

**Michael Bruno on Heterodox Policy and Economic Stabilization**  
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Michael Bruno's book, Crisis, Stabilization and Economic Reform: Therapy by Consensus<sup>1</sup> is that rare event--a book on economic policy by a distinguished economist who was close to the events he describes. Bruno had been deeply involved in debate, discussion, research, and advising on Israeli policy. He was an influential member of the small group that developed Israel's stabilization plan during the summer of 1985. From August 1986 to August 1991, as Governor of the Bank of Israel, he had a major role in carrying out the plan.

The book is an outgrowth of Bruno's Clarendon Lectures on Economics, given at Oxford in 1988. The five years between lectures and publication enriched the book in several ways. There was more experience on which to draw from Israel and from Latin America and Eastern Europe. Mexico, Chile, Bolivia, Argentina and Brazil in the eighties, and several Eastern European countries in the 1990s, undertook stabilization policies with mixed results. Some succeeded in reducing inflation but did not restore high real growth. Some programs failed to slow inflation. Some had a brief period of success followed by a resumption of inflation at higher levels than before.

A main theme of the book is that modern inflations acquire a large inertial component once they move beyond an annual rate of 20 to 30%. Key nominal magnitudes, such as wages, the exchange rate, and the monetary aggregates are indexed by law or practice. Inflation persists at high rates for months or years without collapsing or exploding into hyperinflation. To stop inflation, the inertia must be broken. This leads to the main policy conclusions. (1) orthodox policy alone will not work; (2) heterodox policies must be used to achieve "rapid synchronized disinflation

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<sup>1</sup>Oxford: Clarendon Press, 1993.

of all nominal variables.” (p. 269)

On Bruno’s definition of an orthodox policy, the government seeks internal and external stability by balancing the budget, devaluing and fixing the exchange rate, and establishing or bolstering central bank independence.<sup>2</sup> The government may also reschedule debt and establish a safety net to offset distributional consequences. A fixed exchange rate (or control of money growth) provides the nominal anchor that is expected to stabilize nominal values.

A heterodox policy, according to Bruno, introduces multiple nominal anchors. Wages are frozen and cost-of-living adjustment is suspended. Credit and money ceilings supplement the exchange rate peg. Prices are temporarily controlled.

Bruno also proposes reforms and deregulation of financial, labor and goods markets, reforms of tax, spending and transfer payments, and liberalization of the capital account. These reforms could be part of either an orthodox or heterodox approach. They improve efficiency and perhaps lower the cost of adjustment. Although they may contribute to stabilization, or increase support for a stabilization program, they are neither necessary nor sufficient for reducing inflation.

Major sections of the book present the case for a heterodox policy and relive the battle against orthodoxy. The advocates of orthodoxy in Israel were located mainly at Tel Aviv University and, to a greater extent than seems useful, Bruno continues the battle. The case for heterodoxy is much weaker, theoretically and empirically, than he recognizes. I will return to this theme below.

The sub title of Bruno’s book -- Therapy by Consensus -- conveys its second theme. Bruno reviews the efforts to get unions, management, politicians and other socio-political groups to agree to a stabilization plan. The problem has two facets. First, a neutral disinflation that distributes the costs “equitably” is difficult to design. There are certain to be redistributive effects that do not simply cancel the redistributive effects of the previous inflation. And even if past gains from inflation could be canceled, bygones are bygones, whereas the losses from disinflation are prospective.

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<sup>2</sup>The various policies are summarized succinctly on p. 269 of the book.

Second, closing the budget deficit requires tax and spending changes that redistribute wealth. Political support for the budget in the legislature and in the public is important for success of the program. Some of the most interesting parts of Bruno's book treat the political problem of building and maintaining support for the plan.

There is more to the book. The next four sections provide an overview. Then I consider Bruno's case for heterodoxy and present a critique. The concluding section draws some general conclusions.

### **Main Lessons**

Four of the eight chapters of the book, -- chapters 2 to 5 -- discuss the politics and economics of Israeli inflation and disinflation. Chapter 6 compares policies in Chile, Brazil, Argentina and Mexico and suggests some reasons for the successes and failures of their stabilization plans. Chapter 7 begins with the 1989-90 reform in Yugoslavia and continues with Poland and other East European countries. In Chapter 8, Bruno tells what he has learned about stabilization policy from his studies and experience.

Chapter 1 sets the stage by comparing the recent inflations in Israel and Latin America to the interwar hyperinflations in Germany, Poland, Hungary and Austria. Bruno emphasizes several differences of which two are most relevant. First, postwar inflations lasted longer. Interwar hyper-inflations were relatively brief explosive processes. Three digit inflation lasted no more than three or four years in the interwar experiences whereas the postwar inflations (except for Bolivia) were more prolonged, "quasi-stable" processes with annual rates of inflation above 100% for 10 or 12 years in Argentina and Brazil and more than 5 years in some other cases.<sup>3</sup> Second,

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<sup>3</sup>I am skeptical about this argument. Without doubt there are examples of sustained inflations that do not become hyperinflations. Since Pazos (1972) economists have tried without success to define "chronic inflation." The CPI data used in Bruno's Figure 3.2 show a very steep rise in Israeli inflation for 1-1/2 years starting in 1984. The difference between growth of nominal and real GNP from International Financial Statistics shows 7 quarters in which the deflator is above 100%. This is very different from experience in Brazil and Argentina.

interwar inflations were ended quickly by classical methods. The greater persistence of postwar inflation requires different policies -- heterodox policies -- to moderate fluctuations in relative prices and reduce the cost of disinflation. "The orthodox cure is necessary but not sufficient." (p. 12)

## **Israel**

Chapter 2 begins discussion of Israel's stabilization by presenting some facts about the Israeli economy, its rate of growth, and its policies. In contrast to Latin America, Israel chose a policy of export-led growth. As is well-known, it fought several wars, had relatively large military expenditures and received substantial foreign aid.

