Survey

The Feasibility of Alternative IMF-Type Stabilization Programs in Mexico, 1983–87

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In November 1982, Mexico announced an agreement with the International Monetary Fund (IMF) on a program to ease the country's large foreign debt. Mexico may receive nearly $4 billion worth of credit if the government reduces the deficit, raises taxes and curbs imports. This article investigates whether an IMF program like this can work in Mexico without a serious and immediate economic contraction. A model is constructed to examine the impact of government fiscal activity under alternative stabilization programs. The analysis suggests a critical element for success is the ability and willingness to raise tax revenues.

INTRODUCTION

The year 1978 represented the beginning of a period of rapid economic growth for the Mexican economy. Based on rising oil revenues, foreign loans and investments, and relative political stability, investment, consumption, and income rose at impressive rates. By the early 1980s the growth process faltered. Mexico experienced rising inflation, declining productivity, structural imbalances in most labor markets, and catastrophic rural emigration. As a result, in February 1982 there began a major economic crisis that threatened to choke off the process of economic growth for the foreseeable future. To many observers (Riding 1981; Friedman 1982; Dorfman 1982) the injection of massive oil incomes after 1977 only exacerbated many of the long-standing problems faced by Mexico.

On November 10, 1982, the Mexican government announced an agreement with the International Monetary Fund (IMF) on a program to ease Mexico's large foreign debt. Under the agreement Mexico may receive $3.84 billion worth of credit from the IMF over the next three years. To qualify, the government must drastically reduce its deficit, raise taxes, and curb imports.

The purpose of this article is to examine the feasibility and consequences on the Mexican economy of various IMF "type" stabilization programs during the de la Madrid presidency (1982–87).

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RECENT ECONOMIC TRENDS

The government's economic program for the 1977–82 period defined the first two years as a period of "stabilization and inflation control." This was to be followed by a period of "consolidation" of stability in 1979 and 1980, and finally by a period of accelerated growth in 1981 and 1982. This program was to rely heavily on public expenditure and exchange policies. Among the most outstanding achievements of this policy were the high rate of growth of the economy (8.5 percent in 1978–81), a substantial increase in employment, a rapid growth of agricultural output, and a high rate of expansion of productive capacity. Indeed, the investment rate (gross investment as a proportion of GDP) amounted to approximately 29 percent in 1981 compared with 23 percent in 1976.

By 1981 the process had faltered. External factors such as the decline in demand for oil and increased world interest rates led to a current account deficit of $11.7 billion in 1981. Internal policies adopted in Mexico exacerbated the problem. While the country's growth policy resulted in an average annual real economic growth of 8.2 percent between 1978 and 1981, the long-term growth capacity of the economy was only about 6 percent. Serious levels of inflation were experienced. In addition, the inability to reform the tax system led to higher and higher budget deficits—reaching 16 percent of GDP in 1982. (Cline 1982, pp. 108–109). The exchange rate also aggravated the problem since the government was determined to maintain a nearly fixed rate during the 1977–80 period despite 23 percent annual inflation.

The current (1982) economic crisis is therefore the result of the unfavorable results in the balance of payments, the accelerated inflationary process, and the high level of external debt. In January 1982, the Bank of Mexico withdrew from the dollar market and allowed the peso to float freely. By the end of the year, the peso had fallen to around 160 per dollar—a decline of over 550 percent for the year.

On November 10, 1982, the Mexican government reached an agreement with the IMF to provide the country with $3.84 billion in credit over the next three years on the condition that Mexico adopted certain austerity measures (IMF, 1983). This "letter of intent" has diminished the risk that Mexico would announce a temporary moratorium on its debt. The letter represents a first step in a process to arrive at a final IMF loan package. It outlines a proposed three-year economic adjustment program for Mexico. (Riding 1982). The main thrust of the program is to reduce the deficit, which is expected to reach 16.5 percent of the country's GNP by 1982.

