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MEXICO'S FISCAL CRISIS

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Abstract—Mexico's current crisis has its origins in a number of structural conditions that developed in the 1970s. This paper examines one of these structural impediments, the country's fiscal disequilibrium. An empirical analysis of the country's tax structure indicates that there is ample scope for major tax reforms geared to introducing more responsiveness into the country's tax collection system. Given that the government will have to reduce its budget deficit to comply with IMF stabilization requirements, the analysis indicates tax reform rather than expenditure reduction would be the most efficient policy in achieving this objective.

INTRODUCTION

Although the Mexican government's deficit had been increasing over the years without much academic or popular discussion, the mid-1970s saw the country's fiscal problems emerging as the central focus of the debate† over: (1) the causes of the country's economic slowdown, and (2) its increasing tendency toward internal and external disequilibrium.

Increases in oil revenues have not alleviated the situation, for the Mexican economy sustained its most severe downturn since World War II in the early 1980s‡ and the country's public sector deficit increased to a record level§—both in dollar magnitude and, more importantly, in relation to the overall volume of economic activity.¶

The following sections examine several key issues surrounding the country's fiscal disequilibrium, together with empirical estimates of the structure and responsiveness of the government's tax and revenue system.

†L. Solis. A Monetary Will-O'-the-Wisp: Pursuit of Equity Through Deficit Spending. *Discussion Paper No. 177* (1977), Woodrow Wilson School, Princeton; E. V. K. Fitzgerald. The Fiscal Crisis of the Latin American State. In J. F. J. Toyeed, *Taxation and Economic Development*. Frank Cass, London (1978); Clark Reynolds. Why Mexico's Stabilizing Development' Was Actually Destabilizing (with Some Implications for the Future). *World Development* (September 1978); C. Tello. La Politica Economica en Mexico. Siglo XXI, Mexico City (1979); E. V. K. Fitzgerald. Stabilization Policy in Mexico: The Fiscal Deficit and Macro-economic Equilibrium, 1960–1977. In Rosemary Thorp and Laurence Whitehead, eds, *Inflation and Stabilization in Latin America*. Holmer & Meier, New York (1979), pp. 23–64.

‡William Chislett. Bitter Dose of Austerity, *Financial Times* (November 2, 1982) p. 17.

§Wharton, EFA, Mexico various reports.

¶The Wharton forecasts appear to be the first to identify many of the country's oil related development problems. cf. Abel Beltran del Rio The Mexican Oil Syndrome: Early Symptoms, Preventive Efforts and Prognosis. In Werner Baer and Malcolm Gillis, eds, *Export Diversification and the New Protectionism*. University of Illinois Press, Champaign, Illinois (1981), pp. 115–130.

MAJOR ECONOMIC-FISCAL TRENDS

Between 1940 and 1966 Mexico enjoyed a remarkable rate of almost continuous economic expansion with price stability. Balanced growth took place between industry and agriculture. The specific features of the period included:

1. a modest growth in personal consumption (due to a slow but steady rise in average real wage rates as labor shifted from agriculture to industry);
2. export growth was slow and import growth was checked by trade barriers and import substitution;
3. federal government income (taxes) kept pace with the growth of GNP, but was exceeded by the growth in expenditures (which followed a six year presidential cycle);
4. inflation was contained through rationing credit and manipulation of reserve requirements (to absorb the proportion of private savings from the banking system);
5. funds mobilized by the banking system were used to finance the public sector deficit. Because the effective interest rate far exceeded the actual one, the private sector was motivated to tap sources of external capital;
6. continued state support to the private sector was necessary to sustain capitalist expansion (Fitzgerald).

The 1967–1976 period has seen a shift in economic relationships reflected by:

1. the GDP growth rate slowing to one-half of its previous (6%) trend;
2. imports of food and industrial products increasing rapidly;
3. failure of the capital goods sector to develop and become integrated into the economy;
4. an increase in inflation;
5. a shift from productive investment into real estate and other speculative investment made profitable by inflation;
6. a response by the government largely characterized by increased intervention including the imposition of closer controls over the activities of multinational enterprises.

Major developments since 1976 have continued these trends with emphasis on:

Table 1. Mexico: trends in major macro-economic aggregates, 1951–1981 (percent of GDP)

	1951	1960	1970	1975	1976	1977	1978	1979	1980	1981
Private consumption	84.9	79.5	71.8	68.7	68.1	66.3	66.0	64.4	62.0	62.0
Private investment	8.1	10.0	12.3	11.9	12.2	8.9	11.3	11.7	13.0	13.6
Private expenditures	93.0	89.5	84.1	80.6	80.6	75.2	77.3	76.1	75.0	75.6
Government consumption	4.2	5.1	7.8	10.3	11.0	10.8	10.9	10.9	10.8	10.8
Government investment	4.9	4.9	7.3	9.5	8.8	8.9	9.8	10.8	11.1	11.6
Government expenditures	9.1	10.0	15.1	19.8	19.8	19.7	20.7	21.7	21.9	22.4
Private savings	9.1	13.0	16.0	19.8	18.3	19.7	18.5	18.6	21.2	22.3
Government savings	0.9	1.4	3.2	−0.5	0.5	0.9	2.3	3.6	3.3	1.9
Total savings	10.0	14.4	19.2	19.3	18.8	20.6	20.8	22.2	24.4	24.5
Government current revenue	5.1	4.7	8.3	7.6	10.3	8.5	10.7	7.8	10.1	9.7
Government deficit	4.0	5.3	6.8	12.2	9.6	11.2	10.0	13.9	11.8	12.7
Total investment	13.0	16.7	22.4	23.7	22.3	22.8	23.6	25.9	28.1	28.2
Total consumption	89.1	84.6	79.6	79.0	79.1	77.1	76.9	75.3	17.4	72.8
Resource = external gap	3.0	2.4	3.2	4.4	3.5	2.2	2.8	3.8	3.7	3.7
Private savings–private investment	1.0	3.0	3.7	7.9	6.1	10.8	7.2	6.9	8.2	8.9
Public savings–public investment	−4.0	−3.5	−4.1	−10.0	−8.3	−8.0	−7.5	−7.2	−7.8	−9.7
Net private–government savings–investment gap	−3.0	−0.5	−0.4	−2.1	−2.2	2.8	−0.3	−0.3	0.4	−0.8

