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Inflation and Stabilization in Israel--Conceptual  
Issues and Interpretation of Developments

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Abstract

This paper analyzes the economic program that led to the recent dramatic reduction of inflation in Israel. A distinction is drawn between the roles of temporary policy initiatives, such as wage-price controls, and more fundamental determinants of stability such as the government's budget and the external position of the economy. Developments in the "fundamentals" are analyzed before and after the launching of the program and the performance of the transition strategy is evaluated.

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## I. Introduction

The economic stabilization program (ESP) in Israel, launched in July 1985, succeeded in bringing down inflation drastically from a level approaching 15 percent per month to about 2 percent. This was achieved with only a slight increase in unemployment. Even if one thinks that this achievement is temporary (and many people do) one has to provide an explanation of the mechanism through which the policy managed to work over the past year (in May to July 1986 inflation dropped to an average of 1 percent per month).

The policies adopted by the ESP consisted not only of the traditional restrictive fiscal and monetary measures, but included also a sophisticated system of incomes policies and price freezes, combined with a fixed exchange rate policy to which we shall refer as the "transition strategy." It should be stated, however, that the need for a special transition strategy is controversial, both in Israel and abroad.

In the present paper, we shall defend the use of a transition strategy on top of the required adjustment in the more basic variables, such as the budget deficit. The main points of our position were expressed in an earlier study (Liviatan and Piterman (1985) hereafter LP). We shall, however, elaborate some of these ideas in view of the additional perspective gained in the past two years.

A similar view of these matters, using a rather different approach, was formulated in a recent imaginative paper by Bruno (1986 b), who suggests that a transition policy, combined with a cut in the budget deficit, are needed in order to shift from high to low inflation equilibrium (in a system with dual steady state equilibria for every budget deficit).

In the present paper we shall also examine the basic features of the actual transition strategy adopted in Israel and try to evaluate its rationale. In order to put it in proper perspective, we have to analyze the interaction between the transition strategy and the fiscal and monetary policies of the ESP.

In LP we stressed that before sharp disinflation is introduced, it is necessary to take the appropriate fiscal and monetary steps in order to get the current account of the balance of payments (BOP) into a sustainable position. Without this initial condition the expectations of devaluation will prevent price stabilization. In the present paper we shall examine to what extent this condition was satisfied in practice. In addition, it is important to examine the initial state of the basic relative prices such as real wages and real exchange rates. The initial configuration of the real variables mentioned above played a most important role in the subsequent stabilization.

In evaluating the ESP we must examine its effects on the real variables of the system. The main interest is, of course, in its effect on unemployment. But there is also much significance to its effect on the import surplus and on relative prices. Unfavorable developments in these variables endanger the continuation of stability.

This evaluation has to be supplemented by an analysis of the effects of the ESP on the internal and external financial position of the economy. It will be seen that the improvement associated with the ESP was in fact in the (broadly defined) financial area, while the improvement in the trade balance and in relative prices took place prior to the ESP.

The most important question is whether the achievement of the ESP can be extended to the future. In the longer run, the transition strategy has to be replaced by more conventional policies. It is yet too early to state whether the government is ready for these policies. In the concluding section we point out some of the principles, and difficulties, of consolidating longer-term stability.

The analysis of various problems mentioned in this introduction will be based on a certain conception of the inflationary process in Israel, which is described more fully in LP. It will therefore be useful to restate the main ideas of this approach, with some modification in view of the additional understanding gained from the more recent empirical and theoretical developments. The paper is, accordingly, divided into two parts: the inflationary process in Israel during the inflationary acceleration of 1973-1984, and the economic stabilization program of 1985-86.

## Part I. The Inflationary Process in Israel (1973-84)

### 1. An inflation tax approach

The classical motivation of a government-induced inflation is to raise revenues to finance the budget. 1/ This idea can be illustrated for a closed economy by the following example. 2/ Suppose that the real budget deficit (excess of expenditures over taxes) is financed only by printing money. Then the government budget equation can be written as

$$(1) \quad D = \frac{\dot{M}}{P} = \pi m \text{ (in steady states)}$$

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1/ See Friedman (1971).

2/ This is described more fully in Liviatan (1983).

where  $D$  is the real deficit,  $M$  is the addition to the nominal money stock,  $P$  is the price level,  $\pi$  the inflation rate, and  $m = \frac{\dot{M}}{P}$  (no banking system). If we confine ourselves to steady states then (1) holds.

Assume a demand function for money of the form

$$(2) \quad m^d = L(\pi^e)$$

where in steady states inflationary expectations  $\pi^e$  equal  $\pi$  and  $m = m^d$ . We may then describe the long-term determination of  $\pi$  by the intersection of the DD curve in Figure 1, which corresponds to (1), and LL, which corresponds to (2). This is the simplest theory of long-term determination of  $\pi$ . Assuming less than unitary elasticity for  $L$ , the equilibrium level of  $\pi$ , and the inflation tax  $\pi_m$ , will increase with  $D$ .

In practice, the deficit is financed not only by printing money, but also by borrowing from the private sector and from abroad. However, when the debt is fully indexed it is still true that the motivation for inflation (in the traditional approach) is in the inflation tax, or, in an alternative version, in the revenue from printing money ( $\frac{\dot{M}}{P}$ ) which will differ from  $\pi_m$  off steady states.

When we examine the long-term developments in Table 1, we see that the acceleration of inflation in Israel in the late 70s and early 80s was not accompanied by an increase in government revenues from printing money or from erosion of the money base. It is also evident that the revenue from printing money was small, most of the deficit being financed by the government's domestic borrowing.

An additional factor is relevant in this context. This has to do with the strange policy, which existed in Israel, of indexing government debt but not indexing private (mainly firms') debt to the government. As inflation jumped to a new plateau in 1974 the nominal interest rates on government loans exhibited considerable institutional rigidity so that the government's receipts from the repayment of these loans eroded considerably in real terms. This became known as the "credit subsidy," which reached a fantastic level of 10 percent GNP in 1973-77 (linkage of new loans was established in 1979).

This implies that ex post the government lost much more than it gained by stepping up inflation. Even if we allow for the fact that part of this subsidy was intentional, 1/ it still casts serious doubts on the idea of revenue-motivated inflation.

An additional fact emerging from Table 1 is that the increase in inflation in 1977-83 was associated with a reduction in the budget deficit. In theory, a reduction in the deficit is not inconsistent with an increase in inflation. In particular, inflation may follow a course which is independent of the deficit if it is governed by inertia and accommodated by monetary policy.

Let us illustrate this idea by means of an example. Let us introduce the banking system in the model described in section 1. Then the budget deficit injects base money (H), the real value of which is  $h = \frac{H}{P}$ . The budget equation (1) is then changed to  $D = \pi h$ . Suppose that the money base is related to the means of payments M by a constant factor  $\alpha$  ("reserve ratio"). Then we have  $\frac{M}{P} = L = \frac{h}{\alpha}$ , i.e.,  $h = \alpha L(\pi)$ . We may then write (2) as  $h = \alpha L(\pi)$  and interpret m in Figure 1 as h [so that the LL curve represents  $\alpha L(\pi)$ ]. Consequently, a reduction in the reserve ratio will shift LL to the left (reduce demand for base money) and  $\pi$  will increase. 2/ This may offset the effect of reducing the deficit.

This shows that  $\pi$  is not determined uniquely by the government's budget deficit. (The same conclusion remains true under more general conditions.) Therefore, if, say,  $\pi$  is determined by expectational inertia then a reduction of the deficit may be offset by a reduction in  $\alpha$ , reflecting monetary accommodations to sustain the initial  $\pi$  (Figure 1).

