Instituto de Investigaciones Socio Económicas

Documento de Trabajo No. 08/90
Septiembre 1990

Bolivia' s Post Stabilization Problems

por
Juan Antonio Morales

Bolivia' s Post Stabilization Problems[*]

by: Juan Antonio Morales

Introduction

The Bolivian stabilization program is the only survivor of ah programs initiated in Latin America in 1985. While the results regarding inflation are very impressive, as is shown below, the resumption of growth at a strong pace seems to present more obstacles than it was thought, when the program was launched. Although a significant part of the initial difficulties can be attributed to a difficult environment for Bolivia's exports, it is also true that the stabilization program brought in some problems of its own or made apparent some issues that were hidden by the financial chaos of the first half of the 1980. These problems concern the management of the exchange rate, overwhelming dollarization, the high level of real interest rates, and the low levels of private investment and domestic savings.

After a short description of the developments in the aftermath of the stabilization program in Section 1, the policy trade-off associated with the maintenance of stabilization, competitiveness and the level of economic activity are examined in Section 2. Substantial space is devoted to the key elements in a program of reactivation of the economy in Section 3. In that section we focus on the interaction of inflation, the exchange rate, and the public prices; as well as ore the determinants of high dollarization in the banking system and high interest rate. Many of the issues are explored with simple econometric models.

[*] I am grateful to the International Development Research Centre of Canada for helpful support.

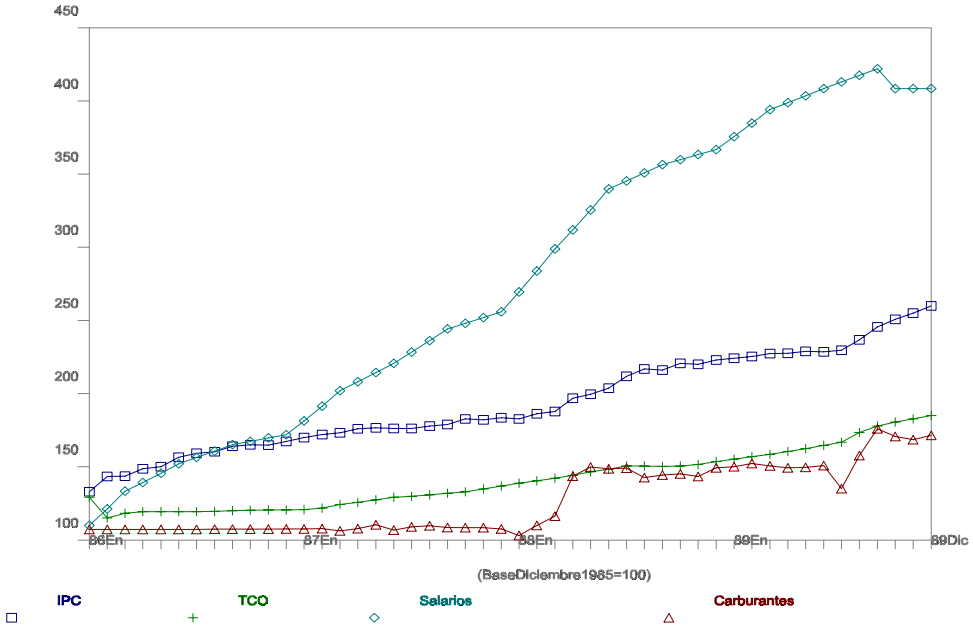
1. The Aftermath of the Stabilization Program

a. Inflation

The figures ors the containment of inflation by the stabilization program of August 1985 are very clear. The (December to December) inflation rate in 1986 was 60%, 10.7% in 1987, 21.5% in 1988; 16.6% in 1989, and the annualized rate for 1990 is 8.7%. The question remains however why the inflation rate, while low, it is still well above the international rate. It seems that the post-stabilization inflation is characterized more by discrete jumps in the price level than by a continuous process. Note in figure 1 that wages (in the private sector) have increased significantly faster than the Consumer Price Index (CPI), while the exchange rate and the price of fuels, the most important public price, have lagged the CPI. Figure 1 suggests that the exchange rate and the public prices have been used to "guide" the inflation rate. The discrete jumps generally followed strong exchange rate devaluations (e.g. August 1989) and hikes in public prices (e.g. April 1988 and September 1989). Exchange rate and public price corrections were in turn the consequence of accommodation to foreign shocks or of the need to solve accumulated fiscal imbalances. It also appears that non- policy induced shocks, e.g. shocks in the neighboring countries, constitute an explanatory factor on their own.[1]

[1] The discussion on the inflation rate could also be based on an closer examination of the evolution of the price level. For instance, consider the following model:
(1) $\log P = \alpha_0 + \alpha_1 \log P_{-1} + u$
where logP is the logarithm of the Consumer Price Index, and u is a random disturbance, independently distributed, with mean zero and variance σ^2. If $\alpha_0 = 0$ and $\alpha_1 = 1$ we would have a random walk model and inflation ($\log(P/P_{-1})$ results from purely random shocks. A regression run with monthly observations from May 1986 to December 1989, made us reject the random walk hypothesis in this strong version (at the 5% significance level). But interestingly, wm could not reject the hypothesis $\alpha_0 = 0.00116$ and $\alpha_1 = 1$ (a random walk with drift). The hypothesis is consistent With an annual inflation rate of 15%, a figure that has been used by the Bolivian authorities in its negotiations with the international official creditors and with the domestic labor organizations. The problem is then what factors are behind the stable inflation rate of 15%.

Figure 1. Key price indices after stabilization



Source: Basic data from the National Institute of Statistics
Note: Wages are private sector wages

The following regression has been run to further explore the behavior of inflation after stabilization:

(1) $$INF = \beta_0 + \beta_1 DEV_{-1} + \beta_2 GPCARB + \beta_3 GM1 + u$$

where:

INF	=	Monthly rate of inflation
DEY	=	Monthly rate of devaluation
GPCRRB	=	Monthly adjustments in the price of oil derivatives
GM1	=	Monthly rate of growth of money (M1)
u	=	Random disturbance with the usual properties

The results of the least squares estimation appear in table 1. Given the fact that our sample includes the period of consolidation of inflation, we can suspect time-varying coefficients in equation (1). To check this, a Kalman filter technique was used. As can be observed in the four panels of figure 2, the coefficients of DEV_{-1}, GPCARB and GM1 do not substantially diverge from the last-squares estimates of the $ß_s$ above and they lie, in each case, in the interval defined by the estimated ß ± 2 standard deviations of the estimated ß. The intercept is however very variable. With relatively small variations in DEV, GPCARB

and GM1 in the past four years, variations in the inflation rate would be relatively small, and the intercept been more stable. But the instability in the intercept lends itself to the interpretation that jump in the inflation rate over its policy determined values were the consequences of exogenous shocks, many of them originated in the instability of our neighbors, rather than of policy.

Table 1. Regression of inflation equation

DEPENDENT VARIABLE INF			
FROM 19863 5 UNTIL	1989:12		
TOTAL OBSERYATIONS	44	SKIPPED/MISSING	0
USRBLE OBSERVATIONS	44	DEGREES OF FREEDOM	40
R**2	. 30928633	RBAR**2	.25748280
SSR	.46215615E-02	SEE	.10748909E-01
DURBIN-WATSON	1.68958820	-	
Q (18)	= 18.8127		
		SIGNIFICANT LEVEL	.403439
VARIABLE	COEFFICIENT	STAND. ERROR	T-STATISTIC
CONSTRAT	.8013809E-02	.284 1333E—02	2.820440
DEV	.2585665	.2186439	1.182592
GPCARB	.1189048	.3354888E—01	3.544225
GM1	.3280018E-01	.2754983E-01	1.190576