Source: Banco De Mexico, *Informe Annual*, various issues.

1. increased oil exploration and the development of petrochemicals and fertilizers on a large scale;
2. the extension of infrastructure in the agriculture sector to stimulate production;
3. the development and expansion of the capital goods sector through state finance and direct state ventures;
4. the expansion of expanding urban services;
5. the state assuming responsibility for an increasing number of productive but not necessarily profitable branches of the economy;
6. public investment continuing to contribute to private profitability through absorbing the costs of social investment (as well as social consumption) to improve the conditions of the urban workforce;
7. the previous strategy of long term state support to the agricultural and export sector was altered in favor of short term profit supporting activities such as cheap steel and electricity;
8. the continued maintenance of relatively low welfare and military expenditures;
9. an expanded set of programs in primary and secondary education;
10. a rapidly expanding foreign debt facilitated by the credit worthiness provided by oil production;
11. a major financial and exchange rate collapse brought on by a slowing down of oil revenues in light of over-extended government expenditures.

In sum the economic activities of the government have played a pivotal role in the country's changing development pattern and must be acknowledged as performing a critical role in the remarkably rapid process of expansion experienced by Mexico in the period since World War II. As Fitzgerald notes, the growth of the public sector in the Mexican economy must also be seen as a source of the imbalance that has emerged over the last 20 yr or so—an imbalance that itself led to an accelerated growth of the public sector.† State intervention in the process of capital accumulation during the period of import substituting industrialization is common to the experience of Latin America as a whole,‡ but in Mexico the scale and scope of this intervention appear to have been greater than elsewhere, generating an important debate over the size of the Mexican public sector.§

Of critical importance for the issues at hand are the changing trends associated with the government's fiscal position and the savings effort of the private sector. These patterns are examined below.

SAVINGS

Mexico's overall national savings performance compares favorably to many countries at a similar stage of development.¶ Since 1970 Mexico's national savings have averaged around 19–24% of GDP, a fairly high savings level by international standards.

On the other hand, even during the post-petroleum period, the share of public savings has not increased markedly. Real public savings declined from a peak of 3.2% of GDP in 1970 to −0.5% in 1975, rising to 3.6% in 1979, only to fall again to 1.9% in 1981.

In spite of the poor public savings performance, public investment has grown at a markedly higher

†E. V. K. Fitzgerald. The New International Division of Labour and the Relative Autonomy of the State: Notes for a Reappraisal of Classical Dependency. *Bulletin of Latin American Research* (October 1981), pp. 1–12. See also E. V. K. Fitzgerald. A Note on State Capital and Industrialization in Mexico. In Jean Carriere, ed., *Industrialization and the State in Latin America*. CEDLA, Amsterdam (1979), pp. 49–72.

‡E. V. K. Fitzgerald. Some Aspects of the Political Economy of the Latin American State. *Development and Change* (1976).

§E. V. K. Fitzgerald. The State and Capital Accumulation in Mexico. *J. Latin Am. Studies* (1978), p. 263.

¶An excellent comparative analysis is given in Vito Tanzi. Disequilibrium in the Fiscal Sector of Developing Countries. Paper presented at the 1981 American Economic Association Meetings, Washington, D.C., Dec. 28–30 (1981).

Table 2. Mexico: federal government revenue, 1950–1981
(billions of Pesos)

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Current revenue	3.4	4.8	5.9	4.8	6.4	7.8	8.6	8.7	9.6	10.3
Income tax	0.8	1.2	1.4	1.1	1.3	2.0	2.6	2.8	2.8	3.1
Tax on production and trade	0.5	0.6	0.7	0.8	0.8	1.1	1.2	1.2	1.5	1.6
Sales tax	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Import duties	0.5	0.7	0.7	0.7	0.8	1.0	1.2	1.1	1.6	1.7
Export duties	0.5	0.7	0.8	0.7	1.0	1.6	1.4	1.1	1.1	1.2
Other taxes	0.2	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.6
Non-fiscal revenue	0.5	0.7	1.5	0.7	1.6	1.0	1.1	1.3	1.2	1.1
Capital revenue	—	—	—	—	—	0.1	1.6	1.0	2.2	0.1
Financing	0.2	0.1	0.4	0.2	1.3	1.1	1.0	1.2	1.4	3.8
Internal	0.08	0.03	0.2	0.09	0.4	0.7	0.2	0.5	0.5	1.4
External	0.10	0.08	0.2	0.1	0.9	0.4	0.8	0.6	0.9	2.4
Income of state companies	—	—	—	—	—	—	—	—	—	—
Total revenue	3.6	4.9	6.3	5.0	7.7	9.0	10.2	10.9	13.2	14.2

