real GDP declined by almost 3.5%.	Deep recession; output declined each year during 1982-85 (cumulative decrease: 20%).	After a 2½% drop in 1983, output increased by 6% in 1984 and expanded by more than 8% at 1985.	After 1% real growth in 1984, economic activity increased rapidly during the first half of 1985 in response to rising domestic demand and favorable export prospects.
<u>Macroeconomic Policies</u>				
Exchange rate	Real appreciation during 1983 and first 9 months of 1984 mostly reversed during fourth quarter of 1984 and first half of 1985 in preparation for the shock program.	Real effective exchange rate appreciated by several hundred percent in 12 months prior to program. Most transactions through parallel market, premium 1,500% before program.	System of daily minidevaluations maintained real effective exchange rate at competitive level.	Real effective exchange rate appreciating since 1978; a reversal of this trend initiated in 1984.

Table 6 (continued). Position Prior to the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Real wages	Real wages increased by 30% in 1984 but declined by 20% during first half of 1985.	Real minimum wage on downward trend since 1983, but data for real salaries show sharp increases in 1983-84. (Major increases granted through bonuses not captured in indices.)	Real wages grew by 30% during 1977-1982, dropped by 10% during 1983-84 and increased by 6% in 1985.	After rising by 15% over 1981-83, real wage declined by 3% in 1984.
Fiscal	Public sector deficit (including losses of the Central Bank) was equivalent to 11% of GDP in 1984, and to 12.5% of GDP in the first half of 1985.	Fiscal deficit rising, from 16% in 1982 to 28% in 1984.	Public sector borrowing requirement (PSBR) rising from 22% of GDP in 1984 to 27% in 1985. Operational fiscal deficit increased from 1.6% of GDP in 1984 to 3.5% in 1985. 1/	Public sector deficit (before grants) increased from 19.3% of GNP in 1982/83, to 23.5% in 1983/84 and 29.1% in 1984/85. 2/
Monetary	Accommodative monetary policy.	Accommodative monetary policy; central bank financed fiscal deficit.	Accomodative monetary policy validated pressures from demand imbalances and indexation arrangements.	Accommodative monetary policy. Monetary aggregates increased in real terms during the first half of 1985.
<u>Institutional Aspects</u>				
Price determination	Comprehensive price controls in place but applied flexibly during second quarter of 1985 in preparation for the shock program.	Official price controls on items comprising more than 40 percent of CPI; controls widely circumvented.	Direct controls and administered prices applied to 60% of goods included in the wholesale price index.	Prices freely adjusted except for subsidized goods.

Table 6 (continued). Position Prior to the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Wage determination	Wage increases decreed by Government on a monthly basis. Catch-up adjustments to keep wages ahead of prices discontinued in second quarter of 1985 and wage indexation reduced to 90 percent of inflation in previous month in preparation for shock program.	Wage indexation formally introduced in March 1983, subsequently modified to shorten lags. Wage increases (negotiated often in the context of general strikes) implemented across all sectors.	Semi-annual wage adjustments providing for full indexation of lower wages, with degree of indexation falling gradually to 80% for higher wages.	Wages revised monthly. A cost of living adjustment of 80% (90%) to be paid when cumulative inflation reached 12% (exceeded 25%). Selected ad hoc exclusions to these adjustments applied occasionally.
Financial indexation	Widespread indexation of financial assets.	Formal financial indexation prohibited by law.	Full indexation of financial instruments.	Almost all financial assets linked to the exchange rate or the consumer price index.
Exchange restrictions	External payments arrears, licensing of imports, restrictions on invisibles, multiple currency practices for current and capital transactions.	Tight import controls, external arrears; strict allocation of official foreign exchange.	Liberalization of exchange and trade system during 1984; system remained highly complex and significant controls helped regulate flow of imports.	Tightening of exchange restrictions since 1982.
External Environment				
Terms of trade	Terms of trade declined by 18% in 1982-83; improved by 8% in 1984 but declined again by 11 ½% in 1985.	After improving in 1979-80, terms of trade broadly unchanged in 1981-85.	After a 47% cumulative decline in 1978-83, terms of trade improved by 9½% in 1984 and remained unchanged in 1985.	After a 15% cumulative decline in 1979-1981, terms of trade recovered by 3% in 1982-84.