Figure 2A: Kalman filter of intercept

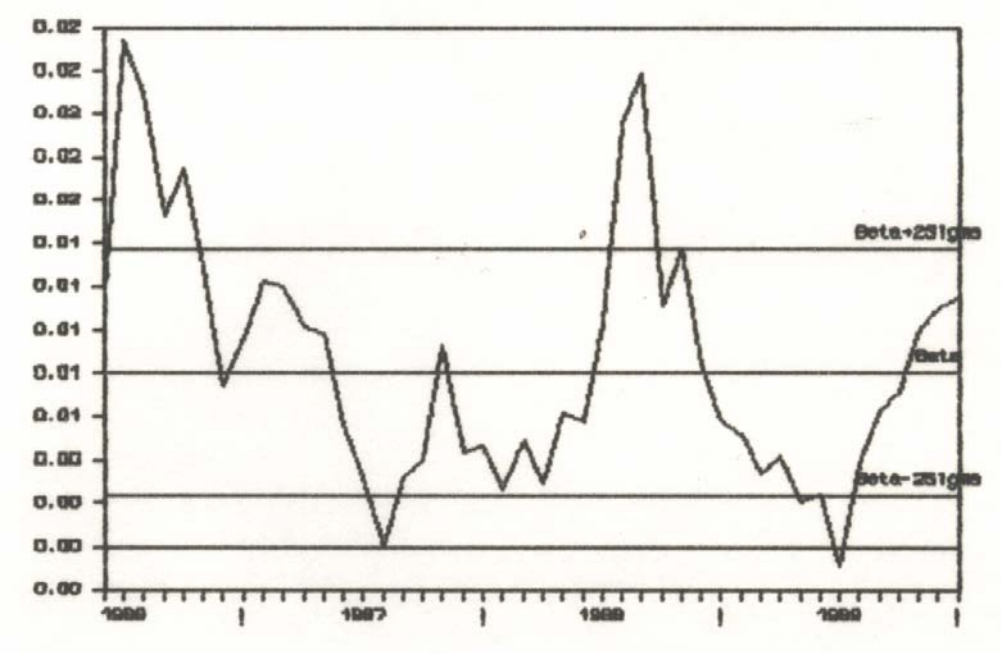


Figure 2B: Kalman filter of the coefficient of DEV

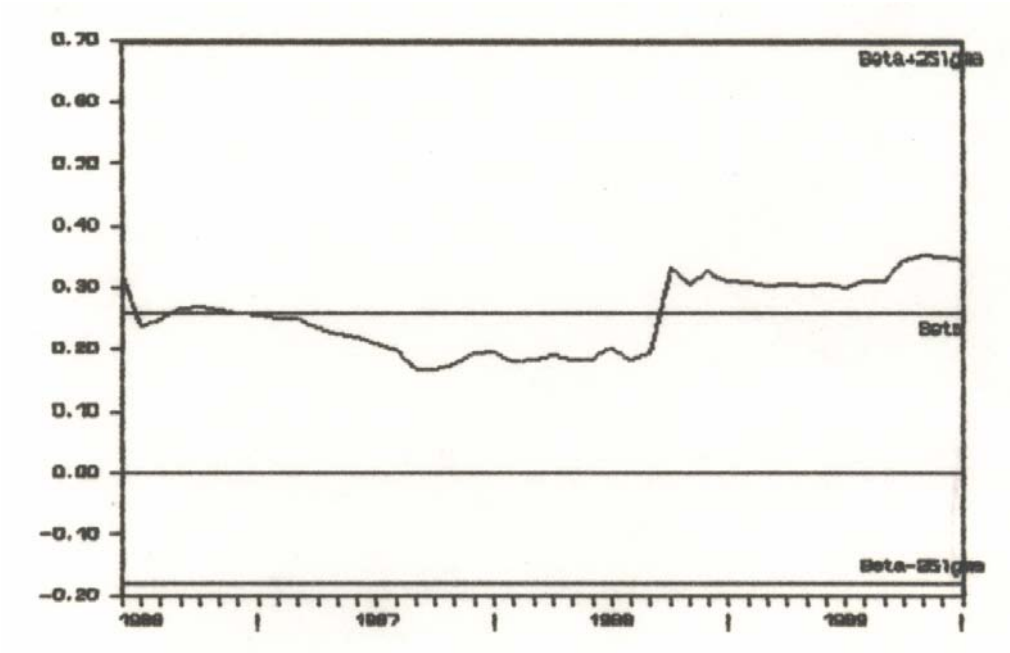


Figure 2C: Kalman filter of the coefficient of GPCARB

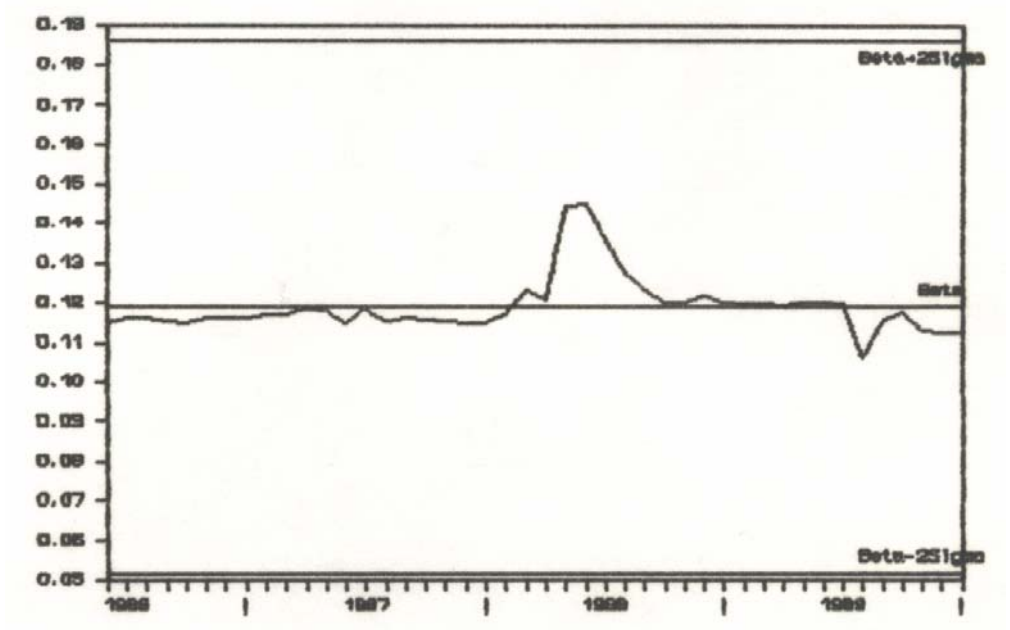
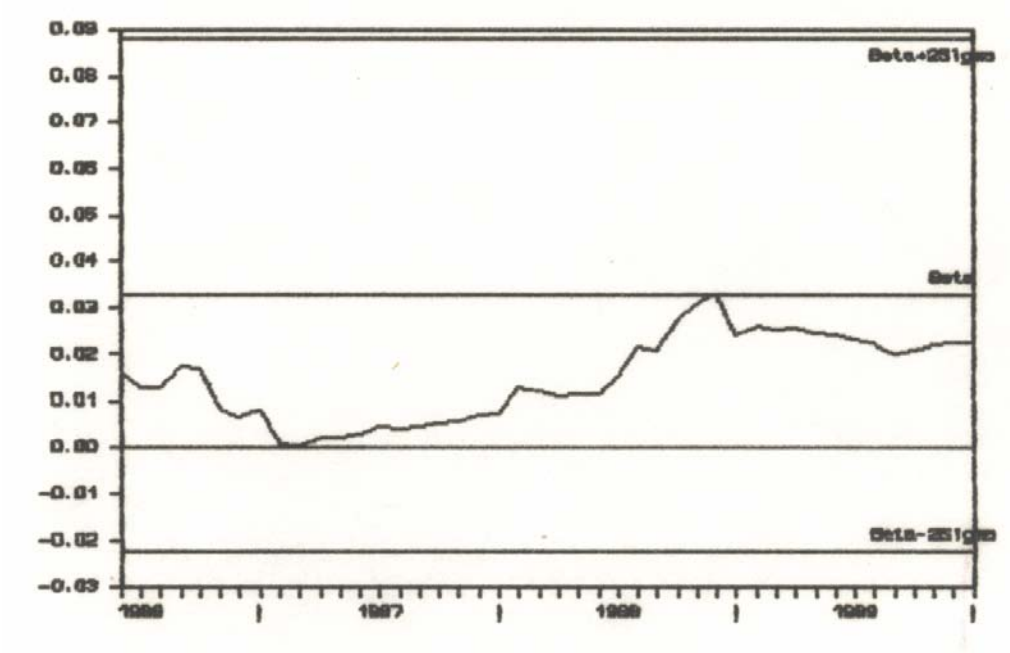


Figure 2D: Kalman filter of coefficient of GM1



b. Output

Very clear signs of growth are still missing. GDP declined by 2.9% in 1986 in the aftermath of the stabilization program, but grew by 2.1% in 1987, 2.8% in 1988, and 2.4% in 1989. Government officials expect 2.5% for 1990. Although the rates of growth have become positive since 1987, after having been negative in the previous five years, they are still below or equal to the rate of growth of population. Moreover, some of the most important production sectors in the economy exhibited in 1989 outputs below, or barely equal, to the ones of 1985 (figure 3). An extraordinary exception is the mining sector, that after a slump in 1986 forcefully recovered itself. The low investment rate, 12% of GDP in 1989 (compared with an average of 17.8% during 1975-1980) is very worrisome.