During 1950-72, productivity growth was above 4% and inflation at 6 to 7% was only slightly above the average for developing countries. Troubles began in 1973. For the next twelve years, average productivity growth remained below 1/2%, and budget deficits and inflation soared.

Bruno traces the origins of the budget deficit to the period of high growth. Israel like many other countries, began or expanded redistributive programs that, once started, were difficult to control or reduce. The shares of GNP going to social transfers, subsidies, and defense spending approximately doubled between 1960-66 and 1967-72. In 1973-84 the government spent 76% of GNP, offset by transfers from abroad equal to 11% of GNP. Taxes as a percentage of GNP rose from 33% in 1960-66 to 39% in 1967-72 and to 48% in 1973-84. The budget deficit soared to more than 15% of GNP. Bruno notes that many of the transfers provided disincentives to work and self-reliance.

By the 1970s, Israel had many of the classic features of a democratic, socialist economy. The public sector absorbed a rising share of employment. Much of this employment was a form of hidden unemployment. Public sector investment in infrastructure fell. A large part of business investment was subsidized either directly or by offering loans at less than market rates.

Inflation added to the waste of resources. The financial service sector increased in size and absorbed a rising share of employment. The saving rate

declined and the budget deficit rose. Israel borrowed abroad to finance its current account deficit. Unlike the early high growth period, external borrowing did not flow mainly into productive private investment.

Chapter 3 is the main analytic chapter of the book. Inflation is presented as an inertial process that is initiated by shocks. It is not directly linked to budget or monetary processes. Wages and exchange rates drive the inertial process. Indexation of wages, exchange rates (and other variables) help to sustain the inertia. Budget deficits have an indirect role, however. They affect the balance of payments deficit and thus contribute to devaluation and rising import prices.

This argument is not formally emanated, and it is not easy to grasp. Unless the budget deficit increases with the indexed shock, I see no reason why a one-time price change such as the oil shock should produce faster money growth. Yet money growth rose as the inflation rose, and deficit finance appears to have been the reason. I suspect that the government did not permit the interest rate or exchange rate to respond to the shock, but Bruno does not say.

Budget deficits are important for another reason. The decline in real growth after 1972 lowered the growth of tax revenues, increasing deficit finance. The introduction of bank deposits linked to foreign currencies reduced the demand for domestic money and monetary base, so the price level had to rise to increase the tax on the remaining money balances enough to balance the real budget.

Chapter 3 summarizes the main policy efforts to reduce inflation after 1975. These include orthodox measures, controls, and devaluations in an economy that was highly indexed. Devaluations and occasional reductions in subsidies raised the price level and, with indexation, required increased wages and compensation of debt holders.

By the late 1970s, the exchange rate was on a crawling peg and money holders could shift at will into deposits denominated in foreign currencies. Wages had been indexed (partially) from the start. Debt contracts were indexed also.

Disinflation required a change in the rules of the game. None of the efforts before 1985 called for the sizeable reductions in government spending (or tax

increases) that would give the public reason to believe that disinflation could succeed. Each failure must have reinforced skepticism.

An orthodox economist has no difficulty accepting that recent inflations have been persistent in several countries, and that short-term stabilization schemes that leave a relatively large budget deficit do not have lasting effects. He would emphasize the budget deficit and its financing, and the public's anticipations about future financing, under the prevailing rules of the game. If prevailing budgetary arrangements put most government spending on auto-pilot, money may well be endogenous. The orthodox economist would insist that changing the rules to eliminate or curtail the budget deficit is necessary to change anticipations.

This is not the emphasis in Bruno's Chapter 3. Anticipations or expectations have no role. In eq. 3.7 of his text,

$$\pi_t - \pi_{t-1} = a_1 (w_t - \pi_{t-1}) + a_2 (\varepsilon_t - \pi_{t-1}) + a_3 (\mu_t - \pi_{t-1}) + v_t \quad (1)$$

where  $\pi$ ,  $w$ ,  $\varepsilon$ , and  $\mu$  are rates of inflation, wage growth, devaluation and money growth. Inflation increases when nominal wages, devaluation, and money growth exceed last period's inflation. Regression estimates for the parameters of (1) show that the first two factors -- increases in wages and devaluation relative to lagged inflation (real wage increases and real devaluation) -- drive the change in inflation. Money growth ( $M_2$  relative to lagged inflation) has a small effect, but its coefficient is often insignificant. Bruno tries some additional variables and estimates the equation for different periods without changing the main result.

If indexation were always complete,  $w_t$  and  $\varepsilon_t$  would equal  $\pi_{t-1}$ , so these variables would drop out of (1). Indexation was incomplete, although there was undoubtedly some anticipation. Also Israel devalued in 1974, 1977 and 1983 unrelated to indexing; this raised  $\varepsilon_t$  relative to  $\pi_{t-1}$  and simultaneously raised the prices of imported goods.