Table 6 (concluded). Position Prior to the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Demand in partner countries	Demand for non-oil imports in partner countries decelerated during 1980-83 but picked up in 1984 (9%) and 1985 (7%).	After rapid increases during 1979-80, demand from partner countries dropped a cumulative 25% during 1981-83; it increased by 7% in 1984 and dropped by 8% in 1985.	Demand from partner countries decelerated over 1979-82. Recuperation in 1983 (5%); in 1984 (12%), and deceleration in 1985 (5%).	Demand for non-oil imports in partner countries decelerated markedly during 1980-82; increased (9%) in 1983 and (15%) in 1984, and decelerated in 1985 (6%).

1/ In the Brazilian context, the public sector borrowing requirement can be broken down into two components: the part of interest payments due to indexation of Treasury debt (monetary correction), and the net result of all other budgetary items (operational deficit), which includes real interest payments beyond monetary correction.
2/ Fiscal year April/March.

Table 7. Elements of the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Target Variables				
Inflation	Targeted reasonable price stability.	Targeted zero inflation.	Targeted zero inflation.	Targeted sharp reduction in inflation.
Balance of payments	Aimed at reduction in both current and overall deficits.	Aimed at restoration of normal payments relations, and increased imports within financing constraints.	Aimed at maintaining current account balance.	Targeted reduction in civilian goods and services deficit
Growth	Real GDP was expected to decline by 1 percent in 1985.	Targeted revival of economic growth.	Targeted maintenance of rapid growth registered during 1985.	Targeted recuperation from sluggish growth registered in 1982-84.
Macroeconomic policies				
Exchange rate	Implemented 10% real depreciation on top of a 20% real depreciation which took place from September 1984 until program was introduced; pegged to the U.S. dollar for an indefinite period thereafter.	Official exchange rate floated via auction; free access to auction. Initial depreciation of over 90% in foreign currency terms.	Immediately after the introduction of the program, nominal rate fixed vis-a-vis the U.S. dollar for an indefinite period.	Implemented 5% real depreciation; stabilized the sheqel-U.S. dollar rate for an indefinite period thereafter but made it conditional on wage developments.
Real wages	Nominal wages frozen after an increase which compensated for only 90% of inflation in previous month; subsequent nominal wage adjustments starting January 1986.	Substantial cut in real wages; public sector wage freeze after initial adjustment.	Minimum wage increased by 16% (other wages by 8%) over and above the increase needed to maintain the respective real wages at their average levels in the preceding six months.	Nominal wages increased by 14%, which implied a 12% cut in real wages.

Table 7 (continued). Elements of the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Fiscal	Public sector deficit (including the operating position of the Central Bank) reduced from 12.5% of GDP in the first half of 1985 to 4.3% of GDP in second half of 1985 (versus program target of 2.5%) in spite of 3% of GDP increase in expenditure.	Deficit cut sharply; revenue effort focused on increase in public sector tariffs (in particular, petroleum products), tax reform; expenditure cuts in wage bill (real wages and public employment) and goods and other services.	No fiscal action at the outset. 1/	Deficit (before grants) to be cut by 7.5% of GNP in 1985/86 (3.2% due to increased revenue, 4.3% due to lower expenditure).
Monetary	Targeted 1% increase in broad money per month and zero central bank credit to the nonfinancial public sector through September 1985.	Nonaccommodating. Interest rate ceilings lifted, foreign currency denominated deposits allowed; deposits of non-financial public sector with the Central Bank frozen in early 1986.	Monetary policy through June 1986 aimed at fixing 15% interest rate in the overnight market, which sets the floor for the interest rate structure in the economy. Rapid expansion of monetary aggregates.	Monetary policy severely tightened. Program targeted 10% reduction in real bank credit outstanding as of end-July, to be maintained constant thereafter; high interest rates.
Institutional Aspects				
Price Determination	Prices frozen after an initial adjustment. Price freeze to be lifted gradually.	Abolished previous price controls.	Decreed freeze of retail prices for an indefinite period. 2/	Prices frozen after an initial adjustment. Price freeze to be lifted gradually.