In the letter, Mexico agrees to limit its deficit to 8.5, 5.5, and 3.5 percent in 1983, 1984, and 1985, respectively, implying severe cuts in public spending. Mexico's other committment was that the public sector debt could not increase by more than $5 billion in 1983 (to include the first $1.28 billion in IMF credits). The government successfully argued against removing exchange controls, eliminating the three-tier exchange rate, or raising domestic interest rates—all of which had been sought by the Fund. Instead, the government promised only to maintain an exchange rate to stimulate exports and discourage both imports and the flight of capital.

The purpose of this article is to determine whether or not a program as suggested in the IMF letter can work in Mexico without a serious and immediate contraction of the economy. The following sections describe the model, and present the results of four simulations of the Mexican economy between 1981 and 1987.

THE MODEL

The model was constructed to examine the impact of government fiscal activity under alternative stabilization programs. Inasmuch, a relatively large number of public sector variables appear in the final estimated equations. In addition, the problems examined by Fitzgerald (1979), especially the issue of crowding out, can best be analyzed within the context of a simultaneous macroeconomic model of this type.

It has been suggested that Keynesian relationships are more likely to be prevalent in Mexico than the linkages hypothesized by either the monetarists or Cambridge group (Looney 1982). The model was therefore constructed largely along Keynesian lines. Of the two instrumental variables, government investment is assumed to be exogenous and controlled by the authorities for demand management, and the Bank of Mexico credit to the government is assumed to be controlled by the central bank and acts as a credit rationing device. The money supply is endogenously determined.

The individual equations with the expected signs of the coefficients appear as Appendix 1.[1] The following highlights are noted:

Equation (1): "Crowding out" of private consumption occurs as a result of direct government expenditures (GENANP).

Equation (2): Private investment is stimulated by both direct government expenditure and in particular government investment (IGP).

Equation (4): A dummy variable (DUMPET) is included in the government consumption equation to reflect the jump in oil exports beginning in 1977.

Equations (6) and (7): The sign of the exchange rate in the export and import equations indicates that a devaluation will increase exports and reduce imports. However, a devaluation is not expected to significantly improve the country's balance of payments.

Equation (11): A capital stock proxy (KPS) was constructed as current investment and investment in the previous two years. Estimated equations using the series developed by Reynolds (1980) were found to yield slightly poorer statistical results.

[1] The complete model and estimates of the equations in the model can be obtained from the authors on request.

The restrictions imposed on the model are largely the budget deficit and Bank of Mexico credit to the government. If GDP growth is to be promoted with price and exchange rate stability, government expenditures must follow a growth path consistent with the financial capabilities of the public sector. Failure to do this will not only affect the government deficit, but domestic and foreign stability will most likely be impossible to achieve. Therefore, the relevant endogenous variables responding to different policy shocks are private investment, GDP, taxes, imports, private consumption, domestic credit, and the money supply.

A channel through which government investment induces a multiplier process is included in the model. Government investment is determined exogenously while private investment depends on the infrastructure created by the public investment, foreign assets available for importing capital equipment, the peso–dollar exchange rate, and private savings. Private savings in turn respond to past investment needs and the government deficit.

Government expenditures will mainly be financed initially by revenue coming from income and indirect taxes, exports, and imports. Four additional sources can finance these expenditures: credit from the private banking system, credit from the central bank, foreign credit, and credit from the nonbanking sector.

Changes in international reserves are caused by movements in the balance of payments—the difference between exogenously fixed exports and endogenously determined imports. Since changes in international reserves are endogenous, part of the monetary base also becomes endogenous. Thus if the Bank of Mexico increases its financing of government deficits, it must reduce the amount of credit available to private banks if the inflationary risk involved in the creation of new money in excess of the trend is to be avoided.