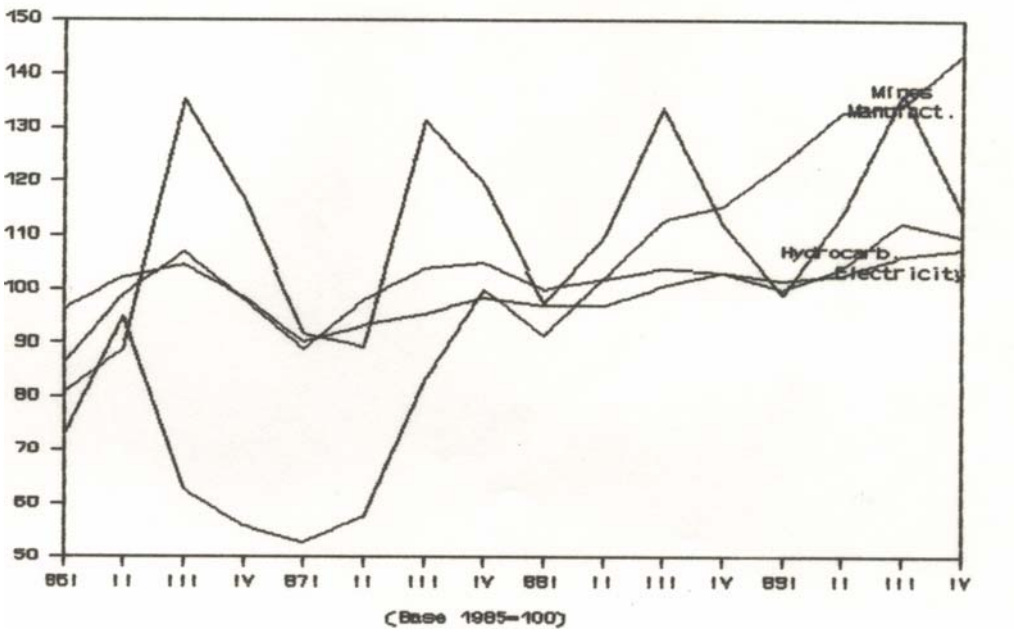
c. The foreign constraint

One of the major aims of the stabilization program was to lessen the tightness of the foreign constraint by gaining international (as well as domestic) credibility. The foreign constraint is defined by the burden of the service of the foreign debt, the limited access to new foreign loans, and the effects of the, more or less permanent, shocks to the current account of the

Balance-of-Payments (BoP). A rapid review of them is in order.

Bolivia exhibited very high foreign debt/GDP ratios in the 1980s; the service of the debt was also high. During most of the first half of the past decade, the net resource transfers were very negative, but since the implementation of the stabilization program, they have turned again to be positive.[2] This happened because: (a) substantial progress was obtained in the reduction of the foreign debt, with the buy-back operations with the creditor commercial banks; (b) the debt swap with Argentina; (c) the debt cancellation to Brazil with its own papers; (d) negotiations in the Paris Club allowed Bolivia to reschedule its debt service over several years; and; (e) in the last five years, the flow of loans, mostly coming from multilateral credit agencies has beers significant.

Figure 3. Production, quarterly volume indices



Source: National Institute of Statistics

Let us note that as a consequence of the factors pointed above: (a) public debt with multilateral creditors increased in U$ 629 million between 1985 and 1989; (b) public debt with bilateral creditors decreased in U$ 73 million over the same period, due to the debt swap

[2] Bolivia entered in a stand-by arrangement with the International Monetary Fund (IMF) in June 1986, fully nine months after the stabilization program had started, for SDR 51.9 million. In 1988, Bolivia obtained again a loan from the ¡MF in fin Enhanced Structural Adjustment Financing (ESRF) for SOR 136.05 million. While the amounts lent by the IMF are small, the arrangements with the ¡MF opened the door, as expected, to the financing from other official creditors.

with Argentina for U$ 720 million; and, (c) the buy back operation meant a reduction of U$ 457 million in the outstanding debt with the commercial banks. Total public debt increased in only U$ 150 million in the period under consideration.[3] Clearly, the debt problem was more manageable by the and of 1989 than at the end of 1985.

Repatriation of capital, after the stabilization plan was announced, has also been significant. Dollar and dollar-linked time deposits in the banking system grew from 24 million dollars in December 1985 to 490 million dollars by the end of 1989. 0f course, not all deposits were spanned by repatriation, but is contribution seems to have been very high. That capital reflow carries however the problem of having been placed in very short-term deposits (almost 60% of the dollarized deposits have a maturity of 60 days or less).

The recurrent shocks to the current account during the 1980s have been a source of chronic macroeconomic instability, whose severity has been rarely translated by the statistics. Two main types of shocks have affected Bolivia's economic performance in the 1980s. First, delays and arrears in payments for the sale of natural gas to Argentina created problems in the BoP and the fiscal accounts, after the onset of the international debt crisis. The arrears were frequently solved by renegotiations leading to reductions in prices, as well as arrangements for payment by Argentina in goods and services, that given the frequent overvaluation of the Argentinean peso and the austral, amounted also to a lowering of prices. The Argentinean arrears ultimately forced, in September 1989, a swap of the Argentinean debt with the Bolivian debt to Argentina. Second, the second main export, tin, suffered a steady decline in price during the first half of the 1980s and en abrupt fall in the last quarter of 1985.

The deterioration in Bolivia's terms-of-trade amounted to 18% betweens 1985 and 1986. Recovery has been slow since then. The economy adapted itself to the shocks by reducing absorption. The dismissal of 76% of the labor force in the state-owned mines in 1986 exemplifies the dramatic measures to reduce absorption.

While the stabilization program achieved substantial success in dealing with the debt problem and the renewal of foreign lending from official sources, little has been obtained to attenuate the effects of the external shocks or. the domestic level of activity, except reducing absorption. Given the stabilization effort, this probably was the right answer.

---

[3] The numbers given in the text are based in date of UDRPE (1990).

d. The difficulties in the fiscal sector

As has been mentioned above, the fiscal correction component is central in the stabilization program. However, some major fiscal difficulties remain, as can be inferred from the following figures. In 1986, the consolidated public sector deficit was 2.7% of GDP; it jumped to 7.4% in 1987, mainly due to a once-and-for all severance payments to the dismissed workers of the public enterprises. The deficit was still a high 6.5% in 1988; and preliminary figures show a deficit of 5.1% for 1989. The deficits have been mainly financed with added indebt ness and resort to financing with money emission has been very scant. Note that the lack of adequate savings in the public sector has impeded the timely disbursement of foreign loans that require counterpart domestic funds.

The Central Bank has been placing Certificates of Deposit (CD,) in the public since 1988 to reconstitute foreign exchange reserves and, indirectly, to finance the budget deficit. The amount placed until 1989 was close to 2% of GDP. While this percent is still low, the ratio of the Central Bank debt with CDs to the stock of foreign exchange reserves is large. Since the CDs are short-term instruments, the later ratio give a better idea of the pressures on the economy than the former.[4]

The tax reform of 1986 has been a mitigated success; there is still a lot of room for improvement. In addition, revenues are still too highly dependent on domestic taxation of fuel. and on foreign trade. Significant improvements in the current account of the General Government can come significantly only from increases in tax revenues since cuts in current expenditures seem to have reached a limit.

The landscape for the public enterprises 19 different. Exchange rates and domestic prices for their output have a major role, whose impact is examined in Section 3.b. Furthermore, cuts in current expenditures are indeed possible and desirable, as well as a closer scrutiny of their investment plans. There is also a more audacious proposal: to privatize a significant number among them.