Eq. (1) conveys Bruno's message that with indexation (and other arrangements) inflation is caused by shocks and accommodation, hence on lagged inflation and an error term. He reduces his system to an autoregressive equation in

past inflation and an error term. The latter accounts for shocks that push the inflation rate up or down. In Israel, the change was generally up.

Bruno recognizes that the autoregressive process cannot be the whole story. The government deficit starts the process (p. 76), and the indexation mechanism sustains it once started. This is the analytic basis for the claim that inflation was "inertial."

The autoregressive equation implies, however, that a large negative shock to prices would have ended inflation or, perhaps, produced deflation. Were Israel, Brazil, Argentina, Chile, Bolivia, and Mexico unlucky? If Israel had waited until 1986, when oil prices fell, could it have avoided the difficult political decision required to reduce inflation? Experience in Argentina, Brazil and elsewhere suggests a negative answer. Neither the autoregressive equation nor equation (1) is adequate. The budget process is not just an initiating factor. Successive Israeli governments were unwilling to pay the perceived political price of keeping the deficit from rising. As long as budget deficits were expected to increase, whether through spending or delays in tax receipts, an astute public would expect inflation to increase. The expected timing of the increase would depend on factors such as the attractiveness of indexed debt, growth of population, and events abroad.

The internal debate about the inflation process and how to end it is the subject of Chapter 4. Bruno portrays most Israeli economists as orthodox and most politicians as reluctant to act. Divisions among economists and advisers are among the reasons for delay.

Bruno gives three reasons for the decision to adopt the July 1985 programme. First, the public had experienced a severe crisis in financial markets. Many recognized that their wealth, much of it held as indexed government debt, could be reduced if the government repudiated its debt. Second, a coalition government of the two major parties eventually brought in a strong, knowledgeable, and determined finance minister. Third, Israel's principal creditor -- the United States -- wanted a change in policy. The U.S. was willing to support a comprehensive plan by increasing

aid.<sup>4</sup>

The stabilization plan was announced on July 1 after much wrangling over the budget and the proposed wage freeze. Economists' estimates suggested that government spending should be reduced by U.S. \$2 billion (10% of GNP) and the exchange rate devalued by 29% (following a 6% crawling devaluation the previous week.) In practice, the spending reduction was \$1.5 billion, and the devaluation was 19%. The defense minister was able to prevent most of the cuts in defense spending. The U.S. provided \$750 million of additional U.S. aid in the current and following year. The government announced that wages, prices and the exchange rate were to be fixed. Subsidies were reduced, so commodity prices rose, and cost-of-living adjustments (COLA) were suspended. The central bank agreed to control the growth of nominal bank credit. A few taxes were increased.

In the event, wages were not frozen. The July 1 announcement was followed by wildcat strikes and demonstrations. Two weeks later, labor unions and employers agreed to raise wages 14% on August 1, an additional 12% on September 1, and 12% spread over the first three months of 1986. Part of the increase compensated for the loss of food subsidies and the rise in import prices following devaluation. However, the COLA was restored at 80% (down from 90%) of the previous month's inflation rate effective December 1. Prices could not be raised to offset these increases, so firms paid a one-time tax.

Real wages (after tax) resumed their rise in the fourth quarter. For fourth quarter 1985 and first half 1986, real wages increased by 4% and 15% respectively. (p. 115) This compares to a 1.4% increase in 1984 and a 3% decline in the first half of 1985. (p. 115) Bruno's discussion of nominal anchors (p. 105) fails to note that one of the

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<sup>4</sup>The U.S. sent a special team consisting of two distinguished economists -- Herbert Stein and Stanley Fischer -- to work with the Israelis. Stein brought "Herb's ten points" to the discussions. These consisted of orthodox fiscal and monetary measures plus some institutional changes and political commitments required to sustain budgetary and monetary control. He did not include price or wage controls.



anchors did not hold.<sup>5</sup>

Chapter 5 discusses problems and achievements. Bruno delineates four phases. (p. 109) In the first six to eight months of "sharp stabilization," inflation fell. A brief recession was followed by a "surprising boom" -- phase 2 -- that lasted for about two years. In phase 3, the next two years to mid-1989, the economy slowed and unemployment rose. Growth returned in phase 4 with increased immigration from the former Soviet Union.

The chapter conveys very well the uncertainty that surrounds a major policy change and the anxiety the policymakers and proponents experience while awaiting the results of the change. Looking back it is easy to spot the decline in inflation, or the recovery after a few months, or the capital inflow, or the rise in tax collections that signalled success. Some of the uncertainty is reflected in his accounts of the intense debates about next steps and continuing discussions about wages and the exchange rate peg. Part of the discussion concerned how the public would receive and react to various changes. Policymakers never seem to learn that they do not have a comparative advantage at guessing the public's short-term responses to complex policy changes. Bruno writes candidly about the many surprises.

By January 1986, inflation had fallen to the 20% range in which it has remained. The program stabilized inflation at a moderate rate but did not eliminate it as the designers expected. Price controls began to be removed gradually but 25% of prices remained under control as late as 1988. In August 1986, the exchange rate was repegged to a currency basket. The budget had a surplus in 1986 and was in balance in 1987.