In summary, the main real endogenous variables in the model are private investment, imports, taxes, government consumption, private savings, and foreign assets. All are determined mainly by the behavior of GDP, which in turn is heavily dependent of government investment.[2]

ANALYSIS OF THE 1981–87 PERIOD

A series of optimal control simulations of the economy were conducted to determine how the economy is affected by alternative stabilization policies. The model's exogenous variables were assumed to have the following values, which, by and large, reflect recent historical movements: an exchange rate of 90 pesos per dollar, annual growth rates of 6 percent for crude petroleum production and exports, 2.5 percent for U.S. real GDP, and 6 percent for U.S. consumer prices. The stable exchange rate is implicitly assumed to be a policy target of the government[3] and the most viable from a longer run growth perspective (del Rio 1977; Laney 1979).

[2]See Carrado-Bravo (1982) for a recent macroeconomic analysis touching on several of these issues.

[3]A stable rate is also said to reduce investor uncertainty and facilitate investment and trade. See Dempsey (1978a,b) for an excellent account of how fluctuating rates complicate business decision making.

NON-IMF "MILD" STABILIZATION PROGRAM

The initial run represents a non-IMF simulation since government deficits are not reduced as specified in the letter of intent. The only objective specified is to maximize real GDP by 1987 with a gradual reduction of annual inflation to 20 percent by 1987. This program depicts the mildest stabilization program open to the government. Government internal borrowing and Bank of Mexico credit were both assumed to grow at 20 percent annually, and private sector credit was allowed to increase at 30 percent per annum.

The results[4] indicate a continuation of past growth rates with real annual GDP growth of 5.9 percent. Inflation is quickly reduced to 20 percent, an indicator that the government would be successful in this area with little effort (Solis 1981).

On the other hand, both the internal and external gap increase very rapidly. Even if the government were successful in equalizing the gaps through reducing private consumption, it is not likely that the export gap (eventually reaching 84.1 billion pesos in 1987) could be covered by foreign capital inflows given the country's existing debt. Without a stricter stabilization effort, the outcome of this strategy would be a drastic reduction in the growth rate of all major aggregates.

THE IMF STABILIZATION PROGRAM I

The IMF stabilization program I represents a fairly severe stabilization effort. Government internal borrowing and Bank of Mexico credit to the government and private sector from the monetary system are all set at 5 percent average annual increase for the 1982–87 period. The major constraint is that government deficits as a percentage of GNP are fixed at 8.5, 5.5, and 3.5 percent for the 1983, 1984, and 1985–87 time periods, respectively. Inflation is set at 10 percent or less for 1987. Given these constraints, government investment is designed to maximize the level of real gross domestic product in 1987.

The results indicate that more than likely a program along these lines would impose a severe shock to the economy. In particular, GDP would expand at an average annual growth rate of only 2.3 percent, real private investment at 4.6 percent, total national savings would contract at 3.9 percent, and total investment would decline at 3.0 percent. If the domestic gap is brought into line with the external gap (through programs reducing private consumption) Mexico quickly becomes a capital exporter (1.2 billion pesos by 1984). In light of this, such a program would impose a severe burden on the economy and would be "overkill" in terms of bringing the country's resource gaps into a range where external financing considerations posed no particular constraints.

THE IMF STABILIZATION PROGRAM II

The IMF Program II attempts to determine the extent to which the government deficit/GNP ratio could be reduced, given the constraint that inflation reach 10

[4]Results of all simulations appear in Appendix 2.

percent by 1987 and that Mexico achieve a positive rate of GDP growth each year during the 1982–87 time period. All other assumptions are as in IMF Program I.

As the results indicate, it would be impossible to reduce the government deficit/GDP ratio below 7.5 percent in 1987. The ex ante domestic gap increases at an annual rate of 8.3 percent, requiring a significant reduction in private consumption in order to equate it ex post with the (smaller) external resource gap.

If the necessary reduction in consumption could e achieved, Mexico's external financing requests stabilize at between 19.3 and 31.5 billion pesos compared to 52.2 billion in 1981. These levels of capital inflow seem feasible, and indicate the iMF targets for the government's deficit may be too stringent and costly in terms of foregone increases in real output. Real GNP is projected at 4.0 percent annual average rate of growth with private investment growing at nearly 1 percent per annum by and −4.1 percent decline in private investment under IMF I). However, given the insistence of the IMF on an extreme reduction in the deficit, this program may not be a viable compromise between the non-IMF program outlined above and IMF I.