[4] I owe this point to Fernando Candia

e. Shyness in private investment

Investment by the private sector has been slow to react, despite the fact that cine of the major aims of the NEP was to create a climate favorable to business. This can be explained by objective factors: the weak environment for traditional exports --that also has repercussions in the domestic market--, the management of the exchange rate, the interest rates, and defects in the tax legislation. Some of those factors are examined below. But, more important than the objective factors seem to be the credibility issues. The Bolivian government tried to induce momentum in the private sector by announcing in Supreme Decree 21660, of July 1987, a series of measures of "reactivation" of the economy. The main measures consisted of: (a) the establishment of a fund to finance working capital, hence reactivation, in the manufacturing, mining, and residential construction sectors; (b) a tax rebate on imported inputs for exporters; (c) an increase in the required capital of banks, to facilitate the intermediation of foreign credits intended for the private sector; (d) the creation of administrative mechanisms to speed up the disbursement of foreign loans to finance the public investment program. The last measure was also important for the private sector, since public investment would have crowded-in private investment, at least under this form of financing.

The Paz Zamora administration promulgated SD 22407 on January 11, 1990, ratifying the stabilization policies of Paz Estenssoro. SD 22407 includes measures of reactivation, announcements of structural reforms, and a blueprint of a policy of social development. The wideness of the objectives hinders en evaluation of the precise contents of the decree.

SD 21660 and SD 22407 are yet to bear fruits. In retrospect, it appears that both decrees lack the credibility content of the stabilization program. First, the fiscal difficulties inordinately delayed the implementation of the tax rebate for exporters and the special fund for working capital announced in SD 21660. Second, and more fundamentally, both decrees are devoid of clear institutional mechanisms to assure the public of the willingness of the government to pursue an activist policy of reactivation. This lack of credible signal clearly contrasted with the stabilization measures. Remember that the more distinct characteristic of the implementation of stabilization was the commitment and determination of the Paz Estenssoro administration; this has not been, the case for the reactivation program nor for Paz Zamora's decree.

2. The Main Policy Issues

The conjunction of the NEP and external events has led to a set of policy dilemmas, of whose resolution depends to a large extent a more vigorous resumption of growth.

The sudden opening of the economy to imports and capital movements created a first dilemma: inflation stabilization versus level of economic activity. The control of inflation was indeed helped by free imports and free capital inflows. The opening to foreign trade may also have important long-run efficiency gains. But in the short-term, with a highly open economy, adverse terms-of-trade shocks have to be domestically coped with a reduction in absorption, real wages, and employment. Moreover, the free movement in the capital account adds a speculative danger to a stability that is still fragile. The volatile nature of the capital account has the unintended consequence that the fiscal sector bears the brunt of all stabilization efforts. The dilemma lies in the fact that the government is left without instruments, at least in the short run, since use of any of them, wrongly perceived by the public as threatening its assets, would cause an uncontrollable capital flight, that will irremediably hurt the ongoing stabilization program.

A second dilemma, not independent of the first, concerns stability versus international competitiveness. The rapid opening of the capital account in the BoP has had the benefit of a substantial repatriation of capital that, obviously helps stability, but at the cost of putting an upward pressure can the Boliviano. The extent and consequences of the appreciation, of the exchange rate is discussed below.

A third dilemma is related to the need to improve the foreign reserve position of Bolivia, by attracting repatriation capital, versus high real interest rates. In, addition to increased confidence, the repatriation, of capital has proceeded because of absurdly high interest rates. These interest rates penalize economic activity and hurt the balance sheets of debtors as well as of the domestic banks.[5] But, a policy geared to sharply reduce interest rates may stop or even reverse the inflows of capital.

A forth dilemma is brought about by the need to preserve fiscal equilibrium, with a tight rein ors current expenditures and increased taxation, versus equity issues. In particular,

[5] Banks do not seem to worry about this; they work under the not unrealistic assumption that ultimately will be saved by the Central Bank

expenditure control means essentially non-growth in the purchase of non-traded goods and services. This essentially implies non- growth in fiscal sector employment and/or wages. While growth of employment is and should be very parsimonious, wages in government (not in the state enterprises) need to increases since they significantly lag the wages in the private sector. A similar comment can be made in regard to pensions of the social security system. The deterioration in public services is a major source of concern for its long run consequences, especially ors the poor. The old problem of how to finance a social development program sharply resurged once stabilization was under way.

A sequence of cuts in public expenditure would probably produce regressive redistributions of income, that ultimately may impair the fiscal austerity program because of the social unrest that they cause. Public expenditures of social development seem to have hit their lower limit. Taxes are also costly to collect and an increase in their rates would probably have substantial efficiency costs. The efficiency costs of taxation have largely been disregarded until now.

The most important challenge for economic policy in the medium-term is the resurgence of private investment. Domestic private investment and direct foreign investment, mainly to develop the Bolivia's rich mineral and hydrocarbon deposits need to be attracted. Three aspects seem to be crucial to this endeavor.

First, investors require full reassurances that the current policies will not be modified, especially when they undertake irreversible investments.[6] Rodrik's (1989) analysis show that even a small probability of policy reversal acts as a tax on new irreversible investments. Signaling by the government plays a crucial role in the formation of this probability.

Second, privatization can convey a very important message to the still shy private sector. Privatization of the main state enterprises is indeed a formidable issue, to be taken, seriously, but that faces in Bolivia strong legal obstacles in the case of the two most important: the petroleum company Yacimientos Petrcalíferos Fiscales Bolivianos (YPFB) and the mining enterprise Corporación Minera de Bolivia (COMIBOL). Privatization also carries the danger of the sale of profitable enterprises at a too heavy discount, because of current liquidity problems in the over-all public sector. There is also the very likely danger

[6] The analysis of Serven and Solimano (1989) and Dornbusch (1989)) are very helpful to understand the issues of resumption of private investment after stabilization

that the proceeds of the sale would be spent in consumption and not in investment, given the overhang of many years of austerity.

Third, since coordination failures cause a low investment-low growth trap, information on Bolivia's prospects, general development policies, and public investment program may be helpful as coordinating devices.[7] The policy problem is thus to make credible the commitment of the government with the announcement.[8]

[7] The main message of the "New Growth Theory" concerns the existence of multiple equilibria and the case of the economy trapped in a low growth equilibrium because of coordination failures. See Murphy et.al (1989) and Shleifer and Vishny (19881

[8] The Paz Estenssoro's administration prepared a development strategy, with a view until year 2000, to which there has not been a follow up. The strategy completes the macroeconomic policies of the stabilization program of 1985 with general development and sectoral policies. The strategy is spelled out in the document of Bolivia, Ministry of Planning (1989): Estrategia de Desarrollo Económico y Social. 1989—2000.

3. Key Short-term Macroeconomic Policies for Reactivation of the Economy

a. The generation of savings in the public sector

The construction of savings in the consolidated public sector seems to be a requirement for the resumption of growth. Positive and significant savings in the public sector are necessary am counterpart funds for the disbursement of the contracted loans. Since public investment is constrained by the availability of financing, additional resources will mean more investment and, hopefully, more growth. Conversely, deficits in the fiscal current account, that are financed with recourse to the internal market (e. g. with CDs), crowd-out private investment and thus lower total investment.

The most efficient way to constitute savings in the public sector is the continuation of the ongoing tax reform, along with a parsimonious increase in current expenditures. The tax effort that is now around 14% of GDP is still low.

In addition to taxation, the consolidated public sector financial posit ion depends on the level of the exchange rate, as the BoP of the public sector is usually positive, and on the level of the prices at which the public enterprises sell their produce.

b. The trade-offs in the indexation of public revenues

The maintenance (and eventually accrual) of the real income of the public sector is crucial, as asserted above. The beneficial fiscal effects of a good exchange rate and high public prices are obvious, but the management problem is how to set them (and eventually correct them) without endangering the stabilization process nor (indirectly) overtaxing the private sector.

The stabilization program of 1985 liberalized the market for foreign exchange and established an auction mechanism (called the bolsín) in the Central Bank to administrate the resulting floating regime. With the passage of time the exchange rate system has evolved toward a crawling peg arrangement, except on occasion when it works again as an auction. The crawling peg very loosely indexes the exchange rate to past month inflation. On the other hand the stabilizations program clearly stated a rule of indexation of the price of oil

derivatives to the exchange rate of the previous fortnight. [9]

With the indexations arrangements discussed above two questions arise: will current inflation be closely linked to past inflation? how unstable is the inflation rate? It turns out that exchange rate and price adjustments have an impact effect on the inflation rate, but under some general rules that we specify below, the persistence of inflation after the adjustment seems to be rather limited.