Some structural reforms were made particularly in the credit and financial systems to reduce the burden of subsidies to investment (70% government directed in 1985). The dollar indexed deposits (PATAM) were made less liquid, increasing the

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<sup>5</sup>Unit labor costs rose 2.5% per year on average during 1981-85 and 6% in 1986. (p. 110) Real wages increased 9% in 1986 and 8% in 1987 compared to 1.6% for 1981-85. (p. 110) Recall that in Bruno's model (eq. 1 above), real wage increases are a cause of higher inflation.

demand for shekel deposits. Foreign exchange controls and regulation of capital markets were reduced. Bruno as central bank governor worked for these changes. In other sectors, where strong leadership was missing, changes were meager. Privatization of state owned enterprises, deregulation and debureaucratization remain to be done.

Bruno concludes Chapter 5 by drawing some lessons from the Israeli stabilization program. Two main lessons are: (1) the importance of pre-announced rules and medium-term policies to reduce uncertainty; and (2) the extended duration of the stabilization process and the need to stay the course. Even if the policy starts with a "big bang," stabilization is a prolonged process involving elimination of "the mental and institutional roots of the crisis." (p. 154)

Bruno also comments on two errors that he recognized after the fact. The pre-committed wage increases were excessive, and interest rates were reduced too slowly.

### **Latin America**

Chapter 6 considers the successes and failures of several Latin American stabilization policies. Bruno uses the experiences in Argentina, Bolivia, Brazil, Chile, Mexico, and Uruguay to find evidence for heterodox stabilization policies. Some countries had more than one stabilization plan between 1970 and 1990, so Bruno is able to hold the country constant when studying why some policies worked where others failed. Main attention is on Chile and Argentina. There is a section on Mexico after the reform of the mid-eighties. A review of these experiences brings out the extent to which success depended on multiple anchors.

#### ***Chile 1973--85***

Bruno (167, n. 18) accepts an often repeated conclusion that Chile's stabilization failed in these years. He attributes the failure to reliance on orthodox policies. These succeeded in bringing down the budget deficit but, in 1978, five years after the reform, with the budget balanced, unemployment was 14% and inflation was

40%. The ex post real interest rate was 50% or more.

Bruno recognizes that there were many structural changes in this period that later contributed to efficiency and growth. These required major structural adjustments and reallocation of resources. He also recognizes that the terms of trade shifted massively against Chile in the mid 1970s following the oil shock and the sizeable (50%) decline in copper prices -- Chile's main export at the time.

According to Bruno, the government failed to synchronize prices, wages and exchange rates. He describes wage indexation as the "main villain." (p. 165) Other contributors were ex post indexation of rental prices, mortgages and other non-tradables. And, several times, he calls the crawling peg (February 1978 to June 1979) a major policy error.

The facts are much less negative than Bruno suggests. It is true that the unemployment rate was 14% in 1978, but that is a one year local increase in a decline from 15% to 10% between 1975 and 1980. Average growth of real GDP was 7.5% between 1975 and 1980. The budget was in surplus and the inflation rate fell below 10% in 1981 from a peak rate (December to December) of 600% in 1973.<sup>6</sup>

Bruno errs when he blames the crawling peg and orthodox policies for the major problems experienced in the early 1980s, particularly in 1982. Chile had fixed (anchored) its exchange rate to the dollar in 1979. This policy proved disastrous when the U.S. disinflated after 1981. The period is important for understanding both the Chilean experience and the case for heterodox policies, so I return to it below.

Bruno says little about the fixed dollar exchange rate period -- 1979-1982 -- except that it ended in a crisis followed by devaluation, floating, and a new crawling peg. He raises some fundamental issues, however. Why was Israel's unemployment and growth experience so different from Chile's? Do heterodox policies have a major role in explaining the difference? I consider these issues below also.

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<sup>6</sup>Data are based on official sources as reported in Corbo (1994, Table 2). These data differ slightly from those used by Bruno but the differences are not consequential. Corbo's tables give a more complete view.

### *Argentina 1976-91*

Argentina had many reforms before the final (orthodox) reform in April 1991. In the latter, Argentina balanced the budget, adopted a quasi-currency board, began structural adjustment, moved away from import substitution, and began privatization. This was orthodox stabilization with structural reform.

The Argentine stabilization in the last half of the 1970s eliminated price controls and freed capital movements while maintaining trade restrictions. The budget remained in deficit at about 8% of GNP. Inflation fell, but remained high. This combination led to a capital outflow. The government shifted from a fixed exchange rate to a crawling peg to keep the real exchange rate from rising without limit. A crisis followed that brought the experiment to an end.

The next Argentine effort, by the Alfonsín government, is known as the Austral plan. The plan was announced in June 1985, shortly before the Israeli plan. The two plans had many similar features but very different outcomes. The currency was devalued, replaced, and pegged to the dollar. Prices and wages were controlled. The public sector deficit was scheduled to fall from 12% to 2.5% of GDP.

The budget reduction was temporary, not permanent, the result of one-time higher tax payments when reported inflation fell. By late 1986, the deficit was back to 10% of GDP. Given Argentina's past record and large international debt, government borrowing abroad was limited. The deficit was financed at the central bank.

Bruno agrees that the failure to close the budget deficit was crucial. He assigns a secondary role to the inability to get the trade unions to accept the plan. Synchronized wage and price freezes could not be achieved. By April 1986, price controls were relaxed and unions were allowed to raise wages.