## 2. The BOP and inflation shocks

While it is difficult to see what the government could gain from having a high level of long-term inflation, it is much easier to see that the government could achieve certain objectives by accelerating inflation in the short run. In Israel, these gains were manifested especially during BOP crises.

During BOP crises, the government made drastic cuts in subsidies (raising government controlled prices) and stepped up the rate of devaluation. This induced severe price shocks, the main effect of which was

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1/ On this point, see Sokoler (1984) and Meridor (1986).

2/ This is a simplified version of Calvo and Fernandez (1983).

Fig. 1 A reduction in deficit (shift to  $D' D'$ ) can be offset by reducing the reserve ratio (shift to  $L' L'$ ).

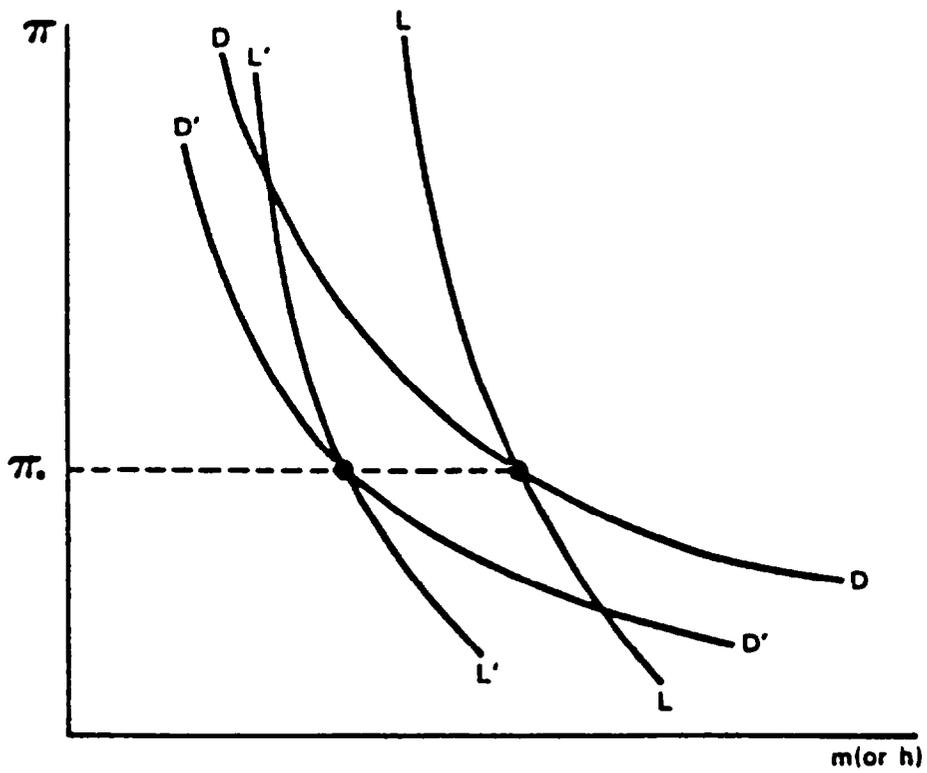




Table 1. Public Sector Budget Deficit, Revenue from Money Creation  
(percent of GNP) and Related Statistics

	1963-72	1973-77	1978-83
1. Domestic budget deficit	4.1	22.1	13.2
2. Total budget deficit	7.0	20.2	11.4
3. Additions to money base	1.2	2.1	1.6
4. Erosion of money base	1.1	3.3	2.7
	* * * * *		
5. Net long-term foreign borrowing	4.3	3.6	2.7
6. Credit subsidy	1.2	10.1	7.0
7. Inflation (annual)	7.4	32.8	107.5

Source: LP. Line 1 includes government investment and the credit subsidy. Line 2 is line 1 plus foreign deficit. Line 3: denoting nominal base money by H, annual additions by  $\Delta H$ , and nominal GNP by Y, line 3 gives  $\frac{\Delta H}{Y}$ . Line 4: let  $h = \frac{H}{Y}$  and let  $\pi$  denote actual inflation rate.

Then line 4 gives  $\pi h$ . Line 6 reflects mainly inflationary erosion of debt to government. Line 7 is based on the GNP deflator. Lines 1 to 6 are percent of GDP.

to erode 1/ the real wage and thus improve the competitive position of the economy. An additional objective was to raise the real exchange rate, 2/ which again helped to deal with the BOP crisis. 3/ It turned out, however, that these effects were temporary. Nevertheless, the resulting inflationary shocks had a long-term effect.

Figure 2 shows that while the changes in the import surplus were cyclical (with no upward trend) the inflationary shocks associated with these crises had a persistent effect. Thus, the main accelerations of inflation were correlated with the BOP crises of 1974, 1979 and 1983. 4/ (The nature of these crises is described in LP.) It is because of this empirical relationship that we choose to analyze inflationary shocks through the channel of the BOP.

### 3. The role of the budget deficit

What was the role of the government's budget in these crises? The only case where we find a positive correlation between the budget deficit and inflationary acceleration is in 1974. However, it was pointed out that the budget deficit may affect inflation indirectly through the accumulation of government debt [Bruno and Fischer (1985)], especially when the debt/income ratio continues growing.

In general, the relation between a growing debt/income ratio and inflation is ambiguous, at least in models with long-run perfect foresight. It all depends on how the eventual stabilization of this ratio will take place--whether by increased taxation or by increasing the

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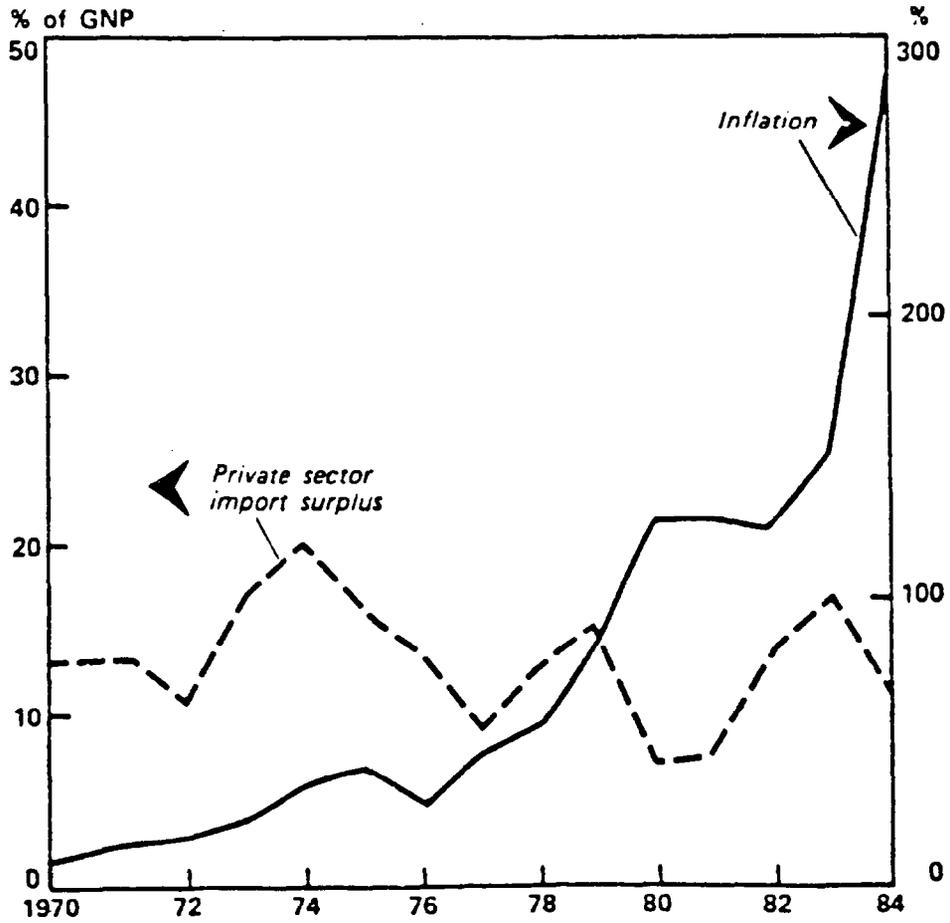
1/ Note that for most of the period the government could not erode private financial wealth by price shocks because of the non-indexed government loans.