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Current revenue	11.2	11.8	13.2	15.0	18.0	18.4	22.3	26.2	31.1	35.7
Income tax	3.6	4.1	4.7	5.5	7.3	6.0	8.6	10.2	12.1	14.0
Tax on production and trade	1.7	1.9	2.2	2.3	2.8	3.1	3.5	4.0	5.2	5.6
Sales tax	1.1	1.3	1.5	1.6	1.9	2.1	2.4	2.7	3.4	3.9
Import duties	2.0	1.8	1.8	2.1	2.7	3.4	3.6	5.0	4.5	5.2
Export duties	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.0	1.2	1.2
Other taxes	0.0	0.2	0.1	0.6	0.5	0.8	0.2	0.9	1.9	2.1
Non-fiscal revenue	1.7	1.4	1.7	1.7	1.6	1.8	2.8	2.4	2.8	3.7
Capital revenue	1.8	0.5	0.8	0.8	1.1	3.6	2.1	1.2	0.9	0.4
Financing	6.5	7.6	6.4	3.9	9.9	13.8	8.8	13.1	10.9	12.7
Internal	3.0	3.6	4.5	2.6	4.6	14.5	7.0	6.8	7.2	7.8
External	3.6	4.0	1.9	1.3	5.3	−0.8	1.8	6.2	3.7	5.0
Income of state companies	—	—	—	—	—	28.5	33.4	38.9	42.4	48.7
Total revenues	19.5	19.9	20.4	19.7	29.0	64.3	66.6	79.4	85.3	97.5

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Current revenue	40.5	43.7	53.6	67.6	93.2	131.2	160.9	228.9	302.2	414.6	677.8	736.1
Income tax	15.9	16.9	21.0	26.1	36.4	49.2	66.0	93.4	132.2	173.0	248.2	257.7
Tax on production and trade	6.8	8.9	11.8	12.0	18.1	30.6	31.3	47.9	56.4	68.1	63.4	45.9
Sales tax	4.4	4.9	5.5	12.8	18.1	24.0	30.4	40.5	52.7	75.1	116.6	129.3
Import duties	6.4	5.8	6.5	6.3	8.7	10.5	12.3	10.7	14.8	28.8	45.7	43.0
Export duties	1.0	1.0	1.0	1.3	1.7	2.8	2.7	15.5	20.7	35.7	135.9	168.0
Other taxes	2.6	2.5	2.7	3.2	5.3	6.6	8.1	9.9	13.8	17.6	41.4	52.7
Non-fiscal revenue	3.9	3.8	5.2	6.0	4.8	7.4	10.1	10.9	11.6	16.3	26.3	39.1
Capital revenue	0.8	0.8	0.7	1.6	0.9	1.3	2.2	2.9	7.0	1.4	2.0	0.6
Financing	10.7	10.3	22.3	33.7	47.0	70.5	123.6	85.9	112.4	353.9	393.4	919.5
Internal	8.6	8.5	19.4	28.8	33.8	53.6	96.7	62.9	82.1	305.5	344.4	870.9
External	2.2	1.8	2.0	4.9	13.2	16.9	26.8	23.0	30.4	48.4	48.9	48.5
Income of state companies	57.0	65.7	71.8	102.7	140.5	200.6	241.6	374.5	496.3	521.2	1095.4	831.6
Total revenue	109.1	120.5	148.4	205.7	281.6	403.6	528.5	692.2	917.9	1291.1	2168.6	2487.8

Sources: Computed from: Nacional Financiera, La Economia Mexicana en Cifras (Mexico City, 1981); Banamex, *Review of the Economic Situation of Mexico*, various issues.

rate than private investment over the last decade, increasing its share of GDP from 7.3% in 1970 to 11.6% in 1981. Private investment increased its share of GDP from 12.3 to 13.6% during the same period (Table 1).

The gap between public savings and public investment was financed by large increases in domestic and external borrowing and inflation. The balance of payments current account deficit increased markedly after 1970 reaching a peak of 4.4% of gross domestic product in 1975 (up from 3.2 in 1970), declining to 2.2% of GDP in 1977, only to increase again to 3.7% by 1981. At the same time the inflation tax (defined as the rate of inflation multiplied by the real quantity of money, representing the resources money holders must spend in order to keep constant the real value of their cash balances) became an important source of government financing. It represented 1.6% of GDP in 1975, 2.2% of GDP in 1976, peaking at 3.3% in 1977.

The causes of the relative decline in public savings, the implications of this trend, the nature and potential of private savings, and the implications for domestic savings of recent past and massive foreign borrowings are examined in the sections below.

FISCAL TRENDS

The relatively low tax ratio, the large increase in general government's consumption expenditures and the rapidly deteriorating financial situation of public enterprises are the major factors behind the aggravation of the already poor public savings performance in recent years.