The data tell a different story. Bruno's Table 6.2 (p. 174) shows that real wages fell by 15%, from 146 (base 100, 1976) in 1984-85 to 124 in 1986-87. As noted earlier, real wages in Israel rose by 8% or more in each of the same two years, a cumulative increase of 17%. Contrary to Bruno, Argentine producers benefitted from a substantial reduction in costs (and improved terms of trade). Perhaps the political wrangling in Argentina offset some of the gain, but a 32% difference in real wage

changes within a two year period is far from a negligible advantage.<sup>7</sup> If wage control could offset fiscal and monetary excesses, Argentina would have been a success for extreme heterodox policy.

### *Bolivia 1985-87*

Bolivia had used controls to stop inflation on several occasions. These proved ineffectual. Inflation reached the hyperinflation range in 1984-85. A new, more democratic government came to office and carried out "a sharp orthodox stabilization program ... and inflation was brought down almost at once to 20 percent a year." (p. 181) There is no evidence of inertia.

### *Brazil 1986-90*

In the 1970s and 1980s, Brazil had indexed wages and exchange rates. It maintained growth with high and rising inflation until debt problems surfaced in 1982. To stop inflation the 1986 Cruzado Plan controlled wages and prices but did not close the budget deficit or permanently slow money growth. After a few months, inflation rose to new heights. A succession of heterodox plans, followed by ever increasing rates of inflation, brought Brazil to hyperinflation. Bruno notes that "money seems to have been very expansionary in Brazil (with the exception of a brief period under the Collor I Plan in 1990)." (p. 186)<sup>8</sup>

The Collor I Plan froze two-thirds of money holdings for eighteen months, imposed a capital levy, and reduced interest payments on the government debt to

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<sup>7</sup>The Argentine result is not the consequence of a severe economic recession. Unemployment averaged 5% in 1986-87, and the economy grew at a 3.9% average rate. Bruno (Table 6.2, p. 174).

<sup>8</sup>Meltzer (1992) discusses the Brazilian inflation as an orthodox inflation sustained by money growth to finance a public deficit. The public deficit in Brazil is not shown accurately in the fiscal accounts. The annual deficit is approximated by the new issues of government debt and base money. Bruno (pp. 158 and 198) is unaware that much of Brazil's fiscal deficit is hidden in the financial system, so he concludes that the problem is more monetary than fiscal.

reduce the budget. The monetary freeze was temporary, and its effect was temporary. The government continued to spend, subsidize, and transfer much more than it received in revenues. The true budget deficit remained high (see fn. 8), and inflation continued.

### *Mexico 1986-90*

Mexico used much of the revenue from the oil price rise of the 1970s to increase spending. Government spending rose rapidly as did the budget deficit as a share of GDP. External borrowing financed a large, and growing, current account deficit.

The Mexican stabilization plan reduced government spending, raised taxes, and generated a budget surplus. Between 1986 and 1990, the expenditure share declined by 2% of GDP and revenues increased by 1.7% of GDP despite a decline in oil prices that reduced oil revenues by 2% of GDP (p. 194). The peso was devalued and liberalization, extensive privatization and deregulation began.

Bruno notes that a "heterodox" element was introduced in December 1987. Unions, business, and government entered into an agreement called the Pacto. The government agreed to maintain the real exchange rate by means of a crawling peg to the dollar. The nominal exchange rate was fixed for three quarters of 1988 before the crawling peg began. The unions agreed to moderate wage increases. Prices were not frozen, and only a few prices were controlled. (p. 195)

Bruno credits the Pacto with bringing inflation down from 150% to 20%. He recognizes, however, that real wages under the Pacto rose in the next few years from 69 (base 100 1978) in 1987 to 75 in 1991. This slow rate of increase reflects the moderate economic growth of the period. The rise in real wages is in sharp contrast to the preceding 30% decline from an index of 99 in 1977-80 (base 100, 1978) to 69 in 1987.<sup>9</sup>

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<sup>9</sup>Figure 6.8 (p. 196) compares real wage increases in Mexico and Israel before and after stabilization. The increase in Mexico after Pacto is smaller, and the prior decline is much deeper and more prolonged in Mexico.

### *Lessons for Heterodoxy*

Bolivia's inflation was brought down by orthodox measures. After many heterodox attempts had failed, Argentina adopted a classical program based on a credible fixed exchange rate (supported by a quasi-currency board), fiscal reform and structural changes to promote growth. Bruno concludes that price and wage controls failed in Argentina, Brazil, and elsewhere, unless accompanied by measures that closed the budget deficit. That leaves Chile and Mexico.

Bruno counts Chile as a failure for orthodox policy and Mexico as a success for heterodox policy. I disagree. Chile's first stabilization and reform after Allende succeeded in restoring growth and reducing inflation in the 1970s. The major failure, discussed below, came in the 1980s after the exchange rate was fixed. The final success, which is not in dispute, did not involve heterodox policies.

If we follow Bruno's definition of heterodoxy (p. 269), Mexico's successful stabilization tells little about a heterodox policy of multiple anchors. Mexico undertook orthodox fiscal reform, a crawling peg for the exchange rate and control of nominal wage increases. Prices were not controlled. Except for a short period in 1988, I count one nominal anchor -- the wage agreement.

After 1988 Mexico's nominal exchange rate adjusted on a crawling peg, a policy that Bruno criticized severely in Chile. With the budget in balance, the nominal money stock and bank credit responded to the exchange rate. Most prices were free to fluctuate. This may not have been an optimal or entirely orthodox policy, but it does not conform to Bruno's definition of heterodox. It is not unusual for the nominal wage to serve de facto as the nominal anchor in countries with inflexible wages.