2/ Usually in times of BOP crises the monetary policy becomes restrictive. This leads to a slack in domestic demands, which enables the change in relative prices.

3/ In some cases, the need to devalue is influenced by the public's anticipation of the government's reactions. This leads to a kind of simultaneity discussed in section 6.

4/ There may be some catch-up elements in the price shocks associated with BOP crises. This implies, for example, that the government's exchange rate policy may have contributed to the development of the BOP crises (in practice this element was important only in the 1983 crisis). However, this does not explain why inflation climbed to a new plateau after each big shock.

Fig. 2 The private sector import surplus (as percentage of GNP) and inflation (Liviatan and Piterman, 1985)





inflation tax. <sup>1/</sup> However, the actual developments in the Israeli economy suggest an interesting transmission mechanism from public debt to inflation.

In the very recent years, it became evident that the high internal debt/income ratio (around 1.5) tends to induce a spillover to foreign exchange holdings of the public. As Table 2 shows, an increasing part of the deficit in 1983 through the first half of 1985 was financed by the sale of foreign exchange. This creates potential inflationary pressure through increased expectations of devaluation resulting from the deteriorating reserves position of the central bank.

It seems, therefore, that the interaction between a large domestic debt and a large deficit <sup>2/</sup> are likely to produce inflationary pressures. A large debt by itself need not produce these pressures if the deficit is eliminated (although it is hard to eliminate the deficit when the debt/income ratio is high). This is a basic consideration for eliminating the total budget deficit in Israel from the point of view of disinflation.

A persisting budget deficit which raises continuously the debt/income ratio has the potential of creating BOP crises, shocks to the exchange rate, and subsequent inflation. However, a reduction (or elimination) of the deficit, while reducing the likelihood of devaluation shocks, need not affect the existing inflationary inertia.

#### 4. Monetary accommodation and inflationary inertia

Under the financial regime which existed in Israel, monetary accommodation was almost automatic. Thus, when the price level increases, all the indexed financial assets are revalued automatically. This entails an increase in demand for base money which can be obtained (directly or indirectly) by selling indexed liquid assets to the Bank of Israel at fixed terms. Since the money base shrank drastically, the foregoing operation involved only a small adjustment in the asset portfolio.

With an entrenched inflation it is quite difficult to stop monetary accommodation of the foregoing type. A sudden cessation of accommodation when prices continue to rise as a result of inflationary inertia may cause serious disruptions in the functioning of the economy with the possibility of severe unemployment. This is particularly true when inflation is already at an advanced stage which is characterized by extensive use of money substitutes and by a shrunken money base (in Israel the money base shrank to 2 percent of GNP in 1983).

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<sup>1/</sup> See Drazen and Helpman (1985).

<sup>2/</sup> We refer to "total deficit," i.e., domestic deficit minus the part financed by external surplus.

Table 2. Domestic Deficit of Public Sector (Including Bank of Israel) and its Finance, 1980-1985

(In percent of GDP)

	1980	1981	1982	1983	1984	1985		
						Total	Jan.- June	July- Dec.
<b>A. Components of Deficit</b>								
1. Domestic expenditure <u>1/</u>	51.0	53.8	54.1	51.5	50.0	48.4	50.2	46.7
2. Taxes	<u>44.7</u>	<u>44.0</u>	<u>47.5</u>	<u>48.1</u>	<u>40.9</u>	<u>46.6</u>	<u>45.0</u>	<u>48.2</u>
3. Deficit (excluding interest)	6.3	9.8	6.6	3.4	9.1	1.9	5.2	-1.5
4. Interest (adjusted)	10.2	5.8	6.1	4.3	3.5	5.3	5.8	4.8
5. Domestic deficit (3 + 4)	16.5	15.6	12.7	7.7	12.6	7.2	11.0	3.3
<b>B. Finance of Deficit</b>								
6. Base money creation	2.1	2.1	1.8	2.4	3.1	6.8	2.5	11.1
7. Domestic net debt <u>2/</u>	10.6	11.9	8.3	0.2	0.4	-2.1	3.7	-8.0
8. Foreign exchange sales	4.3	2.0	2.7	6.7	9.0	3.7	6.3	1.1
9. Interest on money base	-0.5	-0.4	-0.1	-1.6	-0.1	-1.2	-1.5	-0.9
<b>C. Foreign Deficit</b>	2	4	2	0	0	-7		

Sources: Bank of Israel, Annual Report 1985, pages 96 (line C) and 268 and Bruno (1986b). Line C excludes the Bank of Israel.

1/ Includes public domestic consumption and investment plus transfers and subsidies.

2/ Financial asset formation (including PATAM) net of public credit to private sector.

In the absence of severe disturbances, the level of inflation was governed by inertia. The typical 1/ policy of the government was to stabilize the recent level of inflation (i.e., to prevent its acceleration) by managing the nominal exchange rate and the government controlled prices and by setting the path of nominal targets for commercial bank credit.

However, when the system was subjected to BOP crises, the government abandoned these stabilizing policies and used the nominal instruments at its disposal in order to bring about quick adjustments in the real wage and in the real exchange rate (as described above). The resulting shocks tended to raise the basic level of inflationary inertia.

The idea of inflationary inertia is used here in the sense of downward rigidity of inflationary expectations. This should be interpreted as reflecting a basic pessimism about the government's ability to bring down inflation, usually based on past experience. 2/

However, a drastic policy switch which changes the basic rules of the game may reduce inflationary expectations instantly. The debate concerning gradualist versus drastic reduction of inflation is well known. I take the view that when inflation is in an advanced stage only drastic methods can break inflationary inertia.

#### 5. Short-run shocks and long-term levels of inflation

What is the mechanism through which the inflationary shocks, often associated with BOP crises, are transformed into an increase in longer-run inflation levels? One possible explanation is that big price shocks change inflationary expectations which are later accommodated by monetary policy.

Another explanation is that inflationary shocks tend to increase the degree of indexation in the economy. This is indeed what happened after the big inflationary shocks of 1979 and 1983. In the first case, the frequency of cost-of-living allowance (COLA) payment increased from twice a year to four times a year, while in the second case it shifted practically to a monthly basis.

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1/ A notable exception was the policy of slowing down devaluations which led to the 1983 BOP crisis. The important point, however, is that as a result of the crisis, inflation rose to a higher plateau than the original one.

2/ Another type of inertia, of an institutional nature, is due to lags in the wage indexation system.

Now, why should a more indexed economy be more inflationary? A possible reason is the following: If the frequency of COLA payments rises then, at a given level of inflation, the average real wage will rise. Therefore, in order to keep the real wage constant inflation has to increase.

6. A theoretical digression

This problem may be approached from a quite different point of view. Recall that in our interpretation of the inflationary process we stressed the government's incentive to create short-term inflationary shocks, but noting that it has no interest in maintaining a high level of inflation as such. This bears much similarity to recent models of monetary policy games [e.g., Barro and Gordon (1983a)].