Tax revenues

The relative decline in overall public sector savings has come about in spite of rapidly growing federal government revenues, particularly tax revenues (Table 2) Mexico's development program during the 1950s and 1960s emphasizing import substitution policies undoubtedly had a negative impact on the generation of public resources through tax policy, forcing the government to rely increasingly upon the non-tax financial sector—private savings and monetizing the deficit for financing federal expenditures.† Writing in 1975 Escobedo noted that "As the public financial requirements were increased mainly because of incapacity to increase tax revenues at the same rate as public expenditures . . . The Bank of Mexico had to tolerate greater increases in the money supply."‡ In fact economists writing about the Mexican tax system have conveyed the impression that it has been seriously deficient in terms of providing adequate revenue and of achieving desirable non-fiscal objectives, such as a more equal income and wealth distribution. Although these generalizations contain a large measure of truth, they tend to mask the cumulative effects of the changes which have occurred over the year. Given the stable structure of the Mexican political system, it is easy to agree with the observation that "in Mexico there are no reforms of the tax system only changes." Nevertheless the structure of the tax system is substantially different from what it was in 1970. Furthermore, although double digit inflation appears to have become a persistent problem, leading to the impression that the tax system is failing to generate sufficient revenues, the revenues of the public sector are now (1981) much greater relative to GDP (9.7 vs 12.6%) than in 1970, despite the fact that the inflation rate at the time was much lower. Since 1970 the tax system has evolved in the direction of greater equity, as that term is generally employed in taxation, and it is also apparent that the harmony of the tax system with economic development has greatly improved.§

Mexico's tax ratio has averaged around 11–13% of GDP since 1975 (Table 3). Several factors have contributed to keeping it at this level: (1) the inequality in the distribution in income, and (2) the very low ratio of imports to GDP (less than 10%). The government has made significant efforts to increase the tax ratio and succeeded in achieving marginal rates of 25% on average for the period 1972–1981.¶ It was anticipated that oil exports would increase the ratio to around 17% by the mid-1980s, but this target has been revised significantly downward in light of the worldwide oil glut.

Elasticity of the revenue system

One way to evaluate the performance of Mexico's fiscal system is through an examination of the ability of the tax structure to generate proportionately higher revenues, both through discretionary action (tax rate and base changes, legislative action, improvement in collection techniques, and the like) as well as through revenue growth that is automatically marshalled with rising economic activity. In their study of Mexico's revenue system, Wilford and Wilford termed this measure "the revenue performance criterion" broadly defined as "the ability of the country's revenue structure to generate, from whatever sources increased government revenues for current and capital expenditures during the process of economic growth."††

Along these lines it is clear that the pressure for increased revenues to finance GNP elastic demands for social goods and services requires that revenues increase at a higher rate than the growth in GDP. More specifically, the overall revenue GDP elasticity coefficient for a revenue structure must be elastic; i.e. the percentage change in revenue divided by the percent change in GDP must be greater than one.

The advantage of the elasticity type measure in a country such as Mexico, where relatively little is

†D. Sykes Wilford and Walton Wilford. Fiscal Revenues in Mexico: A Measure of Performance, 1950–1973, *Public Finance/Finances Publiques* (1976), p. 103.

‡Gilberto Escobedo. Ahorroy Desarrolo Economico, Bank of Mexico, *Working Paper* (1975), p. 73.

§cf. John Evans. The Evolution of the Mexican Tax System Since 1970, University of Texas, Institute of Latin American Studies, *Technical Papers Series No. 34* (1982).

¶Pedro Massone. The Mexican Income Tax (1980). International Bureau of Fiscal Documentation, *Bulletin* (1981), pp. 389–390.

††Wilford and Wilford. *op. cit.*

Table 3. Mexico: trends in federal government revenue, 1951–1981
(percentages)

	1951	1960	1970	1975	1976	1977	1978	1979	1980	1981
(Percent of total revenue)										
Current revenue	94.4	57.4	37.1	32.5	30.4	33.1	32.9	32.1	31.3	29.6
Income tax	(22.2)	(18.5)	(14.6)	(12.2)	(12.5)	(13.5)	(14.4)	(13.4)	(11.4)	(10.4)
Tax on production and trade	(13.9)	(8.7)	(6.2)	(7.6)	(5.9)	(6.9)	(6.1)	(5.3)	(2.9)	(1.8)
Sales tax	(11.1)	(5.6)	(4.0)	(5.9)	(5.8)	(5.9)	(5.7)	(5.8)	(5.4)	(5.2)
Import duties	(13.9)	(10.3)	(5.9)	(2.6)	(2.3)	(1.5)	(1.6)	(2.2)	(2.1)	(1.7)
Export duties	(13.9)	(5.6)	(0.9)	(0.7)	(0.5)	(2.2)	(2.3)	(2.8)	(6.3)	(6.8)
Other taxes	(5.6)	(—)	(2.4)	(1.6)	(1.5)	(1.4)	(1.5)	(1.4)	(1.9)	(2.1)
Non-fiscal revenue	(13.9)	(8.7)	(3.6)	(1.8)	(1.9)	(1.6)	(1.3)	(1.3)	(1.2)	(1.6)
Capital revenue	—	9.2	0.7	0.3	0.4	0.4	0.8	0.1	0.1	0.1
Financing	5.6	33.3	9.8	17.5	23.4	12.4	12.2	27.4	18.1	37.0
Internal	(2.2)	(15.4)	(7.9)	(13.3)	(18.3)	(9.1)	(8.9)	(23.7)	(15.9)	(35.0)
External	(2.8)	(18.5)	(2.0)	(4.2)	(5.1)	(3.3)	(3.3)	(3.7)	(2.3)	(1.9)
Income of state companies	—	—	52.2	49.7	45.7	54.1	54.1	40.4	50.5	33.4
Total revenue	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent of GDP)										
Current revenue	9.1	7.2	9.7	11.9	11.7	12.4	12.9	13.5	15.8	12.6
Capital revenue	—	1.2	0.2	0.1	0.2	0.2	0.3	—	—	—
Borrowing	0.4	4.2	2.6	6.4	9.0	4.6	4.8	11.5	9.2	15.7
Income of state-companies	—	—	13.6	18.2	17.6	20.3	21.2	17.0	25.6	14.2
Total revenue	9.2	12.5	26.1	36.7	38.5	37.4	39.3	42.1	50.7	42.5