### **Eastern Europe**

Chapter 7 is a thoughtful discussion of reform programs in Eastern Europe. Bruno briefly describes the programs and the early results.

The strength of the chapter is in his discussion of key issues such as the choice of a "big bang" liberalization of prices over gradualism, the role of privatization, and the disposition of the "bad" loan portfolios of the (former) state banks. Its weakness is

the neglect of anticipations. Bruno does not discuss the importance of institutional reform for valuations. Prices and values depend on the rules of the game and on the public's belief that the announced rules will be sustained.

Mostly missing, also, is recognition of the importance of the "Hayekian infrastructure." This is the set of laws, rules, and codes of conduct that underlie the market system. This infrastructure includes assignment of property rights, contract enforcement, the commercial code, the legal and financial systems, accounting conventions, and other institutional arrangements. The International Monetary Fund and many of its academic advisors neglect these topics. Bruno mentions them but does not recognize their primacy.

Without property rights and other institutions of a market economy, supply responses are muted. Freeing prices may bring imports to fill the shelves, but domestic production responds slowly, if at all, and unemployment increases if incentives are not clarified.

Separating the effects of reforms, incentives, learning, and substantial differences in initial condition to judge the response to heterodox stabilization policies is difficult. I doubt that we will learn much about the benefits of heterodoxy from analysis of these cases. Bruno seems to agree. He concludes Chapter 7 by noting that "it is much too early to tell" what will result.

### **A Critique of Multiple Anchors**

As we have seen, Bruno's case for heterodoxy is as a supplement, not a substitute, for orthodox fiscal and monetary restraint. The principal case studies he offers to support his argument are Israel and Chile. Israel's successful stabilization, Bruno claims, was the result of using heterodox policies to support orthodox budget and monetary (exchange rate) policy. Chile's alleged failure he attributes to the absence of wage and price controls (restraint) to reinforce orthodox policies. This section considers the analytical and empirical case for multiple anchors.



### *Analytic Issues*

Every professional economist learns early that there are  $n$  commodities and  $n-1$  independent prices. Once some commodity is chosen as numeraire, the market system determines the  $n-1$  prices.

There is only one nominal anchor in this setup. Any attempt to fix more than one nominal value makes the system inconsistent and, therefore, makes the equilibrium indeterminate. Multiple nominal anchors, or incomes policies, to "support" monetary or fiscal restraint build in indeterminacy of this kind. The problem is more intractable if the nominal rate of interest is fixed also. Only by chance will the exchange rate, wage rate and interest rate be set at values consistent with full employment and low or zero inflation.

If the fixed wage rate is above the equilibrium wage consistent with the exchange rate, employers are induced to substitute capital for labor. The fixed nominal interest rate and the anticipated rate of inflation associated with the fixed interest rate and exchange rate may make this decision to increase capital unattractive; at the prevailing real interest rate, the rate of investment may be low. The price level and the money wage depend on the money stock, and the money stock depends on the interest rate and the exchange rate. And all these decisions depend on how the public expects the inconsistencies to be resolved; will the authorities adjust the exchange rate and interest rate to keep the wage rate fixed? Or, will they permit unemployment to rise so as to hold the exchange rate fixed? There are many possibilities and substantial uncertainty about when and how the fixed prices will be altered.<sup>10</sup> I see no reason why this added burden of uncertainty should make stabilization easier.

The problem does not end there. The now well-known problems of time inconsistency enter. (Kydland and Prescott, 1977). Market clearing values for prices, wages, interest rates and the exchange rate would reflect the way in which the public

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<sup>10</sup>A different set of problems arises if the wage rate is set too low relative to the exchange rate. With fixed values of three nominal variables, there are too many possibilities to follow up each type of inconsistency.

expects the inconsistencies to be resolved. People would learn that the anchors are not fixed and would act on that information. Imposing these avoidable uncertainties cannot be optimal. Avoiding them by fixing a single nominal value is superior. Whether that value is the money stock or the exchange rate or the money wage is a separate issue that does not have a general answer.

Proponents of multiple anchors respond to criticisms of this kind by assuming that “policymakers can make a reasonable estimate of the exchange rate consistent with balance of payments equilibrium at the existing wage level” Fischer and Gelb (1993, p. 202). Fischer and Gelb point to experience in Mexico and Israel. Bruno uses Mexico and Israel as examples of successful stabilization and Chile as an example of unsuccessful stabilization. I have discussed the Mexican and part of the Chilean stabilization above. The crawling peg on the exchange rate allowed the nominal exchange rate to change in Mexico (and Chile). The nominal wage increase in Mexico was fixed, but the interest rate and the price level were not. Mexico did not rely on multiple, nominal anchors. In Israel, stabilization was achieved with prices and the nominal exchange rate controlled.

### *Evidence from Israel and Chile*

The monetary facts about Israel's inflation suggest the importance of institutional arrangements. Table 1 shows annual average rates of growth for base money, nominal domestic debt, and nominal GNP for two periods. The first includes the October 1977 decision to permit Israelis to hold deposits denominated in foreign currency, called PATAM. For this period, growth of base velocity accounts for 37% of the growth of nominal GNP and growth of the monetary base accounts for the remaining 63%. The growth of base money and domestic debt (mostly indexed debt) suggests that the driving force was budgetary finance.