In our version of these models let us write the government's utility function for period  $t$  as

$$(3) u = -\frac{a}{2} \pi_t^2 + b_t(\pi_t - \pi_t^e); \quad a, b > 0$$

where  $\pi_t$  and  $\pi_t^e$  are actual and expected rates of inflation, 'a' represents the importance of costs of inflation and  $b_t$  is a random parameter, representing the importance of gains from surprise inflation. Let us assume that inflationary expectations are given at the beginning of the period (representing, say, the nominal part of the wage agreement concluded last period).

The government determines  $\pi_t$  after the realization of  $b_t$  is known. Thus, the government may actually reap short-term gains from inflation. An increase in  $b_t$  may reflect (for example) an increase in the current account deficit, which increases the incentive to inflate.

In a discretionary regime, the government sets  $\pi_t$  so as to maximize  $u$  for a given  $\pi_t^e$ , which leads to  $\pi_t^* = \frac{b_t}{a}$ . The rational public will then set

$$(4) \pi_t^e = E \pi_t^* = E \frac{b_t}{a}$$

where  $E$  denotes expectations. This shows that in a discretionary equilibrium, rising expectations of a BOP crisis will raise inflation. However, why should this lead to a higher  $\pi^e$  even after the crisis is over?

Again, the explanation may be related to the tendency of indexation to increase after a sharp inflationary shock. Now, although higher indexation may reduce  $b$  (i.e., make  $\pi - \pi^e$  less effective) it reduces at the same time the resistance to high inflation ( $a$ ). When the latter tendency dominates higher indexation will lead to higher inflation. [See Barro and Gordon (1983b).]

So far, for the discretionary regime. If, however, the economic and political conditions enable the government to announce a credible rule, such as a fixed exchange rate, then the solution to the game will be quite different. Credibility implies that the rule is incorporated in  $\pi^e$  and therefore inflation can be reduced in equilibrium. If, for example,  $b_t$  were not random, then the ideal rule would be  $\pi = 0$ . (If  $b_t$  is random and the government uses a constant  $\pi$  rule the equilibrium  $\pi$  will be positive. 1/)

## Part II. The Economic Stabilization Program

### 1. Initial conditions for the ESP

In view of the fact that BOP difficulties tend to create inflationary outbursts, it became clear to policymakers that a successful stabilization program should start with a sustainable state of the current account. It was also thought that a high level of real wages and a low real exchange rate raise expectations of corrective inflationary measures by the government. The state of the foregoing variables in the initial stage of the disinflationary program is most important for its credibility.

The need to control the budget deficit became pressing after the developments of 1984, which witnessed a collapse of the tax collection system, especially with respect to non-wage income. 2/ The swelling budget deficit (see Table 2) spread fears that the government may not honor its debt to the public. This led to increased purchases of foreign exchange (as noted earlier) in spite of the fact that the current account

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1/ See discussion of contingent rules in Barro and Gordon (1983a).

2/ Only a small part of this collapse is attributable to the acceleration of inflation in 1984 (see Bank of Israel Annual Report 1985, p. 102 (Hebrew)).

was improving. The need to restore the tax system and to cut the budget deficit in order to stop capital flight seemed, therefore, indispensable for the start of a stabilization program.

It is commonly thought that the "real" foundations for stabilization, in terms of current account (of the private sector) and relative prices, was laid by the ESP itself. However, a close examination of recent data shows that very important (if not the most important) changes in the foregoing variables occurred in the first six to eight months preceding the ESP during a regime commonly known as the "package deal (PD) system."

The foregoing system was characterized by a series of agreements between government, labor, and employers to control prices and regulate wages. The first PD (PDA) was based on a full price freeze for three months, starting November 1984, accompanied by a wage agreement which sterilized one third of the COLA. During this period the government performed a substantial real devaluation which led to cost pressures for subsequent PDs. This led to a resumption of inflation in the second PD (PDB) with the government trying to consolidate the real devaluation.

It should be noted that as part of PDB the government achieved the consent of the workers to sterilize subsidy cuts from the COLA agreements. However, in the second quarter of 1985 (which corresponds to PDC), sterilization was abandoned so that the shocks arising from devaluations and subsidy cuts raised inflation to about 13 percent per month.

The PD system is generally considered as a failure. Indeed, there is no doubt that it failed to stop inflation. However, it provided a nominal framework for introducing some significant real changes in the economy, which paved the way for the ESP.

Table 3 shows that the BOP has been improving since the end of 1983. In the beginning, this reflected mainly the effects of the reversal from the economics of Finance Minister Aridor, who adopted a policy of slowing down the rate of devaluation. A supporting factor to this improvement was the stock market crash of October 1983, which wiped out part of the public's liquid assets.

However, these influences wore off toward the end of 1984. It seems, therefore, that new factors came into play which caused the marked additional improvement which became prominent at the beginning of 1985. One factor which may have contributed to this development was the real devaluation imposed on the system during the PD regime.

Table 3. Balance of Payments and Related Data (Quarterly)

Year and quarter	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
	Current account (private sector) (In millions of \$)	Civilian import surplus	Civilian import surplus constant 1980 prices (millions new shekels) seasonally adjusted	Real exchange rate		Real wage in terms of exportables	Real interest rate on free credit (monthly, actual)	Taxes percent of GNP	
				Imports	Exports				
1982	403	789		100	100	100	0.4	44.9	
<u>1983</u>									
I	474	946	5.6	93	92	121	1.0	49.6	
II	586	1,003	6.3	83	87	114	0.4	47.0	
III	839	1,281	5.6	80	86	116	1.3	45.0	
IV	414	728	5.7	89	90	106	-3.5	43.8	
<u>1984</u>									
I	287	750	3.7	92	90	112	2.5	41.9	
II	474	847	3.6	84	85	119	2.6	40.3	
III	762	1,198	3.9	84	85	118	5.1	41.0	
IV	112	536	2.6	87	87	113	5.9	38.0	
<u>1985</u>									
I	32	539	2.1	95	94	112	5.4	44.6	
II	185	562	2.3	95	93	110	4.8	44.3	
III	30	561	0.2	98	93	100	5.7	47.5	
IV	21	518	2.6	--	--	97	5.8	47.7	

Source: Calculated from Bank of Israel Research Department data base.

Col. 4 - Civilian import prices in domestic market divided by GDP deflator.

Col. 5 - Export prices in domestic market divided by GDP deflator.

Col. 6 - Gross nominal wage rate in business sector divided by export prices in domestic market.

Col. 7 - Nominal interest on free shekel bank credit divided by actual (ex post) CPI inflation.

Indeed, Table 3 shows that the relative prices of imports and exports improved appreciably in the first half of 1985. Correspondingly, the real wage (which was strongly influenced by the agreements) fell in terms of exportables. This real devaluation led to an actual improvement in the import surplus by making use of the slack which existed in the economy for a number of years. Indeed, the quarterly data confirm the increase in domestic production during this period.

Another contributing factor was the tight monetary policy which was put into effect since the middle of 1984. This was reflected in an increase in real interest rates on free bank credit (see Table 3) to unprecedented levels (ex post real rates rose to 5-6 percent per month). It must be stressed that this increase was associated with a small segment of the credit market (not including exports credit). It is, however, an interest rate which operated on the margin and was therefore effective. It is also a rate which is related to domestic activities (such as construction), so that its increase diverted resources to improve the BOP.