Table 4. Mexico: government revenue, expenditure elasticity, 1951–1981

	Elasticity	*T*-statistics	RHO	*T*-statistic	Statistics		
					r^2	*F*	DW
Current revenue	1.15	(32.37)	0.71	(5.54)	0.974	1048.21	2.10
Income taxes	1.22	(38.94)	0.48	(3.02)	0.982	1516.90	1.64
Tax on production and trade	0.42	(1.84)	0.95	(17.21)	0.108	3.39	1.50
Sales tax	1.35	(29.01)	0.64	(4.52)	0.967	841.41	1.90
Import duties	0.89	(17.34)	0.58	(3.93)	0.915	300.87	1.79
Export duties	2.33	5.46	0.95	(16.92)	0.516	29.87	2.49
Other taxes	1.28	(6.61)	0.34	(2.00)	0.610	43.82	2.27
Non-fiscal revenue	0.78	(21.74)	—	—	0.944	472.9	1.67
Capital revenue	0.26	(2.37)	—	—	0.167	5.62	1.93
Financing	1.52	(15.71)	0.36	(2.21)	0.898	246.83	2.18
Internal	1.71	(13.49)	0.42	(2.57)	0.866	182.03	2.08
External	1.18	(8.83)	—	—	0.736	78.02	2.04
Income of state companies (1965–1981)	1.19	(63.78)	−0.90	(−8.15)	0.996	4067.91	0.93
Total revenue	1.34	(15.26)	0.78	(6.89)	0.893	232.88	1.92
Government investment	1.21	(35.41)	0.54	(3.57)	0.978	1254.35	2.08
Public sector budget	1.30	(13.54)	0.81	7.59	0.863	183.36	1.98
Government consumption	1.00	(10.86)	0.95	(16.77)	0.813	118.01	1.95
Government expenditure	1.19	(25.54)	0.78	(6.82)	0.959	652.35	2.05
Government revenue (National income accounts)	1.14	(25.68)	0.38	(2.25)	0.929	659.8	2.01

Note: Estimations of form: 109 $Y = a + b \log \text{GDP}$ where Y = measure of revenue, expenditure.
Estimations by ordinary least squares, Time Series Processor Version 3.5, Cochrane–Orcutt technique.

Table 5. Mexico: government revenue, expenditure elasticity, 1951–1981

	Elasticity	T-statistics	RHO	T-statistic	Statistics r^2	F	DW
Current revenue	1.18	(58.59)	—	—	0.994	3433.72	1.70
Income taxes	1.17	(26.11)	0.51	(2.68)	0.972	682.16	1.91
Tax on production and trade							
Sales tax	1.31	(16.53)	0.66	(4.08)	0.935	273.39	1.94
Import duties	0.831	(11.64)	—	—	—	—	—
Export duties	2.15	(5.58)	0.88	(8.50)	0.621	31.23	2.58
Other taxes	1.42	(10.57)	—	—	0.854	111.75	2.22
Non-fiscal revenue	0.86	(21.75)	—	—	0.961	473.26	1.77
Capital revenue	0.19	(1.02)	—	—	0.051	1.04	1.65
Financing	1.38	(16.76)	—	—	0.937	280.96	1.94
Internal	1.47	(17.90)	—	—	0.944	320.37	1.90
External	1.16	(6.06)	—	—	0.659	36.74	2.07
Income of state companies (1965–1981)	1.19	(63.78)	−0.90	(−8.15)	0.997	4067.91	0.94
Total revenue	1.24	(10.81)	0.76	(5.36)	0.861	116.93	1.81
Government expenditure	1.16	(47.42)	0.38	(1.91)	0.992	2249.29	2.21
(National income accounts)							
Consumption	1.11	(25.81)	0.73	(4.95)	0.972	666.38	1.93
Investment	1.16	(51.99)	—	—	0.993	2703.88	2.17
Government revenue	1.08	(19.10)	—	—	0.950	364.81	2.17
(National income accounts)							
Public sector budget	1.21	(9.99)	0.78	(−5.75)	0.840	99.92	1.89

Note: Estimations of form $Y = a + b \log \text{GDP}$ where Y = measure of revenue, expenditure.
Estimations by ordinary least squares, Time Series Processor, Version 3.5, Cochrane–Orcutt technique.