Table 7 (continued). Elements of the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Wage Determination	Wages frozen after an initial adjustment; freeze to be lifted gradually.	Abolition of wage indexation. Froze employment and wages in the public sector; free wage negotiations between trade unions and employees to take place in the private sector. Allowed dismissal (with compensation) in public and private sector.	Shifted wage negotiations to an annual basis and decreed that they should include mandatory but partial (60%) cost-of-living adjustment, with the remaining 40% subject to negotiation. Automatic and full wage adjustment to be triggered whenever the cumulative price increase since the preceding annual wage negotiation or automatic adjustment reached 20%.	Three-month suspension of wage indexation. Wage indexation to be enhanced after its reintroduction in October 1985. 3/ Lump-sum payments (not part of the base for future increases) to be made in the period through March 1986.
Financial indexation	A monetary reform was introduced consisting of the adoption of a new currency unit and a mechanism to remove the expected inflation component of nominal interest rate in contracts signed prior to the program. Financial indexation was not explicitly abolished.	Financial indexation was permitted.	A monetary reform was introduced consisting of the adoption of a new currency unit and a mechanism to remove the expected inflation component of nominal interest rate in contracts signed prior to the program. Indexation of most short-term financial assets was suspended for 12 months, with the exception of passbook savings and compulsory savings accounts. 4/	Indexation of long-term financial assets maintained although with somewhat narrower scope for foreign-exchange linked deposits.

Table 7 (concluded). Elements of the Shock Program

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Exchange restrictions	Most payments restrictions on current transactions, including arrears, to be eliminated, and trade system to be liberalized.	Liberalization of exchange and trade system, tariff reform to introduce uniform tariff rate and reduce exemptions.	No change.	Some liberalization of trade and payments (elimination of import deposit requirement on most goods; reduction of export subsidies) accompanied by some increase in restrictions (the introduction of a 15% levy on foreign investment abroad).

1/ Some revenue measures were taken two months prior to the program, but they were mainly directed at dealing with tax erosion due to accelerating inflation and had minor fiscal impact after inflation was significantly reduced.

2/ After the price freeze firms were permitted to allocate among themselves margins which had been built into prices on account of expected inflation.

3/ An adjustment of 80% would be paid when the cumulative increase in the consumer price index reached 4% or after an interval of three months, whichever came earlier.

4/ Instruments with a maturity longer than twelve months were permitted to be indexed to a newly created bond whose value would not be adjusted for inflation until March 1, 1987.

Table 8. Shock Programs: Position Early 1987

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
<u>Target Variables</u>				
Inflation	Monthly inflation rate at about $2\frac{1}{2}$% in the period August 1985-February 1986; accelerated to about 9% in mid-1986 and declined to about 5% in late 1986. Prices frozen at the end of February 1987 after 7% inflation in January 1987.	Monthly inflation rate at about 1-2% through March 1987 with the exception of a brief acceleration in December 1985-January 1986.	Monthly inflation rate at about 1-2% from March through October 1986. Generalization of illegal premia during 1986 that were not reflected in the official price index. Acceleration of inflation since December 1986 reaching 21% in April 1987.	Monthly inflation rate at 1-$2\frac{1}{2}$% through December 1986.
Balance of payments	Current and overall accounts improved in 1985 by US$0.5 billion and US$1 billion, respectively, more than expected under the program, but both deteriorated in 1986. The reserve position came under pressure at the end of 1986.	Exports dropped sharply following 25% drop in terms of trade in 1986; current account deficit widened to 8-9% GDP in 1985-86, partly reflecting previously unrecorded imports. Private capital inflows larger than projected; gross reserves rose to about 10 months of imports.	Rapid deterioration of trade performance: surplus dropped from a monthly average of US$1 billion in the first three quarters of 1986 to US$170 million in the last quarter of 1986 and first quarter of 1987. Drop in gross reserves to less than five months of imports by end-1986.	Reduction in civilian goods and services deficit from 15 percent of GDP in 1984 to 12 percent in 1986. Gross reserves increased from 4 months of imports in mid-1985 to 6 months of imports by end-1986.
Growth	Real GDP expanded by 5.5% in 1986 after declining 4.8% in 1985 (compared to a targeted decline of 1% under the program).	Recession continued largely due to closure of tin mines after collapse of international tin market; estimated decline in real GDP of about 3% in 1986.	Estimated 8% real growth in 1986 in spite of a weather-induced decline in agricultural production.	GDP grew 2% in 1986, after 3% growth in 1985.