A third factor which may have contributed to the improvement was the restoration of the tax system (after the 1984 collapse) to its normal levels (see Table 3). This may have helped to prevent the increase in private consumption along with domestic activity. Parallel to this development the domestic budget deficit was reduced gradually during the first half of 1984.

We may conclude that the private sector's current account and the relative prices were in an unusually favorable position in the period preceding the ESP. To this we must add important developments on the financial side of the BOP during 1985. This was associated with the conversion of loans from the U.S. Government to grants <sup>1/</sup> and with the special U.S. grant of \$1.5 billion (over two years), which was conditional upon the implementation of a serious stabilization program. This strengthened the reserve position of the Bank of Israel and reduced speculation of devaluation following the initiation of the ESP (the premium on the dollar in the black market fell immediately with the ESP).

With these favorable initial conditions the remaining difficulty was the insufficient reduction in the domestic budget deficit, which led to a relatively high level of sales of foreign exchange to the private sector

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<sup>1/</sup> The significance of the shift from loans to grants is controversial. Some economists contend that the economic grants were devised as a means of servicing the interest on the outstanding debt.

in the first half of 1985 <sup>1/</sup> (see Table 2). This part was then taken care of by the ESP, which led to a reduction of the government's domestic deficit from 11 percent of GNP in the first half of 1985 to 5 percent in the third quarter and a further reduction to 3 percent later on. As Table 2 shows, the domestic deficit for 1985, as a whole, was approximately matched by a foreign surplus, so that this must have been true, a fortiori, at the beginning of the ESP. It seems, therefore, that the conditions were ripe to pull down the inflationary balloon.

In specifying the initial conditions for the ESP, we must mention the favorable political setting due to the formation of the coalition government in the summer of 1984. The vast parliamentary majority enjoyed by the government and the absence of basic differences in economic ideology created a potential political basis for a frontal attack on inflation. This, however, had to wait for the termination of the Lebanese war and for the completion of the elections to the Histadruth (federation of labor) in May 1985. After that, the stage was set for the big economic events.

## 2. The need for a transition strategy

The cut in the budget deficit which was required in order to create the basic condition for low inflation could paradoxically be the source of a new inflationary wave. The reason is that when a drastic budget cut has to be performed quickly it is bound to be based mainly on a reduction in subsidies and on increases in taxes, which traditionally create inflationary shocks. An example of this phenomenon was the attempt to reduce the deficit at the end of 1979 by cutting subsidies. This created severe price shocks, which contributed eventually to the rise in the inflation plateau.

As for the ESP, it is estimated by the Bank of Israel Annual Report (Hebrew) 1985 (AR85) that only 20-25 percent of the overall planned cut in the budget deficit was in real expenditures compared with 40 percent in subsidies. It should also be noted that the cut in export subsidies was planned to be accompanied by a nominal devaluation.

Under normal conditions, these price shocks would generate an inflationary spiral. This would not be prevented by the fact the budget deficit was cut. As we have pointed out earlier, a given budget deficit is consistent with different levels of inflation. It seems, therefore, that the reasonable way to prevent the inflationary consequences of the reduction in the deficit was to cut the linkage of wages to prices, which is inherent in the COLA system. However, it would not have been politically possible to do this without guaranteeing price stability. It seemed that

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<sup>1/</sup> Some of this can be attributed to speculations that a drastic program will be carried out in the future, accompanied by a big devaluation.

the only way in which immediate price stability could be obtained was through an implicit social contract between government, labor and employers. Indeed, the wage agreement reached by labor and employers under the pressure of the government in July 1985 succeeded in consolidating the sociopolitical conditions for the wage-price freeze.

A second link between the price freeze and the budget cut is through the expectations that price stability will lead to increased tax collections. Indeed, it is estimated by the AR85 that about one quarter of the increase in tax collections in 1985 was due to the slowing down of inflation.

It must be stressed, however, that even if the foregoing factors were not operative there would still be a need to pull down inflation actively. If this would not have been done then inflation could persist at its historic level by pure inertia supported by accommodative monetary policy.

Monetarists may (and do) argue that the same purpose could be achieved by announcing a money-supply rule (of say, 1 percent increase in base money per month). The danger in this solution is that inflationary inertia may persist and lead to a sharp increase in unemployment. It is the belief that inflationary inertia can be broken by an incomes policy (when the fundamentals are right), which is at the heart of the transition strategy.

### 3. The structure of the transition strategy

The transition strategy actually adopted in Israel can be characterized by the following features:

#### a. Initial full wage-price freeze and the social contract

The ESP opened with a massive devaluation (19 percent), a similar rise in the general price level (17 percent), and massive increases in the prices of subsidized commodities (45-100 percent). This was accompanied by a full price freeze for three months, using emergency legislation. The COLA system was suspended for three months and wages increased by only 14 percent. Under the pressure of the government, the workers' and employers' organizations reached a wage agreement, which endorsed the steps taken by the government and specified the pattern of nominal wage increases till April 1986. 1/

The purpose of the Emergency Program (the first three months of the ESP) was twofold: to contain the initial price shock, and to break the inflationary inertia by creating a psychological shock through "instant price stability."

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1/ For a fuller description of these steps and their analysis, see Bruno (1985a).

b. Gradual unfreezing and resumption of indexation

The wage agreement signed in July 1985 stipulated the resumption of indexation after the three months' freeze. This was one step in the thawing process, which also included a gradual removal of controls. It is estimated that more than half of the prices (weighted by expenditures) were unfrozen in the first part of 1986.

The unfreezing of prices, which began in early 1986, was supported by various indications the ESP has succeeded in reducing the level of inflationary expectations, at least for the short run. Indicators of inflationary expectations derived from asset market data <sup>1/</sup> show that inflationary expectations for the next three months fell gradually during the second half of 1985 and stabilized at about 2 percent in 1986.

Another indicator (which is more directly related to expectations of inflationary shocks) is the proportion of nonlinked short-term liquid assets (M<sub>2</sub>) in total financial assets. This proportion increased from 6 percent in June 1985 to 11 percent in December and stayed at this level in May 1986. <sup>2/</sup>

A third indication was the premium on the dollar in the black market. This premium rose drastically in anticipation of the ESP (and the related devaluation) but stabilized after the devaluation at a low level of less than 10 percent (Table 5).

c. Exchange rate policy and wages

With the renewal of the COLA system and the thawing of prices, did anything remain of the transition strategy? It seems that the main elements which continued to operate were the fixed exchange rate policy, the remaining controls and threat of renewal of controls if prices go out of line.

The policy of using a fixed exchange rate system was never an official part of the ESP. Nevertheless, the dollar exchange rate has been kept constant throughout (however, the weakening of the dollar led to a depreciation in terms of the currency basket). It was, however, stated repeatedly by government officials that excessive increases in nominal wages will be retaliated by depreciation of the official exchange rate.

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<sup>1/</sup> See AR85, p. 278. This calculation is based on the lag between the redemption date of certain government indexed bonds and the date of the latest price index known. This lag creates a capital loss to the holder, which enables the extraction of the implicit inflationary expectations (assuming a certain real interest rate).

<sup>2/</sup> See Governor's Report on increase of means of payment, Bank of Israel, July 1986, Table 7.

However, so far the dollar exchange rate has not responded to changes in nominal wages. There are also indications in some industries that employers have not increased wages because of the risk of a nonaccommodating exchange rate policy.

The unofficial policy of fixing the dollar exchange rate at 1.5 new shekels (with a band of 2 percent) served as a commitment by the government not to inflate. It turned out that this commitment was credible as a result of the steps taken in the ESP, of the special U.S. grant, and of the consensus concerning economic policy within the coalition government. In terms of the model described in section I.6, the government was operating in a regime of a "rule" rather than "discretion," which implies that the equilibrium level of inflation can be reduced.