To see the implications of the indexation rules consider the following simple model:

(2) $p = a_1 w + a_2 p^h + a_3 e + u$

(3) $e = b(p_{-1} - p^*_{-1})$ b) o

(4) $p^h = ce_{-1}$ c) o

where p = monthly rate of inflation
e = monthly nominal depreciation rate
p^h = monthly percentage change in the price of oil derivatives
p* = monthly rate of international inflation
w = monthly percentage change in nominal wages

a_1, a_2, a_3 are positive coefficients such as $a_1 + a_2 + a_3 = 1$; u is a random disturbance with mean zero and variance σ^2. Notice that there is no wage indexation in the model. Note also that equation (4) does not exactly translate the indexation rule with periodicity of two weeks. It is expected that this would not make a significant difference.

Equations (2) to (4) can be thought as the incompletely reduced form of a structural open economy model. The model does not aim at a full explanation of inflation but rather to examine heuristically the effects of the Bolivian indexation arrangements, should they be carried through. (Note that it is complementary to the model discussed in Section 1a.) Demand pressures are captured essentially through w in the model.

Substituting (3) and (4) in (2) we obtain the reduced form equation:

(5) $p = a_3 bp_{-1} + a_2 cbp_{-2} + a_1 w + d + u$

where: $d = -[a_2 bp^*_1 + a_3 cp^*_{-2}]$

If we assume for simplicity that d = 0, p after being disturbed will converge to zero (or to a base inflation) if b and c are such that $a_3 b + a_2 cb$ (1. For given a_1 (i = 1,2,3) the higher b and c, the longer the persistence of inflation after e shock. The condition $a_3 b + a_2$ cb (l is also necessary for a finite variance of p. Again, the higher b and c, the higher the

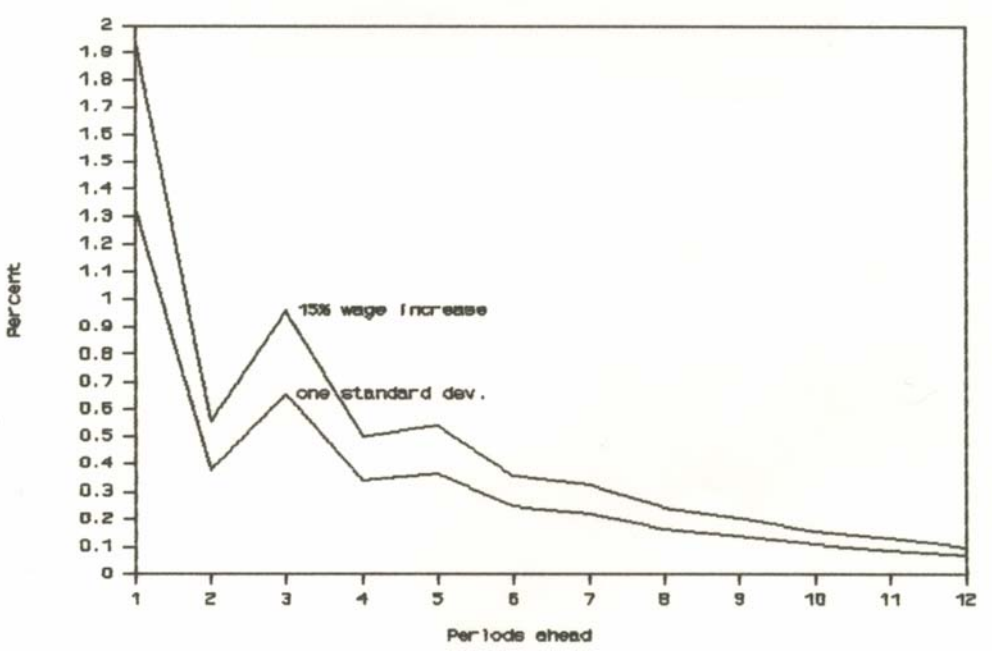
[9] See Dominguez and Rodrik (1990) for a full account of the policies of exchange rate management

variance for given a_1. [10]

The persistence of inflation, resulting from over indexation of the exchange rate and the public prices, may eventually lead to wage indexation or, worse, to disorderly escalating wage increases, that will probably be financed by money creation in the public sector. At that point inflation would accelerate.

Figure 4 shows the responses of inflation to one-standard deviation shock and a one-time increase of 15% in wages, both in the first period, assuming the following, arbitrary but sensible, values for the parameters above: $a_3\, b = 0.29$, $a_2\, cb = 0.41$ and $a_1 = 0.13$. It may be observed in figure 4 that persistence is rather short.

Figure 4. Responses of inflation to shocks



c. Competitiveness and the exchange rate

As a general rule, competitiveness of the exchange rate le central for economic recovery. Long periods of overvaluation have undesired consequences, as is well known. However, in a country with the characteristics of Bolivia there are several problem in the assessment of exchange rate policy. First, there is the problem of measurement of overvaluation. Second, there is the question of how elastic is the supply response of exports and import-substitutes to

[10] Article 75, clause A, of 6. D. 21060 of August 1985

the real exchange rate. This is related to the more fundamental problem of the effectiveness of a real devaluation to extricate the Bolivian economy from the current low investment, low growth, trap. Third, what are the instrument. to correct the exchange rate should the need arise.

Before going into specific comments, the status of the BoP can be observed in table 2. After stabilization, in spite of the big losses in exports, a significant jump in imports occurred in 1986 and 1987. The current account balance started to improve in 1988 and a substantial amelioration was obtained in 1989. It is interesting to note, in passing, that inflation stabilization was not initially accompanied by external adjustment. In fact stabilization was possible because Bolivia was able to finance its transient imbalances in the current account. External adjustment started to be obtained only after three years elapsed.

Bolivia's exports are mainly constituted by natural gas and minerals, with prices that are either fixed in foreign exchange in international markets (minerals) or result from negotiations within the limits of a bilateral monopoly (natural gas sales to Argentina). Given the nature of those markets and the cost structure of producing minerals and natural gas, exchange rate overvaluations, unless absurdly high, has a minor impact in the competitiveness and profitability of production in these sectors.

Non-traditional exports and, especially, import substitutes are, on the other hand, very sensitive to the real exchange rate (RER). The RER has beers very volatile in the last four years, not because of policy hesitations in Bolivia but rather due to severe macroeconomic instability in Argentine, Brazil and Peru. The real exchange rates, that apply to non-traditional exports and import substitutes, fluctuated with the unstable inflation and, especially, the premiums between the official and the parallel market exchange rates of our trade partners mentioned above. Also, these features of the exchanges rates very much difficult the estimations of the RER

The premiums, that could be very high, gave a very competitive edge to their production of traded goods in the contiguous countries. The premiums implied en unintended subsidy to Bolivia, but also en unfair competition to domestic producers.

Table 2. Balance of payments, 1984 — 1959 (U$ millions) 1984

	1984	1985	1986	1987	1988	1989
1. Trade Balance (1a. - 1b.)	232.9	-69.4	-117.5	-243.4	-157.5	-62.7
a. Exports FOB	724.5	623.6	556.5	523.8	542.5	723.5
b. Imports CIF	491.6	693.0	674.0	767.2	700.0	796.2
2. Balance of non-factor services	18.0	-12.6	-25.0	-16.7	-18.0	-19.0
3. Factor services (Net)	431.2	-362.3	-279.5	-267.7	-262.8	-254.5
4. Net transfers	88.5	80.0	99.0	126.0	184.3	156.3
5. Balance on current account (1. +2. +3. +4.)	-127.8	-364.3	-323.0	-401.8	-254.0	-179.9
a. Non-interest current account	205.0	-43.7	-66.9	155.7	-8.8	43.6
6. Balance on capital account	-158.7	-262.2	-115.7	-17.1	70.4	-18.1
7. Exceptional financing	261.8	358.0	310.8	384.9	142.8	89.4
8. Errors and omissions	27.4	282.1	219.6	64.6	44.0	-30.7
9. Overall balance (5. + 6. + 7. + 8.)	2.7	13.6	91.7	30.6	3.2	-139.3
Memo item:						
Net foreign exchange reserves	104.4	136.2	246.6	168.4	160.9	18.6

Source: Central Bank of Bolivia

Table 3 indicates the evolution of consumer prices, expressed in dollars of the parallel market, of Bolivia's main trade partners.[11] The most striking feature in that table is the great price variability in Argentina, Brazil and Peru. Furthermore, note that prices in dollars in Argentina and Peru frequently varied at a slower pace than in Bolivia, hence there were losses of competitiveness for Bolivian trade with these countries. Brazilian prices in dollars, ors the other hand, have moved faster than the Bolivian ones, except occasionally.