Table 6. Mexico: government revenue, expenditure elasticity, 1951–1981

	Elasticity	T-statistics	RHO	T-statistic	Statistics r^2	F	DW
Current revenue	1.16	(52.30)	—	—	0.995	2735.81	1.96
Income taxes	1.08	(23.56)	0.57	(2.75)	0.975	555.46	1.39
Tax on production and trade	0.31	(1.09)	0.89	(7.91)	0.078	1.19	1.44
Sales tax	1.26	(10.72)	0.68	(3.74)	0.891	114.95	2.04
Import duties	0.77	(10.29)	—	—	0.883	105.89	1.70
Export duties	2.10	(6.95)	0.73	(4.27)	0.776	48.34	2.56
Other taxes	1.32	(8.01)	—	—	0.821	64.22	1.19
Non-fiscal revenue	0.81	(17.57)	—	—	0.954	308.89	1.68
Capital revenue	0.20	(0.81)	—	—	0.045	0.66	1.96
Financing	1.47	(17.74)	—	—	0.954	314.92	1.95
Internal	1.56	(16.91)	—	—	0.953	286.07	2.01
External	1.08	(6.90)	—	—	0.773	47.62	1.06
Income of state companies	1.19	(63.78)	−0.90	(−8.15)	0.996	4067.91	0.93
Total revenue	1.22	(96.66)	—	—	0.998	6363.34	1.66
Government expenditures	1.15	(79.77)	—	—	0.998	6363.34	1.98
(National income accounts)							
Consumption	1.10	(23.95)	0.72	(4.81)	0.968	632.41	1.91
Investment	1.15	(55.68)	—	—	0.995	3100.54	2.04
Government revenue	1.07	(17.63)	—	—	0.942	307.91	2.07
(National income accounts)							
Public sector budget	1.19	(44.88)	—	—	0.993	2014.82	1.80

Note: Estimations by ordinary least squares, Time Series Processor, Version 3.5, Cochrane–Orcutt technique.

known about the complexity of the tax laws (exemptions, etc.) is that "one need not be concerned about the source of the alterations in tax yields (whether from national income related or exogenous influences) but rather the overall ability of the source to stimulate proportionately higher revenues with economic development regardless of the factors stimulating that growth. Revenue performance can, therefore, be measured by the historic responsiveness of the tax source as GDP increases. This method, therefore, permits evaluation of the government's effort to stimulate the development of additional resources under conditions of growth and not the much narrower measure of the responsiveness of yields solely to changes in GDP.

The elasticity† of the various sources of government revenue (Table 2) were estimated by regressing their logarithmic value on the logarithm of GDP for the period 1951–1981 and also sub-periods 1960–1981 and 1965–1981. A Cochrane–Orchutt ordinary least squares estimation procedure was used in decreases. The results (Tables 4–6) confirm‡ that the

†Past measurements of elasticity have sturred up an ongoing debate over methodological problems associated with the underlying data sources. In addition to the above cited Wilford and Wilford article, see Arthur J. Mann. Mexican Fiscal Revenue and Performance, 1950–1977: A Revisit. *Public Finance/Finances Publiques*, pp. 378–385 (1978) and D. Sykes Wilford and Walton Wilford. Comment on Mexican Fiscal Revenue Performance, 1950–1977: A Revisit. *Public Finance/Finances Publiques*, pp. 134–137 (1979).

‡Roughly similar results were obtained by Wilford and Wilford cited above.

overall system is elastic with the elasticity of current revenue not varying much for the different time periods i.e. 1.15 (1951–1981); 1.18 (1960–1981); and 1.16 (1965–1981). There does not appear to be a marked difference over time in the elasticity of various taxes (consistent with the general observation that no real significant reforms have been introduced in this area during the period under consideration.†

The elasticity of financing is somewhat above that of current revenue, 1.52 (1951–1981) versus 1.15, yielding an elasticity of total revenue of 1.34, also considerably above that of current revenue.

In short, the country's deficit problems cannot be attributed exclusively to a deficient (inelastic) tax and revenue system, but are clearly the result of an expenditure rate–public sector budget elasticity of 1.3 for 1951–1981, considerably above that of current revenues.

In general, the results indicate that:

1. the revenue source with the highest elasticity has been federal government borrowing;

2. the revenue structure in Mexico is much less income responsive than one would desire for a country in its stage of development;

3. as larger shares of the national economy became dependent upon government infrastructure expenditures and the need for social goods and services expand, the government with or without significantly increased oil revenues will be faced with a tax structure which will finance a decreasing percentage of federal outlays;

4. a revenue structure that relies to such a heavy extent (around 20% of income from state companies) must ultimately encounter serious conflicts between the pricing of public services and the need for additional revenues;

5. to date the tendency has been towards monetizing the debt with the resulting inflationary tax increasing in importance as a source of funds transferred to the government.

In view of the government's resource needs, the most important shortcoming of the tax system is its inability to generate the required revenues adequate to meet the needs of rapidly growing expenditure programs, and indeed, much of the increase in revenue which has taken place is due to rate increases rather than an inherently elastic tax design. The main culprits here are the limited progressivity of the personal income tax‡ and excise taxes many of which until the introduction of the value-added tax (1980) were specific.