As noted earlier, the fact that the exchange rate was fixed vis-a-vis the dollar created a devaluation in terms of the "5-currency basket" as a result of the weakening of the dollar. It can be seen from Table 4 that after the Emergency Program, which ended in September, prices rose in line with the currency-basket exchange rate.

This may perhaps answer the question of why inflation did not stabilize at the level of the OECD countries. It is quite possible that if the government would have adopted a policy of stabilizing the basket exchange rate, rather than the dollar rate, then inflation would have indeed stabilized at the OECD rate.

d. Synchronization

One of the big achievements attributed to the ESP is the so-called "synchronization." In the PD regime, which preceded the ESP, the uncoordinated policies with regard to prices and the exchange rate (as described above) precipitated the collapse of the system. Similarly, there was no clear coordination between subsidy cuts and their sterilization from COLA payments, which contributed to the renewal of the wage-price spiral.

The lesson from the foregoing experiment was that when one stops inflation drastically, using incomes policies, one must synchronize carefully the various nominal variables. Failure to do this may create intolerable distortions at the start of the program. In view of these complications, the changes in prices, exchange rate, and nominal wage rate were all coordinated and synchronized as of the beginning of the ESP. The principle of synchronization was implemented again when the reduction in world oil prices was passed on to the consumers simultaneously with upward adjustments in prices of subsidized commodities.

The synchronization must also comprise the nominal monetary targets. An uncoordinated increase in nominal bank credit may undermine price stability. Thus, the nominal bank credit was intended to be stabilized from the beginning of the program at a real level somewhat below the one which prevailed put before the ESP.

Table 4 [taken from Bruno (1986b)] shows that the ESP succeeded in bringing about a reasonable synchronization of the nominal variables [see discussion in Bruno (op. cit.)]. The increase in  $M_1$  is endogenous and reflects the well known phenomenon of increased demand for money following disinflation.

The basic question which comes to mind in view of Table 4 is the following. It is clear that the main factor which made it possible to stop the increase in the monetary aggregates, with only a minor increase in unemployment, was their synchronization with the price-wage-exchange rate policy.

Suppose, however, that the basic policy was to fix the nominal monetary aggregates at the rates specified by Table 4. Would this leave the data for inflation and unemployment unchanged? I would suggest that the table would have exhibited much higher rates of inflation and unemployment because of the persistence of inflationary inertia.

There seems to be a basic asymmetry (other things being equal) between applying the brakes initially to monetary aggregates or to prices. The source of this asymmetry is that inflationary expectations are subject to inertia while there is no inherent inertia in the process of money creation as such. It is therefore much easier to synchronize monetary aggregates and prices when the latter are controlled directly for a limited time.

Of course, in principle, a complete cessation of monetary accommodation <sup>1/</sup> must eventually stop inflation. However, in practice, the difficulties created along this route by inflationary inertia will force the government to compromise with respect to monetary accommodation. As a result, the monetarist strategy is likely to lead to a prolonged period of stagflation.

A similar difficulty with synchronization will arise in the initial stage if one fixes the nominal exchange rate without an incomes policy. The persistence of inflationary inertia in the non-tradables sector will then create a real appreciation of the currency, which will endanger the stabilization program.

e. Overshooting

One of the basic features of the ESP was the drastic reduction in the real wage in the first stages and gradual return to the pre-ESP level around April (see Table 5). The puzzling thing about this is that the

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<sup>1/</sup> This may include the abolition of financial asset indexation.

Table 4. Key Nominal Indicators, 1980-1986

	Mean 1980- 1984	1984 (during year)	1985			1986 Jan.- March
			Jan.- July	Aug.- Sept.	Oct.- Dec.	
Monthly percentage rates						
A. Prices, exchange rates and wages						
1. Consumer prices	8.7	15.2	14.0	3.5	2.1	0.6
2. Dollar exchange rate	8.8	15.9	13.6	0.2	-0.1	0.0
3. Five-currency exchange rate	7.5	15.3	15.3	0.7	2.0	1.5
4. Nominal wage	9.0	16.5	11.0	0.2	4.6	5.3
B. Money and credit						
1. Total bank credit	9.1	16.8	13.9	1.1	2.1	2.0
2. Quasi-money (M <sub>3</sub> )	10.7	15.9	13.0	0.0	1.9	1.6
3. Means of payment (M <sub>1</sub> )	8.0	13.4	10.6	12.4	6.7	10.3
4. Interest rate (end- of-period level)			21.0	14.1	7.2	3.9

Source: Bruno (1986b).

Row B.2 - Money and liquid assets, including PATAM (foreign currency-linked bank deposits).

Row B.4 - Nominal interest rate on free shekel bank credit.

Table 5. Economic Indicators, Extending Into 1986

Quarter and Month	1985		1986				
	I-II	III	IV	I	Jan.	Feb.	March
<u>Relative prices</u>							
1. Real wage (gross)	100	85	82	92	90	90	97
2. Real wage (net)	100	85	89	100	98	98	104
3. Real exchange rate (basket)	100	103	99	103	102	102	104
4. Real price of subsidized items	100	120	111	110	110	109	110
5. Black dollar ratio	1.17	1.08	1.07	1.08			
<u>Interest and inflation</u>							
6. Interest rate (monthly)	17.6	17.4	9.0	5.1	6.2	5.1	4.0
7. Inflation (monthly, CPI)	12.0	11.5	2.1	0.6	-1.3	1.6	1.5
<u>Macroeconomic activity</u>							
8. Unemployment rate	6.2	7.8	6.6	7.2			
9. Work seekers/vacancies	1.36	1.76	1.54	1.55			
10. Industrial production	100	96	98	100			
11. Retail sales	100	96	106	116			
12. Trade deficit (basket)	100	66	99	102			
<u>(In percent of GDP)</u>							
<u>Public sector activity</u>							
13. Domestic deficit	12	5	4	3			
14. Outside injection	9	-2	0	3			
15. Foreign exchange sales	6	-2	4	2			

Source: Bank of Israel, Research Department data base.

Rows 1-4, 10-12 are indices with 1985 I-II = 100. Rows 8-12 are seasonally adjusted.

Row 3 - five-currency exchange rate divided by CPI.

Row 4 - deflated by CPI, Row 5 - black dollar exchange rate divided by the official one.

Row 6 - interest on free (shekel) commercial bank credit.

Row 11 - large scale retail trade at constant prices.

Row 12 - dollar figures converted into five-currency basket (index).

Row 13 - includes net interest payments calculated somewhat differently than in Table 2.

Row 14 - total direct contribution of the public sector and the Bank of Israel to the creation of financial assets.

Row 15 - by the Bank of Israel to the private sector.

U-shaped pattern was stipulated in advance in the formulation of the wage policy. <sup>1/</sup> How could an anticipated short-term dip in real wages be expected to affect the basic inflationary trend? How could it have contributed to the continued low inflation in the second half of 1986?

A similar pattern characterized the policy concerning interest on free bank credit (Table 5). If the inflationary expectations were anywhere near the actual rates, then the real interest in this segment of the credit market was tremendous due to the slow reduction in nominal interest rates. By April-May, the (monthly) nominal interest rate fell to about 3.5 percent, while inflationary expectations were estimated at about 2 percent.