STABILIZATION PROGRAM III

An alternative policy to reduce the burden of the IMF government deficit target would be to undertake a major tax reform. Thus, part of the deficit adjustment would not be placed on expenditures and thus demand. Most authorities acknowledge that considerable scope for fiscal reform still exists. Assuming that the authorities have the political will to reform the tax structure, in Stabilization Program III govlernment current revenues increase at an annual average rate of 15 percent over the 1982–87 period. The exogenous growth rates are as above.

The results indicate the high payoff of government efforts of taxes are increased. Private investment expands at an annual average of 1.4 percent, real GDP at 4.2 percent with overall investment expanding at 2.1 percent, inflation is reduced to 3.9 percent by 1987, and importantly, the external gap declines at an annual rate of 11.2 percent reaching 27.3 billion pesos by 1987. Furthermore, the program is consistent with increases in the standard of living as ex post private consumption expands at an average rate of 4.8 percent.[5]

CONCLUSIONS

In retrospect the Mexican crisis of August 1982 was a financial panic dominated by a sharp shift in expectations (Cline 1982, pp. 107–108) and facilitated by a convertible currency. With imports down by 25 percent in the first four months of 1982 and exports in 1981 modestly higher, Mexico's external

[5]As a check on the sensitivity of the results to the choice of objective functions, Stabilization Program IV was run with the same assumptions as Program III except that the

deficit promised to be smaller in 1982 than in 1981. The peso had been devalued and austerity measures begun. Moreover, Mexico's crisis was a cash-flow problem rather than a problem of insolvency. It remains to be seen whether Mexico and the world financial system will emerge from the episode relatively unscathed.

The stabilization period will require a restricted level of government expenditure. The analysis developed in this article indicates that strict programs such as IMF I cannot be implemented from a political point of view. Preliminary indications are that the government cannot cut expenditures in the required amount necessary for a successful program.

If the real purpose of the IMF stabilization program is to restore Mexico's credit worthiness and debt-servicing capacity, a more relaxed program would be feasible especially from the political point of view. While IMF II would certainly restore confidence in Mexico, IMF III would go one step further and prepare Mexico for a period of sustained and noninflationary growth. The analysis indicates that the government's ability to increase tax revenues will ultimately determine whether the period of stabilization will be painful and contractionary, or simply austere with a quick return to a high growth path assured.

Appendix 1: Mexican Macroeconomic Forecasting Model[a]

Dependent Variable	Independent Variables (with Expected Sign)
A. *NATIONAL INCOME BLOCK* (constant prices)	
1. Private consumption (PCNP)	GDPNP, −GENANP
2. Private investment (IPP)	IGP_L, $BMFAP_L$, −EXC, PSP_L
3. Private savings (PSP)	IPP_L, −GDEFP
4. Government consumption (GCNP)	GTP, MSGCP, DUMPET
5. Current government revenue (GTP)	GDPNP, ZP, EP
6. Imports (ZP)	−IGP, $-GMFAP_L$
7. Exports (EP)	*E*, USYP, EXC
8. Bank of Mexico foreign assets (BMFAP)	EP, EP_L
9. Net factor payments (NFPP)	GDPNP
10. Change in stocks (ISNP)	GDPNP
11. Gross domestic product (GDPNP)	KPS,LAB
B. *NOMINAL FINANCIAL MONETARY BLOCK*	
12. Exports (*E*)	PETE, CPP, DUMPET
13. Bank of Mexico domestic assets (BMDA)	MSGC, MPS_L
14. Bank of Mexico reserve money (BMRM)	BMDA, BMGC
15. Gov't credit from monetary system (MSGC)	GMGC, FGFI
16. Government domestic borrowing (FGFI)	BMGC
17. Private sector credit from monetary system (MSP_L)	BMGC

Appendix 1 *(continued)*

Dependent Variable	Independent Variables (with Expected Sign)
C. PRICE INDEX BLOCK	
19. Consumer Price Index (CPI)	EXCESS, USCPI
20. Wholesale Price Index (WPI)	EXCESS, EXC
21. Gross Domestic Product Deflator (DFGDP)	$DFGDP_L$, EXCESS

[a] Estimated Equations based on 1951–81 period. *L* represents lagged one year; *P* at end of symbol indicates deflation by GDP price deflator with 1975 = 100; estimates are two-stage least squares. There are real and nominal identities to close the model.