In the second period, the growth of nominal GNP and base growth were more than double the rate of the earlier period. Average growth of base plus domestic debt (domestic budgetary finance) was above growth of the base. The public accumulated indexed debt, but there is no sign of more than modest growth of velocity.

**Table 1**  
**Money, Debt and Inflation**  
**Average Annual Growth in %**

<b>Date</b>	<b>Base</b>	<b>Base plus Domestic Debt</b>	<b>Nominal GNP</b>
1973/4--1981/4	34.1	32.3	54.4
1981/2--1985/2	107.3	168.3	117.1

Source: IMF, International Financial Statistics

Table 2 tells a compatible story. Average holdings of base money per unit of income fell during the early years of inflation. There is a sudden drop after 1977 following the introduction of PATAM (bank deposits indexed to the dollar). The adjustment to PATAM was complete by 1980. During the worst of the inflation, average holdings of base money per unit of income fluctuated but contributed little to the average rate of inflation (GNP growth).

**Table 2**  
**Base Money per unit of GNP (B/y)**  
**various dates**

<b>Date</b>	<b>B/Y</b>	<b>Date</b>	<b>B/Y</b>
1973/4	.154	1980/4	.032
1975/4	.101	1981/4	.030
1977/4	.094	1985/2	.021
1978/4	.068	1986/2	.052
1979/4	.038		

Source: See Table 1

Stabilization began in the third quarter of 1985. By 1986, average cash balance was back to the 1978-79 range. The jump in average cash balance mirrors the slower growth of the monetary base following the fiscal reform.<sup>11</sup> By second

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<sup>11</sup>The fixed exchange rate and new restrictions on the liquidity of PATAM led to rapid reduction in these deposits and expansion of shekel denominated time deposits.

quarter 1986, the annualized average monthly growth of the base had fallen to 13%.

These data look very much like an orthodox inflation and disinflation modified by the shift in and out of PATAM deposits. The "inertial" problems, on which Bruno comments extensively, arise mainly from the failure (or unwillingness) to reduce the budget deficit. This Israeli problem was not unusual. Democratic governments are often reluctant to raise taxes or reduce transfers and subsidies.

One of the surprising features of Bruno's book is that the words anticipations and expectations do not appear in the index, and if they appear in the book they do so infrequently. Given the budget deficit the many half-hearted, anti-inflation plans to reduce inflation without closing the budget gap, the public had ample reason to believe that inflation would continue. Indexation institutionalizes and supports these anticipations. I believe this is a main reason for inertia.

The Israeli program did not reduce real wage increases. As noted earlier, the government did not prevent a rise in real wages during the transition from high to moderate (20% annual) inflation. If real wage growth was a major cause of rising inflation, as Bruno's inflation equation suggests, faster real wage growth during the stabilization should have hampered stabilization. Of the three determinants in Bruno's equation, (see eq. (1) above), only the fixed exchange rate worked initially to break inertia. With a lag, the fixed exchange rate and price controls worked in one direction, real wage growth in the other.

Disinflation was achieved at low cost. A main reason is some good luck that Bruno barely mentions. After devaluing by 20%, Israel pegged the shekel to the dollar in July 1985 just as the dollar was sharply falling against most of the world's currencies. In the first year, Israel's exchange rate fell with the dollar against its principal trading partners except the U.S. Table 3 shows an index (base third quarter 1985) of shekels per dollar and per SDR. By third quarter 1986, the shekel was 15% lower against the SDR but stable against the dollar. After August 1986, Israel pegged to a basket of currencies and devalued at intervals to adjust for its higher rate of inflation.

Insert Table 3 here

The initial devaluation of the shekel and the devaluation of the dollar encouraged exports. A fall in the world oil price lowered costs of production offsetting, in part or whole, the effect of rising real wages in some industries.

The success of Israeli policy owes much to chance. The compatibility of the nominal anchors for the price level and exchange rate during the first year of the program could not have been predicted.<sup>12</sup> There was no way for the Israeli government to predict that the dollar would continue to fall sharply after the Israeli stabilization plan or that world oil prices would fall precipitously for the next year.

Chile reduced inflation from 500% or more in 1973 to about 45% in 1978. To further reduce inflation, Chile pegged the nominal peso-dollar exchange rate from June 1979 to February 1982. The timing corresponds closely to the period in which the U.S. decided to reduce its own inflation rate. The result was a severe deflationary impulse for Chile, as shown in the lower half of Table 3. Pesos per SDR fell by 14% (to 86), and growth of the monetary base collapsed in 1981-82. In the year ending in second quarter 1982, Chile eliminated more than a quarter of its monetary base. This highly deflationary policy was followed by a 15% fall in real output in the same period and the failures of major banking and financial institutions.

Using the dollar exchange rate as a nominal anchor failed in Chile and was abandoned. The reasons for the failure was the wide swing in the dollar's value and a sharp rise in the world oil price. Both changes were opposite to the changes that helped Israeli policy produce disinflation at low cost. The same nominal anchor, at different times, induced a large real devaluation in Israel and a large real appreciation in Chile. The fixed dollar exchange rate in Israel proved to be compatible with a decline in inflation and an increase in the demand for money. In Chile, the fixed exchange rate imposed a brutal deflation and a severe recession.

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<sup>12</sup>The policy change that induced a shift from PATAM to shekels contributed to stabilization.