What could be the purpose of this deliberate overshooting? It seems that the main motivation for this policy was the desire to support the price freeze and to avoid the need for severe administrative measures (in fact, practically no administrative effort was needed to enforce the freeze). The reduction in real wages created potential excess supplies. Similarly, the high interest rates induced a reduction in inventories which was reflected in initiatives taken by firms to increase sales.

The high interest rate policy was extended to creditary bank accounts. This caused a massive shift into nonindexed shekel deposits and stimulated capital imports. However, this policy was criticized for being excessive (and causing unnecessary unemployment) in view of the fact that the ESP started with an initial devaluation which reduced speculation for an additional one, and in view of the improved external position.

## 5. The effect of the ESP on real and financial variables

### a. Unemployment

One of the common indicators of the cost of disinflation is the increase in unemployment. In this respect the ESP has been, so far, surprisingly efficient. The big shock to demands during the Emergency Program increased unemployment by less than 2 percentage points. In the following half year, unemployment was cut again by 1 percentage point (Table 5). It is, of course, too early to assess the future course of unemployment and, therefore, the longer term cost of the ESP.

It seems that one of the main reasons for the increased unemployment, after the initial shock, was the high interest rate on commercial credit, which hit production for the domestic market (interest rates for the

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<sup>1/</sup> I refer here to the wage agreement of July 1985 which was achieved under heavy governmental pressure.

exporting sector were raised much less). As a result, firms got into financial difficulties and had to fire workers. In some cases, the government extended special credit to avoid more severe unemployment.

The interesting question is, however, not why did unemployment increase, but why did it not increase much more. It seems that the main answer to this is that the transition strategy was based on a big initial reduction in the real wage, which offset to a large extent the reduced demand for labor caused by the tight monetary policy. Without the transition strategy inflation could continue for quite some time and real wages could exhibit a downward rigidity, which might lead to a much higher rate of unemployment.

b. Consumption and import surplus

The first three months of the ESP witnessed a dramatic effect not only on prices but also on private consumption and on the import surplus. The sharp fall in these variables was interpreted as a sign that the ESP had caused a structural change in the real sector of the economy. However, as time passed it became evident that the foregoing phenomenon was purely temporary.

It can be seen clearly in Table 6 that in the fourth quarter of 1985 consumption and imports (in constant prices) exceeded the pre-ESP levels. Preliminary data for 1986 point in the same direction (see Table 5).

What is the explanation of these puzzling developments and what are their implications for future price stability? Consider the temporary reduction in private consumption. Some people attribute it to the corresponding overshooting in real wage cuts and in interest rates hikes. However, in view of the huge stock of liquid assets held by the public, this explanation is not convincing. It is more likely to be a result of an "uncertainty shock" introduced by the drastic policy measures, and of the need to assess the new developments. In fact, similar behavior was recorded following earlier crash policies (at the end of 1974 and 1979).

It is more difficult to explain the insensitiveness of consumption to a sharp reduction in the budget deficit, which involved an unprecedented reduction in real disposable income (estimated to be down 11 per cent in 1985). 1/

One theory offered to explain this phenomenon was that the public considered the cut in the budget deficit and the consequent reduction in disposable income as temporary. The continued low inflation can then be explained by the fixed exchange rate, which is supported by the improved

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1/ AR85, p. 48.

foreign exchange reserve position due to the special U.S. aid. This interpretation implies that if the public's view is correct, then the low inflation is temporary. 1/ If, however, the government will continue to maintain the reduced deficit then the public will have to reassess its outlook and consumption will fall. This means that the "real" economic effects of the ESP will emerge only in the longer run.

There is also the (optimistic) possibility, to be discussed later, that the public considered the increase in net taxes to be temporary but expected the government to maintain the budget balance by decreasing expenditures (relative to GNP) in the future. In this case, a small response of private consumption to the ESP may still be compatible with low inflation.

In the beginning of 1986, there was growing concern about a possible deterioration of the current account in view of the quantitative stagnation of exports and of growing imports of consumer goods. However, much of this was offset by the reduction in the prices of oil imports. In addition, the statistics on the trade deficit reflected the weakening of the dollar. Measured in terms of the currency basket the trade deficit in the first half of 1986 was 6 percent below the level in the same period a year before. 2/

c. Other real demands

While most of the cut in the budget deficit was concentrated in net taxes, it can be seen in Table 6 that some effort was made to reduce domestic government expenditures. The reduction in real domestic expenditures (mainly defense) in the second half of 1985 was about 1.5 percent of GDP. It contained, however, temporary elements in the form of postponement (rather than abolition) of outlays and of a reduction of wages in the public sector which were raised in 1986.

Finally, we note that the ESP led to a reduction in investment (Table 6) which was concentrated in disinvestment in inventories. This can be attributed to the tight monetary policy which was relaxed over time. It seems therefore that the effect of the ESP on investment was basically of a temporary nature.

d. Financial aspects

When we turn to the financial side of the economy we find that the effects of the ESP were more substantial. First, it must be noted that the total injection of liquidity from the public sector and the Bank of

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1/ Since the increased deficit will spill over to private holdings of foreign exchange which will induce devaluations.

2/ In terms of dollars the trade deficit in the first half of 1986 was 11 percent higher than a year before.

Table 6. Resources and Uses - Quarterly Data 1984-1985  
(at constant 1980 prices (millions new shekels), seasonally adjusted)

	1983	1984				1985			
	Total	I	II	III	IV	I	II	III	IV
1. Private consumption	20.2	18.5	18.8	19.8	18.3	19.0	18.8	17.7	19.5
2. Domestic public consumption	7.2	7.1	7.1	7.3	7.2	7.3	7.2	6.9	6.8
3. Investment (fixed assets)	7.1	6.4	6.1	6.3	5.9	6.0	5.9	5.5	5.8
4. Domestic uses (1+2+3)	34.5	32.0	32.0	33.4	31.4	32.3	31.9	30.1	32.1
5. Total investment	7.3	6.9	6.3	7.2	6.7	6.0	7.1	5.7	4.7
6. Exports	12.6	14.2	13.7	14.6	14.7	15.0	15.5	15.5	15.4
7. Imports (civilian)	18.4	18.0	17.3	18.5	17.3	17.2	17.7	15.7	18.1
8. Import surplus (civilian)	5.8	3.8	3.6	3.9	2.6	2.2	2.2	0.2	2.7
9. Gross domestic product	28.6	28.5	28.3	30.0	29.6	30.3	30.8	30.1	28.4

Source: AR85, p. 46.

Rows 3, 7 - not including ships and aircraft.

Row 5 - includes investment in ships, aircraft, and inventories.

Israel, which ranged around 9 percent of GNP prior to the ESP, was cut down substantially (see Table 5).

This was accompanied by a reduction of purchases of foreign exchange by the private sector, reflecting the confidence in the stability of the exchange rate. The current account of the public sector in 1985 showed a surplus of \$1.4 billion, which reflects the special U.S. (\$750 million) aid and the change from U.S. loans to grants. <sup>1/</sup> This resulted in a current account surplus of \$1.1 billion for the economy as a whole (AR85, page 192).

The foregoing descriptions indicate that the basic change associated with the ESP was not on the "real" side involving domestic demands and relative prices. So far, the only lasting effects which can be attributed to the ESP itself are in the, broadly defined, financial area.

#### 6. The problems of sustained stability

The basic problem facing the disinflationary policy is how to consolidate the achievement of the transition period and how to reduce inflation further to the OECD level. The difficulty is that the first year of stabilization was characterized by a big national effort in various aspects of economic life, which was not of the appropriate form for the longer run. This resulted in what appears, in many areas, as short-term overshooting.