The ability of nominal devaluations to correct the real exchange rate is open to question given the memory of hyperinflation. A nominal devaluation may be passed through to the inflation rate, hence little, if any, real devaluation may be accomplished. The tiny devaluations have not been passed through inflation as seen above, but our theoretical model of indexation implies that substantial increases in the rate of devaluation may have strong inflationary effects. This is a fortiori true for a step devaluation. Also, devaluations may have a very limited impact on improving the real exchange rate because the heavy dollarization accommodates many costs of non-traded inputs to the new exchange rate. Balance sheet considerations impulse firms to try to recoup the effects of devaluation in the prices they charge. Ultimately, only the wage earners are required to adjust. The resulting

[11] Some graphical examples of the assertions above can be found in Morales (1990). The examples derive from a modified methodology first proposed by Dornbusch (1988)

income distribution problems create political and social instability that endangers also the price stability.

Table 3. Consumer price indices expressed in US$, quarterly data (Base 1987.1 = 100)a

Year and quarter		Bolivia	Argentina	Brazil	Peru
1987	I	100.0	100.0	100.0	100.0
	II	97.9	103.5	153.5	96.2
	III	96.2	110.1	134.8	80.2
	IV	95.6	98.3	151.6	66.5
1988	I	93.7	88.2	166.8	59.3
	II	97.2	96.5	135.7	52.4
	III	101.5	117.6	157.6	83.2
	IV	103.4	127.8	170.1	90.5
1989	I	101.8	89.2	116.3	105.9
	II	99.8	42.8	93.5	167.5
	III	97.3	84.1	127.9	222.2
	IV	99.2	80.9	113.9	173.2

Source: Based on data from International Monetary Fund, International Financial Statistics, August 1988 Edition, line 64, and UDRPE (1990)
Note: a Quarterly CPIs divided by quarterly parallel market exchange rate, converted to indices.

d. Interactions between the fiscal and external sectors

As is well known, the fiscal position plays an important role in absorption and, hence, in the trade balance equilibrium. If we start with a trade balance, increasing expenditure will indeed create a deficit. The existence of a foreign constraint puts a limit to the deficit and, working backwards, to expenditure, unless the government is willing to face runaway inflation.

The analysis becomes a little bit more complicated when attention is centered ors the determinants of the trade deficit and the ways to augment its financing. If the trade deficit arises because of growing investments, that will generate a flow of payments (in foreign exchange) more than sufficient to pay for the resources borrowed from abroad there should be no problem. Evers more, increased external resource mobilization has an important impact an the rate-of-growth. Since the public sector has de facto a privileged borrower status, surpluses generated in the consolidated public sector current account may allow the use of more foreign savings, since they constitute the required counterpart funds for the

disbursement of foreign loans. Therefore, the rate of investment and, if the investments are not wasted, the rate of growth of GDP should increase. There is, however, the danger that foreign savings substitute domestic savings in financing investment. The situation would be compounded if the domestic savings fly out of Bolivia, or with similar effects, are reduced because of purchases of durable import s.

A question has beers made with regard to the effects of the current important flow of foreign resources or. the real exchange rate.[12] Net foreign resource transfers spent on non-traded goods do appreciate the real exchange rate relative to the level that otherwise it would have had (and its long run equilibrium value). This unwarranted effect can be limited by using the fiscal savings for purchases of home goods and the foreign savings for imports of machinery and equipment. A more fundamental objection to the real appreciation argument is that it takes a very short view. Indeed, during a period of rapid growth in investment, financed to a significant extent by foreign savings, a temporary real appreciation, is very likely to occur. However, as investments mature and improve competitiveness, the real exchange rate would be realigned to its long run equilibrium value. Also, the inter-temporal external budget constraint has to taken into account. Real exchange rate alignment will be required to pay for the debt incurred in the previous phase (and when appreciation of the RER was possible).

The real exchange rate correction would hopefully come from improvements in productivity, in both the traded and non-traded sectors, and not by a drastic cut in real wages.

e. The scope for an activist commercial policy

Foreign trade liberalization continues to be one of the more controversial measures of the NEP. If the real exchange rate cannot be easily corrected, should not be made more use of an activist commercial policy? Opinions in the press and associations of producers have been advocating a more closed economy to reactivate. They recommend rises and differentiation in import tariffs, export tax rebates and some limited use of quantitative restrictions.

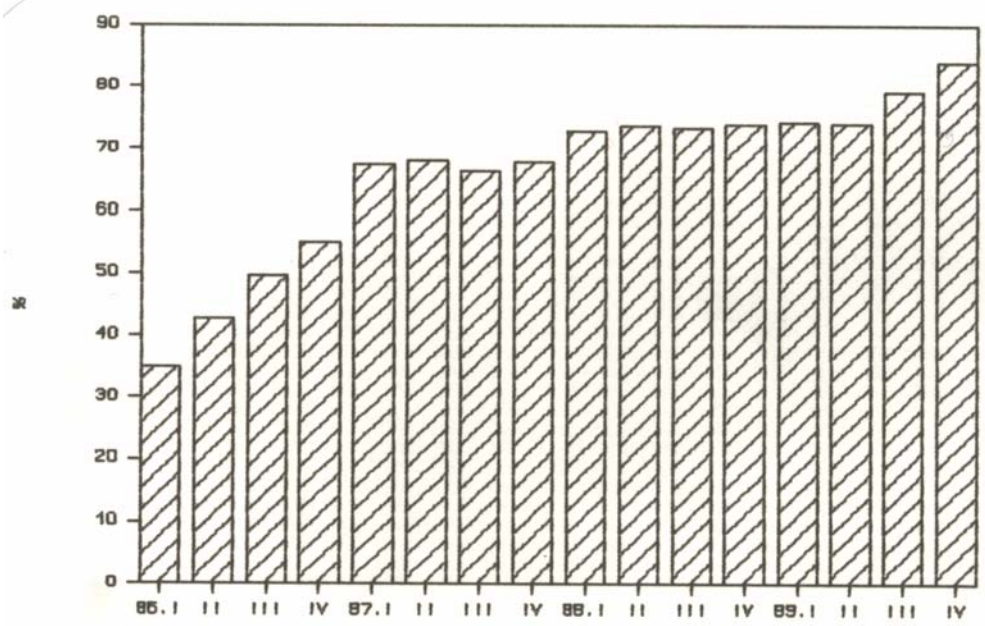
[12] Bolivia's bilateral RER are obtained dividing the columns pertaining to Argentina, Brazil and Peru in table 5 by the column of Bolivia. A fall in the bilateral RER with a given country, say Argentina, indicates an appreciation of the Boliviano vis-a-vis the currency of the partner country

There is indeed a point in the argument that the sudden liberalization of the current account and the capital account have created problems for some producers, for example, in the agricultural sector. However, the remedies proposed are probably of limited scope, given that the fiscal and administrative resources are so limited. As an example, the implementation of the export tax rebate included in the reactivation decree SD 21660 had to be delayed for more than a year and a half because of fiscal difficulties. More importantly, the proposed remedies may create biases against the crucially needed exports.

f. <u>The dollarization issue</u>

The current levels of dollarization of the banking system put a heavy constraint to economic policy and convey several dangers. (See figure 5 to judge the extent of dollarization).

Figure 5: Dedollarization in the Banking System



Source: Data from Central Bank of Bolivia and the Superintendence of Banks

First, dollarization of the deposits in the banking system coupled with short maturity potentially create the conditions for instability in the whole financial sector. Investors are enticed by the very high returns received over time on those deposits and by the probability that the deposits will not base value at maturity. The assessment of this probability may be

however based on "sentiment" as well as on information. The deposits are earning high returns but depositors are probably taking more risks than they think because sentiments are favorable. However, sentiments may shift, even if fundamental values in the economy have not changed as happened in July-August 1989, causing hence massive withdrawals of deposits by the public.[13] The macroeconomic consequences of a such a change would be severe. A run on deposits will be directly translated in a run on the foreign exchange reserves of the Central Bank. Rumors of changes in policy or of runs on a particular bank can be enough to create a generalized run of deposits, that would neither be met by the reserves of the Central Bank nor be controlled with adjustments in the exchange rate (eventually combined with interest rate increases). Administrative measures, like a freeze on deposits, would need to be taken making the rumors a self-fulfilling prophecy. The run of July-August 1989 was worrisome but, fortunately, not too severe. The ratio of dollarized deposits to Central Bank reserves was also smaller and, hence, the rescue of banks loosing deposits by the Central Bank was within the realms of feasibility.