**Table 3**  
**Exchange Rates, Base, Money and Output**

<b>Date</b>	<b>Annual Growth of Base Money (B) Percent</b>	<b>IS/\$ Index</b>	<b>IS/SDR Index</b>	<b>Output Growth (y) Annual Percent</b>
1985/3	228.1	100	100	-6.2
1985/4		100	106	
1986/3	51.1	99	115	7.5
1987/3	16.8	107	131	5.5
1988/3	-3.9	112	135	0.3

**Chile**

<b>Date</b>	<b>B</b>	<b>P/\$ Index</b>	<b>P/SDR Index</b>	<b>y</b>
1979/2	40.8	100	100	8.0
1980/2	38.2	100	102	7.5
1981/2	8.0	100	89	5.4
1982/1		100	86	
1982/2	-26.6	117	101	-15.2
1983/2	-2.9	188	165	-0.7

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Source: IMF: International Financial Statistics

## Conclusion

What remains of the case for multiple nominal anchors and heterodox policy? Not much, I believe. The only clear success is Israel, and that success owes much to good fortune.<sup>13</sup> Had Israel implemented its program in 1979 or 1980, it would likely have had an experience more like Chile's than its own successful outcome.

Chile's problems in 1982-83 did not result from too few nominal anchors. To restore stability and end severe disinflation, Chile abandoned the fixed dollar exchange rate and eventually adopted an adjustable peg. Israel, too, has had an adjustable peg since 1987. Mexico adopted an adjustable peg as part of its stabilization and did not rely on multiple nominal anchors during most of its program. Argentina, after many heterodox experiments, succeeded in reducing inflation and restoring growth by adopting an orthodox stabilization program with one nominal anchor -- the exchange rate. Brazil also experimented with heterodox programs, but failed to follow the orthodox policy of closing the budget deficit and failed to control inflation. Bolivia's stabilization was orthodox.

The lessons of policy in Eastern Europe are harder to draw because they are combined with unprecedented problems of transition to a market economy. There has been progress in some countries, but these are hardly the laboratories one would choose to make the case for any complex, heterodox strategy. Poland which started with anchors for wages and the exchange rate soon devalued and adopted a crawling peg.

Bruno's advocacy of the exchange rate as one of the principal nominal anchors may be good general advice. However, a fixed nominal exchange rate exposes the economy to the risks of policy change abroad. For Israel the choice was helpful. For Chile in 1982, the result was calamitous.

The book has no discussion as to why price or wage controls are an important additional anchor. Does the public believe that inflation can be controlled by

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<sup>13</sup>Calvo and Vegh (1994, p. 43) studied several of the programs that Bruno considers. They conclude that "the use of incomes policies does not seem to alter the outcome of an exchange-rate-based stabilization."

controlling individual prices? If controls demonstrate that inflation has fallen, do people believe more firmly that it will stay low? Or are controls a political signal that owners will not profit at the expense of workers?

Another neglected element in Bruno's book is the role of anticipations and their relation to "inertial inflation." I believe anticipations depend much more on what is done to reduce the government's financing requirement than on the careful craftsmanship of policymakers and their advisers. Reducing subsidies, transfers, and other government spending -- including off-budget spending -- or raising revenues to close the deficit generates anticipations that inflation can be ended. Argentina is an excellent example. After many failed attempts, Argentina adopted a quasi-currency board, accepted the U.S. dollar as a parallel currency and reduced its budget deficit. These actions drastically changed anticipations about future inflation. There is no evidence of prolonged inertia.

Bruno agrees on the importance of budget discipline (p. 252). It is an old and often repeated lesson. One of the strengths of Bruno's book is his understanding of the difficulties of reestablishing fiscal discipline in democratic countries even when there is widespread agreement on the desirability of stabilization. He recognizes that to convert the desire for better economic performance into policy requires political decisions that redistribute wealth and income.

As Fischer (1984, p. 37) showed, Israel's inflation was not driven by a desire to maximize revenues from the inflation tax. The inflation tax, net of credit subsidies, was negative in Israel. The problem was to get agreement among ministers, representing different constituencies and factions, on the burdens that each of these groups would bear and how much compensation would be paid to those who lost subsidies or suffered disproportionately from devaluation.

The modern welfare state creates many quasi-monopolies (interest groups) each of which protects a particular item of spending, subsidy, tax preference, or entitlement. The members of the group seek more benefits and oppose reductions. Much recent literature treats the budget or monetary process as a two party game between the government and the public. Bruno's work makes clear that this model



neglects the problem of coordinating the disparate interests represented within a government and the even more difficult problem of coordinating the many members of the public. Spending ministries or departments have different objectives than the finance and budget ministries. Behind these ministries are the voters with their individual objectives and interests in particular programs and in the taxes they pay.

Indexation lowers the cost of inflations and raises the costs of reaching a political agreement to end inflation. Brazil paid positive real rates of interest on saving, and indexed depreciation and wages. It experienced much less capital flight than Chile, Mexico and Argentina and has been able to maintain growth through many years of high inflation. Indexation in Israel reduced the costs of Israel's inflation also. All the costs could not be avoided, however. Excessive use of resources in finance, reduced information about relative prices, uncertainty about future values, and inefficient, subsidized investments all contributed to the burden of high inflation in Israel and Latin America. One of the many strengths of Bruno's book is the attention given to the problem of eliminating these burdens once they develop.

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