Table 8 (continued). Shock Programs: Position Early 1987

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Macroeconomic Policies				
Exchange rate	Crawling peg introduced in April 1986. Real effective exchange rate appreciated 12% between July 1985 and December 1986.	Official exchange rate stable after 10% real depreciation during November 1985-January 1986; premium in parallel market below 2% throughout 1986 and early 1987. Reserves drawdown during December 1986-February 1987 to offset credit expansion and maintain exchange rate.	Fixed exchange rate vis-a-vis the U.S. dollar through November 1986 (excluding a small step-devaluation in October 1986). Real exchange rate appreciated during 1986 due to widening inflation differential. 1/ Return to daily minidevaluations in November 1986 and 7.5% step devaluation in May 1987 appear to have restored competitiveness to pre-cruzado levels.	Real effective exchange rat eunchanged through third quarter of 1986; appreciated by about 6% in last quarter of 1986; 9% nominal depreciation in February 1987.
Real wages	Real wages decreased in 1986 by about 3%	Real wages dropped sharply during 1985-86 (60-80% cumulative).	Real wages increased by about 9% during 1986 and began to decline in early 1987.	Following a sharp decline average real wages (i.e., private and public sector) increased to pre-program level by March 1986. During 1986 average real wages increased by 12%, private sector wages by 14%.

Table 8 (continued). Shock Programs: Position Early 1987

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Fiscal	Public sector deficit (including operating losses of Central Bank) remained at about 4% of GDP through the end of 1986.	Deficit in 1986 (3-4% GDP) much smaller than programmed reflecting low investment and cash squeeze on other spending. Tax reform package adopted in May 1986.	Two fiscal packages were introduced mid-course to correct public sector deficit. 2/ Operational fiscal deficit maintained at 3% of GDP in 1986. Overall deficit reduced to 10% of GDP in 1986 mostly due to disinflation effect on interest payments.	Deficit (before grants) cut by estimated 4% of GNP in 1986/87; overall deficit (after grants) estimated at 1% of GNP.
Monetary	M1 expanded at about 5% per month in 1986 (M2 at about 7%).	Narrow money expanded by 47% in 11 months to November 1986, reflecting increased money demand and reserves buildup. Rapid credit expansion in December 1986, (currency issue increased 26%). Real interest rates remain high.	Total financial assets expanded at annual rate of about 55% during March-December. Some tightening since July 1986 through high interest rate policy.	Short-term bank credit to private sector fell by 7% in real terms during second half of 1985. Picked up from early 1986 onwards.
Institutional Aspects				
Price Determination	Price controls were relaxed in May 1986, tightened in September 1986, and a price freeze was reintroduced in February 1987.	No price controls.	Partial price liberalization decreed in February 1987, following isolated price adjustments during November 1986-January 1987.	Gradual dismantling of price controls since January 1986. By March 1986, items accounting for 46% of the price index were liberalized; by end-1986, 55% were liberalized.

Table 3 (continued). Shock Programs: Position Early 1987

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Wage Determination	Government remained involved in wage-setting by issuing guidelines for economy-wide adjustments which were granted during 1986 in January, April, July and October, and in January 1987.	Public sector wages increased in May 1986 and April 1987.	Reduced probability that inflation would activate the 20% trigger for automatic wage adjustments by determining in November 1986 that unofficial wage increases granted since the introduction of the plan, which appear to have been substantial for most labor categories, would be deducted from inflation (along with official wage increases) for determining when the 20% trigger would be activated for any particular labor category.	Reintroduction of wage indexation in October 1985.
Financial indexation	The basic institutional arrangements for indexation of financial assets remained in place.	Arrangements exist for the indexation of financial assets to U.S. dollars.	Indexation reintroduced for short-term financial assets in February 1987.	Institutional arrangements for the indexation of financial assets remained in place.

Table 8 (concluded). Shock Programs: Position End-1986

	Argentina (June 1985)	Bolivia (August 1985)	Brazil (February 1986)	Israel (July 1985)
Exchange restrictions	Exchange and trade restrictions were liberalized but at a pace that was slower than what was envisaged under the program--arrears and several multiple currency practices remained at the end of 1986.	Maintained external arrears on debt service payments, mainly to foreign commercial bank; approved by Fund Board through March 1987.	Broadening of multiple currency practices (extension of the financial transactions tax on purchases of foreign exchange for travel abroad--July 1986--and reintroduction of contribution quota for coffee--November 1986). Tightening of restrictions--annual import exchange budgets started to become binding.	Further liberalization.

1/ *Quantification of the appreciation is not possible because widespread illegal premia are not recorded in the official price index.*

2/ These packages consisted mainly of the following: (1) increases in indirect taxes (July 1986); and (2) further increases in indirect taxes and adjustment of selected utility rates (November 1986).