Symbols

PCNP	Private consumption
GDPNP	Gross domestic product
GENANP	Government expenditure
IPP	Private investment
IGP	Government investment
BMFAP	Bank of Mexico net foreign assets
EXC	Exchange rate (90 pesos per dollar)
PSP	Private savings
GDEFP	Government deficit
GCNP	Government consumption
GTP	Current government revenue
MSGCP	Banking system credit to government
DUMPET	Dummy variable, income in petroleum exports
ZP	Imports
EP	Exports
E	Nominal exports
USYP	United States GDP (1975 prices)
NFPP	Net factor payments
ISNP	Change in stocks
KPS	Capital stock
LAB	Labor force
PETE	Mexican petroleum exports
CPP	Crude petroleum production
BMDA	Bank of Mexico Domestic assets
FGFI	Government domestic borrowing
BMGC	Bank of Mexico credit to government
MSP	Private sector private credit from banking system
MI	Money supply
BMRM	Bank of Mexico reserve money

USCPI	United States consumer price index
CPI	Consumer price index
WPI	Wholesale price index
DFGDP	Grodd domestic product deflator
DUMEX	Dummy variable, shift from fixed to flexible exchange rate
EXCESS	Excess monetary demand

Appendix 2: Mexico: Macroeconomic Impacts of Alternative Stabilizatio Programs 1981–87

Macroeconomic Variable	Average Annual Growth 1981–87			
	Non-IMF Program	IMF I[a]	IMF II	IMF III
Private consumption (ex ante)	4.9	4.8	4.3	4.0[b]
Private consumption (ex post)	6.2	3.5	4.8	4.8
Government consumption	3.6	−2.1	1.2	1.8
Total consumption (ex ante)	4.3	3.7	3.9	3.7[b]
Total consumption (ex post)	5.8	2.8	4.3	4.4
Private savings	5.4	−8.4	−0.7	−7.3
Private investment	5.9	−4.1	0.7	1.4
Government investment	6.9	−2.9	1.6	2.3
Change in stocks	4.5	2.5	4.6	4.8
Total investment	6.4	−3.0	1.5	2.1
Exports	6.6	6.6	6.6	6.6
Net factor payments	7.4	7.4	7.4	7.4
Imports (ex ante)	7.2	−1.2	3.3	4.2[b]
Imports (ex post)	6.6	−0.6	2.5	3.1
Gross domestic product (Supply)	5.9	2.3	4.0	4.2
Gross domestic product (Demand)	6.2	3.1	4.6	4.7
Supply–demand GNP	34.0	43.7	20.1	14.4[b]
Gross domestic product (Export)	5.9	2.3	4.0	4.2
Gross national product	5.9	2.1	3.9	4.1
Total savings	5.1	−3.9	0.4	1.0
Domestic GNP (ex ante)	32.6	8.9	0.5	13.1
External GNP (ex ante)	24.2	66.4	13.3	10.5[b]
GNP Difference	45.0	43.4	−17.6	14.4
Domestic = External GNP (ex post)	10.0	20.8	−17.6	−12.2
Government current revenue	6.2	7.2	8.5	15.8
Government deficit	14.6	−17.7	−4.9	−38.0
Government deficit/GNP	11.5	3.5	7.5	0.6[c]
Rate of Inflation (1987)	17.4	6.0	4.3	3.9[c]

[a] See text for assumptions underlying each program.
[b] 1982–87.
[c] Level 1987.
[d] Rate 1987.

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