The authorities are aware of the many deficiencies of the present tax system and have been working on alternative reform proposals over the past few years. The culmination of this effort was the enactment at the end of 1980 of several laws introducing various amendments to direct and indirect taxation. The changes cover different tax laws and include the following measures.§

1. enactment of a new income tax law which contains important changes concerning tax jurisdiction, extent of the corporate income tax, taxation of business income of individuals and taxation of income of non-residents;

2. amendments to the value-added tax which include the introduction of a zero rate for food and for some other items which were previously exempt from the tax;

3. introduction of a "Spiral Tax on Production and Services" which is an excise tax that replaces previous taxes on soft drinks, alcoholic beverages, beer, gasoline, processed tobacco, life insurance, and telephone services; and

4. introduction of other changes concerning the Customs Code, customs value, registration of vehicles, the tax on new cars, the tax on hold and use of vehicles, the tax on the acquisition of sugar, cacao and other goods, the tax on urban unimproved land, and some other minor changes.

These measures are positive modifications on the existing system. It is quite apparent, however, that strong political opposition together with the new petroleum riches may render an indepth fiscal reform very difficult. The highly necessary reform of the special bases seems to be a particularly sensitive issue because it would affect strong interest groups; i.e. transport construction and agriculture. However, a continued strengthening of the administrative process and a revision of indirect taxes will probably take place. Under the circumstances, this should be considered a minimum if the government wants to achieve its targets. On the positive side, the introduction of the value added tax in 1980 seems to have eliminated the inefficiency of the cascade aspects of the commercial receipts tax and improved internal controls.

Government expenditures

Government current expenditures grew at an annual real rate of 14.9% during 1971–1976 while its components of consumption, transfer and interest payments growing around 12%, 29% and 15% per year, respectively, during the same period.¶ For the period 1976–1981 the rate of increase in real government consumption declined to an average annual rate of slightly over 7% with its components growing more or less proportionately to their rates in the 1971–1976 period. For the period as a whole, wages and salaries were the fastest growing component of consumption expenditures. This was the result of a rapid increase in the number of government employees and a somewhat more moderate increase in real wages. The number of public sector employees increased at more than 9% per year during this period while real wages and salaries increased at around 4% per year.

Federal government current transfers were the fastest growing component of current expenditures

† L. Solis. *Economic Policy Reform in Mexico: A Case Study for Developing Countries*. Pergamon Press, New York (1981).

‡ Mann finds the tax system more or less proportional. See Arthur Mann. The Mexican Tax Burden by Family Income Class. *Public Finance Q.* pp. 305–331 (July 1982).

§ Massone. *op. cit.* pp. 389–390.

¶ Other components are given in Arthur Mann, Wagner's Law: An Econometric Test for Mexico: 1975–1976. *National Tax J.* pp. 189–201 (1980).

during most of this period and thus a major factor responsible for the public sector's poor savings performance. The enormous increase of transfers to trust funds in general and to agricultural financial entities in particular appears to be the main cause of the acceleration of extra-system transfers.†

The emphasis on rationalization and the necessary fiscal restraints called upon by the stabilization program led to the relatively low growth of government consumption during the 1976–1981 period. However, the government's commitment to launch an effective attack on poverty and to reduce the large gap between demand and supply of basic needs places continuous pressure on the authorities to return to the high rates of expenditure characterizing the 1971–1976 period.

Private savings

Private sector savings have not only accounted for the great bulk of national savings but have averaged around 20% of GDP during the 1975–1981 period. On the other hand, only around 10% of these funds are actually mobilized through the financial system. Little is known about the composition of these savings, but the evidence available suggests that a corporation's internal cash generation is its major component.‡ The only data readily available on the flow of funds of Mexican enterprises are from a NAFINSA study of the capital goods industry. According to this report, 30.3% of the financial requirements of these enterprises were financed from internal cash generation and equity during 1971–1975, the other sources of financing being credit from other enterprises (23%), foreign credits (16%), and credit from the domestic banking system (16%).§

The limited role of domestic credit in financing Mexican enterprises simply reflects the relatively small share of total private savings channelled through the nation's financial markets. In addition an important share of these funds are short run deposits of enterprises. This situation combined with the almost complete absence of a securities market and other sources of domestic long term financing tends to confirm the general belief that most of the private sector's investments are financed through internal cash generation, probably undistributed profits and depreciation allowances.

In large part the development strategy of the 1950s and 1960s reinforced these patterns. As noted that strategy was based on a combination of high private sector profits and government supportive action. The former was supported by the protection available to industry through quantitative restrictions on imports during this period, the extremely favorable tax treatment on income from capital, and the inequality of income distribution, these factors contributed to abnormally high profit margins which in turn provided the major source of private savings.

It is not at all obvious, however, that given the conditions in the 1980s—the increased importance of oil revenues together with the need to develop high mass markets for industrial goods—that a genuine government policy shift in the direction of improved income distribution and more efficient industrial production would lead to reduced rates of investment, particularly if a simultaneous effort was made by the authorities at developing and strengthening the country's financial markets.

Contrary to common opinion, Mexico's financial markets are not highly developed; financial intermediation in Mexico is in fact only slightly above the level of the average developing country. Mexico underwent a process of fairly rapid financial deepening through 1972 when the ratio of the combined assets of financial institutions to GDP reached a level somewhat in excess of 50%. Since then, this ratio has remained roughly constant. In addition, the volume of securities trading has been equal to only one-half of the percent of gross domestic product, a fairly low ratio for an advanced developing country.