Second, dollarization puts an additional strain on the public finances as revenues from seignior age are mostly forsaken.

Third, with crawling peg exchange rate policy that is now being followed, as the rate of devaluation increases, people change their portfolios from assets denominated in domestic currency to assets in dollars or dollar-linked. Some econometric evidence is provided below.

In the dollarization process after the stabilization program, two effects have to be separated out. First, most of the repatriated capitals were deposited in the domestic private. banking system in dollar accounts. Also, previous informally hoarded dollars were deposited in the banking system in dollarized accounts. Second, the shift in the portfolio of savers, from domestic currency to dollar and dollar-linked deposits.

Equation (6) attempts to provide an explanation of the causes of dollarization:

$$(6) \qquad LOG(M_N / M_3) = \alpha_0 + \alpha_1 DEV* + \alpha_2 SPREAD + \alpha_3 t + \alpha_4 D + u$$

where:

M_N = Banking system liabilities in domestic money
M_3 = Total banking system liabilities

[13] In simulations with a Computable General Equilibrium Model performed by economists of the Unidad de Análisis de Políticas Econórnicas (UDAPE) of the Ministry of Planning of Bolivia, it was found that investment expansion financed with foreign savings produced a real appreciation. See UDRPE(1989)

DEV* = Expected rate of devaluation (= expected percentage change in the domestic money value of 1 U$)
SPREAD = Spread between the borrowing rate of interest in dollars in the domestic market and the LIBOR rate
D = O for months before July 1987; 1 afterwards
T = Trend

The concept of M3 in Bolivia includes dollar and dollar linked deposits. The expected devaluation rate in approximated by:

(7) $DEV^* = b_0 DEB + b_1 DEV(-l) + b_2 DEV(-2) + \ldots + b_6 DEV(-6)$,

where the b_1 (i = 0, 6) are distributed with a second degree polynomial with a far end zero restrict ion. After inserting (7) in (6), the equation has been estimated by ordinary least squares.

Table 4. Determinants of Dol1arization

DEPENDENT VARIABLE LOG(MN/M3)
SMPL range: 1986. 08 1989.03
Number of observations: 32

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT	2-TAIL SIG.
C	4. 4330972	0.0838217	52. 887225	0.000
SPREAD	-0. 0288020	0. 0094126	-3. 0599522	0. 005
t	-0. 0182698	0.0023247	-7. 8591430	0. 000
0	0. 1458303	0. 0397470	3. 6689653	0. 001
PDL1	-0. 0166732	0. 0048523	-3. 4361744	0. 002
PDL2	-0. 0019842	0.0012707	-1. 5615429	0. 130

R-squared	0.919804	Mean of dependent var	3.936161
Adjusted R-squared	0.904381	S. D. of dependent var	0. 120915
S. E. of regression	0.03739 0	Surn of squared resid	0.036348
Durbin-Watson stat	1.172586	F-statistic	59. 64086
Log likelihood	63.07962		

Lag Distribution of DEV		Lag	Coef	S.E.	T-Stat
	:	0	0.003 12	0.00642	0.48636
*	:	1	-0.00655	0.00449	-1.45971
*	:	2	-0.01315	0.00439	-2.99784
*	:	3	-0.01667	0.00485	-3.43617
*	:	4	-0.01712	0.00490	-3.49555
*	:	5	-0.01449	0.00417	-3.47343
*	:	6	-0.00878	0.00255	-3.43770
	0	Sum	-0.07364	2457	-2.99784

In table 4, the coefficients of PDL1 and PDL2 are the coefficients of a second degree polynomial, with far end zero restriction, that is fitted to the coefficient of the lagged values of DEV. All the explanatory variables, except PDL2, are significant at the 5% significance level. The sum of coefficients of the lagged values of DEV is also significant confirming the general observation that the public will move into dollars if they expect further depreciation. The crawling peg rule of devaluation has this undesirable effect. Notice also in table 4, that all coefficients have the expected sign, except maybe D.

g. Interest rate management

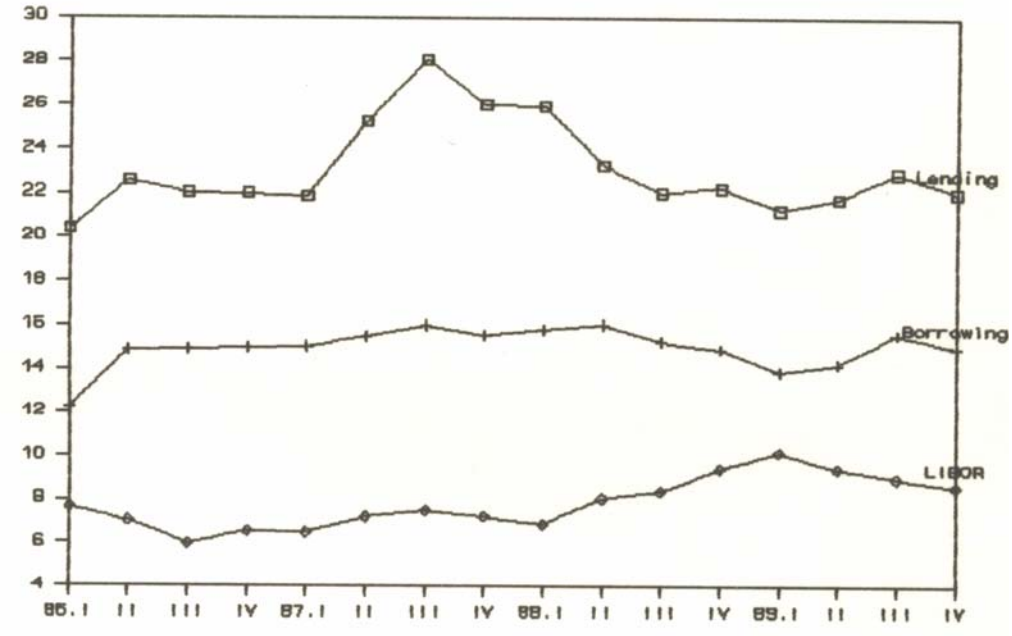
Figure 6 shows the evolution of interest rates for operations in dollars, that are by far the most important in the Bolivian financial system. For our purposes, the interest rate on dollar operations will be called the "real interest rate". After a normal Jump in real interest rates after stabilization, a further and important increase occurred in mid-1987. Around the same time, the credit market was segmented, with a preferential rates for development loans, mostly to pay imports of capital goods, services, and inputs; and market rates for local working capital, short-term trade and consumption loans. The development loans, almost entirely financed with foreign resources were supposed to reduce demand pressure on the overall credit market. This did not happen.

The discussion that follows refer to the market rates, but keeping in mind that the preferential loans may alter some of the results, should they become more important.

Several questions concern the determinants of the very high real interest rates. The questions can be grouped in three sets: the workings of monetary policy, the perceptions of risk, and the instability in the banking system.

In regard to monetary policy, it should be recalled that the hyperinflation caused a severe denomination. Once the stabilization program was launched, remonetization proceeded only with the accumulation of foreign reserves. The stabilization program depended to a significant extent on a very tight monetary policy, implemented with the deposits of the public enterprises in the Central Bank. Note that no provision was made for a discrete increase in the quantity of money for the immediate period after stabilization. This led to a situation of tight money, that pushed upwards the real interest rate.

Figure 6: Interest rates for dollar operations



Source: Data from the Central Bank of Bolivia

The prevailing high real interest rates are also explained by a country risk premium. Given Bolivia's history of macroeconomic and political instability and the memory of the "dedollarization" measure taken in 1982 (but repealed hence), depositors had to receive a high premium. Banks, of course, had to adapt their lending rates to the higher borrowing rates.[14] The trouble with the premium argument is that the spread between domestic borrowing rates and international rates increased in a discrete step two years after implementation of the stabilization program. As political and macroeconomic stability consolidated, the risk premium should not have increased.