One aspect of the short-term overshooting, discussed earlier, was reflected in the high interest rate policy which began in 1984, but became extremely severe during the first stages of the ESP. In the longer-run interest rates on commercial credit will have to come down (as they did) and this will tend to worsen the BOP position. Therefore, tighter fiscal policy will have to substitute for the slackening monetary policy.

A second aspect of the overshooting is related to the heavy reliance on increased net taxation in performing the cut in the budget deficit. This led to an increased burden on productive activities of firms and individuals, which constitutes a major obstacle to full employment and growth. It is this kind of development which creates pressures to renew deficit financing of the budget. This explains the general feeling that unless the size of the public sector is reduced, the cuts in the budget deficit are bound to be temporary. Thus, in the longer run the cut in government expenditures will have to replace the excessive increase in taxation.

In order to obtain some idea of the quantitative aspects of this problems, let us make use of the budgetary data in Table 7. The data in this table differ in various respects from those of Table 2. For example,

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<sup>1/</sup> The switch to grants was effective already in the first half of 1985 and should not be attributed to the ESP as such.

Table 7. Government Budgets, 1980-86  
(Fiscal Years, Percent of GDP, Current Prices)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86 Approved budget	1985/86 Actual (est.)	1986/87 Budget proposal
1. Domestic expenditure of which:	47.1	52.0	53.3	49.4	48.2	50.3	47.9	50.1
1a. Consumption and investment	25.5	26.3	28.5	24.7	22.5	23.4	23.1	23.4
2. Domestic revenues	40.4	40.6	47.5	45.4	37.2	45.3	48.3	45.3
3. Domestic deficit (1-2)	6.7	11.4	5.8	4.1	11.0	5.0	-0.3	4.8
4. Foreign deficit	3.3	2.1	7.4	6.3	3.1	-1.4	-3.8	-2.2
5. Total deficit (3+4)	10.0	13.5	13.2	10.4	14.1	3.6	-4.1	2.6

Source: AR85, p. 105.

Table 7 refers only to the government proper, excluding the Bank of Israel, the social security system, the Jewish Agency, and local authorities. Note also that it refers to fiscal (starting April 1) rather than calendar years. <sup>1/</sup> In general, these figures show a smaller deficit than the public sector data. However, since we are mainly interested in analyzing changes in the deficit, the conclusions may not be incompatible with the earlier framework.

The basic fact which comes out most clearly from this table is that the ESP made very little change in the real domestic expenditures of the government compared with the approved budget for 1985/86, in contrast with big changes in taxation and transfers. It can be seen that the actual level of domestic revenues in 1985/86 was exceptionally high, exceeding the levels in the approved budget for 1985/86 and in the proposed budget <sup>2/</sup> for 1986/87, by 3 percent of GNP. This gives us one measure of overshooting in taxation during the ESP (we ignore here the fact that the ESP proper started in the third, rather than the second, quarter of 1985).

An alternative measure of overshooting refers to the burden of taxation, i.e., the difference between taxes and transfers (the latter can be measured by the difference between rows 1 and 1a). During 1985/86, which represents quite well the stabilization period, the actual burden of taxation exceeded by 5 percent of GNP the burden in the budgets (columns (6) and (8)). This gives us perhaps a better measure of overshooting in taxation.

If we assume that the size of the actual domestic deficit in 1985/86 was the one required for price stability, then in the longer run the government will have to reduce over time its expenditures by some 3 to 5 percent of GNP in order to replace the short-term overshooting in taxation as estimated above. In fact, this figure will have to be raised because the relative price stability during the ESP was also supported by the special U.S. grant which represents a short-run overshooting in foreign aid of about 3 1/2 percent of GNP (this component is reflected in the negative foreign deficits in columns 6 to 8).

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<sup>1/</sup> There are important additional differences. First, Table 7 data do not include imputations (such as the imputed credit subsidy). Secondly, it is important to note that columns 7 and 8 are based on comptroller's data which do not enable a precise allocation of financial transactions between years. There are also conceptual differences; for example, the credit subsidy, on a cash basis, is not included in government expenditures in Table 7.

<sup>2/</sup> The approved budget is based on the budget for 1985/86 approved by the Knesset, updated for price changes during the year plus the special U.S. grant (which was not known at the time). The proposed budget for 1986/87 is based on the one passed by the Knesset, using projected prices. The latter budget included components which need special approval of the Knesset committees.

It should be stressed that the foregoing calculations should be treated with due caution since they are based on provisional estimates which may change significantly when the final data become available. Taken at face value, these calculations indicate that the required reduction in government expenditures is a formidable task. It should be viewed, however, within the context of longer-term developments where the elimination of inflation will remove inefficiencies and stimulate economic growth. This will enable it to perform part of the reduction in the share of government expenditures in GNP by stepping up the growth of the latter. Nevertheless, a significant initial reduction in the absolute level of government expenditures is needed to get the process in motion.

A disturbing feature of Table 7 is that the proposed budget for 1986/87 seems to have eliminated the actual increase in net taxes in 1985/86 without reducing the expenditures at all. This may reflect a slackening of the effort made during the first year of the ESP. However, data on the actual deficit of the public sector in May-June 1986, show that it is running at a lower level than in the preceding year. It seems therefore, that the principle of balancing the budget (after grants) has been maintained so far.

Let us turn now to the nominal aspects of stabilization. The transition strategy, which was based on wage-price freezes and on an intense political effort to reach a "social contract" cannot be maintained for a long time. In the longer run there is no alternative to conventional monetary and exchange rate policies.

The best remedy to the inflationary trauma is a long period of price stability. Assuming that budgetary discipline is maintained, it seems reasonable to support this stability by maintaining a relatively fixed exchange rate policy.

The significance of this approach can be seen in reference to the indexation issue. There is reason to believe that a high initial degree of indexation makes it more difficult to consolidate disinflation. The argument is that indexation tends to facilitate the transmission of monetary shocks, while the "inflationary memory" of the economy tends to transform these shocks into inflationary expectations.

However, indexation is largely the result of the inflationary process, and especially of its instability. It is therefore hard to reduce indexation (except for a very short period) before inflation is stabilized. <sup>1/</sup> Thus, we face a circular problem which is probably overcome more effectively in a stable exchange rate regime. Once inflation is stabilized, indexation will diminish gradually.

A first step in this direction has already taken place with the new COLA agreement of May 1986, which raised the cumulative threshold for COLA payments from 4 percent (in the July 1985 agreement) to 7 percent.

Another implication of the policy of stabilizing the nominal exchange rate is that the government should not count on making ex post corrections to unwarranted wage increases by means of devaluations. It is also not possible in the longer run to restrain wage increases by means of social contracts of the type used during the ESP and the PD regime.

The foregoing considerations imply that a necessary condition for sustained stability is the ability of the government to resist unwarranted wage demands in the public sector. It must also convince the private sector that unwarranted wage increases will not be automatically accommodated by devaluation. This policy has of course to be supported by appropriate fiscal and monetary policies in order to protect the BOP.

The foregoing wage policy and the additional budget cuts which are needed to stabilize the economy indicate that the macroeconomic policy of Israel in the near future must be of the contractionary type. The payoff for this policy will come only gradually with the elimination of the inefficiencies caused by inflation.

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<sup>1/</sup> I refer here to wage indexation. In fact the ESP limited the scope of asset indexation by blocking the possibility of putting new money into foreign-currency-linked demand deposits (PATAM). It is not clear however to what extent does this represent a net reduction in effective indexation since people may acquire foreign currency instead of demand-PATAM deposits (which also creates additional problems for the Bank of Israel).

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