It seem that the risk premium ham to see more with the supply of loan able funds in interaction with the non-banking public "distress" demand for credit than with "country risk" proper. On the demand side, the demand for loans had a perverse dynamism of its own. In Morales (1990) some evidence, although inconclusive, is given to lend support to the hypothesis that banks troubles were a factor that increased interest rates. The story goes as

[14] The question that immediately arises is why bank, market these deposits so enthusiastically? The answer lies in a version of the Tragedy of Commons. It may be optimal for each bank to receive more dollarized deposits. But if every bank follows its own interest by receiving more deposits, the risk of a run increases to everyone's disadvantage. Individual rationality collides with collective rationality. Analogous problems are discussed in Rapoport (1989)

follows. Am a result of the rapid trade liberalization, banks increased their loans to finance consumer imports. Importers of consumer goods made initial extraordinary profits, hence they could afford the high interest rates. Am profits decreased, because of new entrants in the market and the absorption of the backlog demand built up during the previous years, importers started to feel the burden of servicing their debts and, consequently, the loan portfolio of banks, especially the smaller ones, deteriorated. Of course, not only importers faced difficulties with their debts: some mineral producers also did, with the fall of the international market for tin, a. well am many large farmers that had to face strong competition from imports. As the smaller banks tried to restore their liquidity, they bid tap the interest rate to attract depositors. The larger domestic banks followed this move.

Since mid-1987, banks have been recurrently facing solvency problem. Four small banks, in a system of seventeen bank., had to close. The situation was of a much severity that the government of Bolivia had to obtain a U$ 70 million loan from the World Bank to strengthen the domestic banking system. This, together with the reestablishment of an independent Comptroller of Banks and Financial Institutions, and increased capital requirements for banks have alleviated, but not solved, the situation.[15]

In table 5, an attempt is made to find the short-run determinants of the domestic interest rate.[16] The regression ha. been run with SPREAD, as defined above, instead of the borrowing interest rate. The equation with SPREAD can be interpreted am an equation of the interest rate am dependent variable, with LIBOR among the repressors but whose coefficient is constrained to be one.

The equation ham the form:

(8) $$SPREAD = \beta_1 + \beta_2\, SPREAD_{-1} + \beta_3\, LM1DUS + \beta_4\, D + u$$

where SPREAD, D and u have the same meaning am above. We should recall that SPREAD gives the difference between the domestic (borrowing rate) and the world interest rate for operations in dollars in the domestic market. LM1DUS is the logarithm of real M1. Real M1 is defined am the dollar value of the M1 stock. M1 in Bolivianos has been depersonalized

[15] The spreads between the lending and operating rates also increased am banks had to face high operating costs in proportion of their loan portfolio, am they had overextended their branches and personnel during the hyperinflation

[16] It would be interesting to compare the Bolivian experience, with what happened in the southern cone in the first half of the 1980m. A troubled banking system can indeed be a source of macroeconomic instability. See e.g Velasco (1987)

before being converted to dollar values. In our opinion, real Ml reflects the tightness of monetary policy (the broader concept s of money reflect more the portfolio decisions of t he public than the effects of policy).

Table 5: Determinants of the spread between domestic and international interest rates

DEPENDENT VARIABLE SPREAD
SMPL range: 1986. 03 1989.03
Number of observations: 37

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT	2-TAIL SIG.
C	13.736795	3.0818410	4.4573340	0.000
SPREAD (-1)	0. 9693882	0.0600979	16.130137	0.000
LM1DUS	-2.6285003	0.6319822	-4.1591365	0.000
D	0.4707561	0.2682582	1.7548616	0.089
R-squared	0.889869	Mean of dependent var		7.764753
Adjusted R-squared	0.879857	S. D. of dependent var		1.473995
S. E. of regression	0.510911	Surn of squared resid		8.614002
Durbin-Watson stat	0. 740750	F-statistic		88.88088
Log likelihood	-25.53644			

The result in table 5 are very interesting. They seem to lend support to two complementary hypothesis. First the tightness of monetary policy to check inflation has led to increasingly higher discrepancies between the domestic interest rate and the world rate. Second, the banking crisis that started in mid-1987, captured by the dummy D, pushed interest rates even more.

4. Concluding Remarks

Despite the progress accomplished, the recovery of the Bolivian economy still faces strong obstacles. One key element in the . In the recovery is the formation of savings and liquidity in the public sector. In this context, the maintenance of a competitive exchange rate and aligned public prices with the rest of prices is essential, together with continuation of the tax reforms Privatization may also help in the process but should not be overemphasized. The exchange rate and public pricing rules followed until now seem reasonable but perfectible. Some price lags remain that need to be corrected. Correct ion is relatively difficult as there are limits to the indexation rules. In particular, it is shown that the indexation of the exchange rate to past differential inflation contributes to dollarization. Also, initial strong overvaluation is difficult to correct with the crawling peg rule and a discrete correction of the nominal exchange rate may be needed. The difficulties of a discrete correction are well known; they are greater in a country with a recent experience with hyperinflation than elsewhere. With a nominal discrete devaluation, the auction mechanism of the "bolsín", that has worked reasonably well in exchange rate unification, may base credibility. This would constitute a non-negligible cost.

The interest rate problem is almost as difficult to tackle as the exchange rate. The econometric evidence shows that the monetary policy followed until now and, less precisely, the banking sector problems determine interest rates for dollar operations in the domestic market well above their international levels. The premium argument, explained by country risk, is more difficult to defend.

In addition to exchange rate and interest rate problems, the difficult external context and the memories of recent instability give a high premium to the option of waiting instead of investing. The ways to reduce that premium for private investors are still unclear and further research Is needed.

The main lesson of the 1989's has been that stabilization is required to resume sustained growth. But the ways to obtain stabilization are as important as stabilization itself: abuse of overly restrictive monetary policies could trap the economy in a low investment, low growth situation. While a further reduction of inflation towards the international rate is desirable -- since it would lift the aurae of precariousness of the current situation and would

help to reduce dollarization and more generally to strengthen the financial sector -- it should not be enthroned am the only objective of economic policy. Convergence of inflation to the international rate may be difficult to achieve and could be unduly costly, in view of the fact that it is difficult to isolate the Bolivian economy from the macroeconomic instabilities of our neighbors.

REFERENCES

Bolivia. Ministry of Planning. 1989. Estrategia de Desarrollo Económico y Social. 1989—2000. La Paz.

Dominguez, Katheryn and Dani Rodrik. 1990. "Exchange rate management and growth in the aftermath of stabilization. The Bolivian case. " Unpublished manuscript. Harvard University, John F. Kennedy School of Government. (July)

Dornbusch, Rudiger. 1988. Exchange Rates and Inflation. Cambridge, MAN The MIT Press.

----------. 1989. "Short Term Macroeconomic Policies for Stabilization and Growth". Unpublished manuscript. MIT. (July)

Ferrufino, Rubén. 1990. "El Tipo de Cambio y las Tasas de Interés Post-Inflacionarias en Bolivia." Universidad Católica Boliviana, Instituto de Investigaciones Socio-económicas DT 90/06 (May).

Morales, Juan Antonio. 1990. " La Transición de la Estabilidad al Crecimiento Sostenido", in José Pablo Arellano (ed.), Inflación Rebelde en América Latina. Santiago de Chile. CIEPLAN-Hachette. PP 109—40.

Murphy, Kevin M., Andrei Shleifer, and Robert W. Vishny. 1989. "Industrialization and the big push," Journal of Political Economy. Vol. 97. No 5 (October) p 1003- 1026

Rapoport, Anatol. 1989. "Prisoner's Dilemma," in John Eatwell et.al (eds), The New Pal grave. Same Theori. London. W.W Norton. p. 199-204

Rodrik, Dani. 1989. "Policy uncertainty and private investment in developing countries." Cambridge, MA, NBER Working Paper No 2999

Serven, Luis and Andrés Solimano. 1989. "Private Investment and Macroeconomic Adjustment: "An Overview." Country Economics Department, The World Bank, WPS 339. (December)

Shleifer, Andrei and Robert W. Vishny. 1988. "The efficiency of investment in the presence of aggregate demand spillovers," Journal of Political Economy. Vol. 96. No 6 (December).1221-31.

Unidad de Análisis de Política Económica CUDAPE). 1989. "Vulnerabilidad Externa, Política Fiscal y Ajuste Macroeconómico: el Caso Boliviano". Unpublished manuscript. (July)

Unidad de Análisis de Política Económica (UDAPE). 1990. Estadísticas Económicas de Bolivia (July)

Velasco, Andrés. 1987. "Financial crises and balance of payments crises" A simple model of the Southern Cone experience. II Journal of Development Economic, 27, 263-283.