The Mexican financial system is relatively simple and is basically organized around banking type institutions.¶ The securities market is the most underdeveloped sector of the Mexican financial market. Although securities trading in Mexico has increased very rapidly in the last two decades from an almost negligible base, the volume of all securities, both stocks and bonds, traded on the Mexican stock exchange remains quite low. The ratio of the value of shares traded to GDP is currently less than one percent, compared to ratios of 3% or more in developing countries where significant securities market development has taken place (e.g. Brazil and Korea).

Several factors are usually cited for the relative under-development of the Mexican securities market.††

1. Until recently, finance companies and mortgage banks stood ready to repurchase their long term bonds at par, allowing these institutions to pay long term bond rates of interest on instruments which were basically sight deposits. This practice made private long term corporate bonds relatively non-competitive instruments. It also imposed a significant liquidity risk on these institutions which resulted in serious institutional problems in 1976. As a result these redeemable bonds have gradually been eliminated, thereby removing this obstacle to deeper bond market development.

2. A portion of the interest paid to savers on bank deposits (called the sobretasa) is now exempt from tax, whereas all interest paid on debt securities is taxable. This subsidy to bank deposits, together with

†E. V. K. Fitzgerald. Patterns of Public Sector Income and Expenditure in Mexico. Institute of Latin American Studies, University of Texas, *Technical Papers Series No. 17* (1978).

‡E. V. K. Fitzgerald. Patterns of Savings and Investment in Mexico: 1939–1976. University of Cambridge, Centre of Latin American Studies, *Working Papers No. 30* (1977).

§NAFINSA-UNIDO. *Mexico: Una Estrategia para el Desarrollo de la Industria de Bienes de Capital*, Tables VI–14, p. 342. Mexico City, NAFINSA (1977).

¶cf. Gustavo Romero Kolbeck. Public Sector Banking, and Federico Carrera Cortez, The Commercial Banking System and Investment Opportunities. in John Christman, *Business Mexico* (Mexico City: American Chamber of Commerce of Mexico, 1981), pp. 105–122.

††Based in part on John Rhoads. The Mexican Stock Exchange. In John Christman, *Business Mexico, op. cit.*, pp. 137–144.

an unwillingness by the authorities to authorize private short term debt securities, has inhibited the growth of a short term securities market.

3. There is some evidence that the commercial banking system regards the development of a debt securities market as a competitive threat which would reduce the volume of financing conducted through the banking system (as well as exert competitive pressures on bank profit margins). Bankers have acted in the past to impede securities market development. The banks also appear to believe that there is a high degree of substitutability over the short run between debt securities issues and bank deposits and that large debt securities offerings could lead to disruptive deposit withdrawals.

4. The main impediments to development of a share market are largely institutional. Rates of return on Mexican equity capital are high for shares registered on the stock exchange. However, the unwillingness of closely held firms to open their capital and to meet minimum disclosure requirements as well as the absence of a strong securities distribution system are probably the main impediments to stock exchange development.

The reliance of the Mexican financial market on deposit liabilities has made the asset base on which domestic investment financing is built a very liquid one. The Mexican authorities are concerned about the lack of long maturities in the domestic financial market and have begun to stress the need for developing a long term securities market of significant proportions. In 1977 PEMEX began issuing bonds (petro bonds) are more recently there have been several issues of new floating rate medium term bond issues by major private corporations. While these are moves in the right direction, the current economic crisis is unlikely to halt major developments in the area for at least several years.

LOSS OF INSTRUMENT EFFECTIVENESS

As L. Solis and G. Ortiz observed,† an important consequence of the country's inflationary experience (particularly after 1971) has been the loss of effectiveness of two of the main instruments of monetary control traditionally used by the Bank of Mexico: (1) changes in commercial bank reserve requirements, and (2) the setting of interest rates payable on savings deposits and other financial liabilities.

Traditionally, the difference between the government's deficit and the flow of new foreign debt has determined the amount of internal finance required by the public sector. Funds have traditionally been raised by the Bank of Mexico through the increase in marginal reserve requirements imposed on the banks. The reserves mobilized in this manner are used by the government for a large part of its expenditures. The domestic savings remaining in the banking system are then available to finance private sector activities.

During the stabilizing development period of the 1960s, the government's deficit fluctuated between 2.0 and 4.7% of GDP. About half of the deficit was financed with foreign savings. As a result the foreign debt to GDP ratio increased from 6.8% in 1960 to 9.8% in 1970. More importantly, the deficit was kept within reasonable limits and foreign debt was not used excessively.

Solis feels that it was the possibility of substituting domestic for foreign debt that facilitated the use of reserve requirements as an effective instrument of monetary control during this period. It was only when the government's deficit exceeded the availability of foreign and domestic requirements and the excess debt became monetized that the usefulness of reserve requirements as a regulating instrument was nullified.

The acceleration of government spending, especially after 1972, did in fact result in deficits which could not be financed with non-inflationary domestic resources (although foreign credit was liberally utilized). A good portion of deficits were directly monetized. The monetary base began to grow at more than twice its average 1960 rate. The resulting upsurge in inflationary pressures produced negative real interest rates. Apparently, as the environment became increasingly detrimental to financial savings, substitution between domestic and foreign credit became increasingly difficult. Reserve requirements were than of only limited usefulness as an instrument of monetary policy.

Under those conditions the Solis approach to policy would undoubtedly be one of designing new monetary instruments and attempting to once again gain control over the money supply and thus inflation.

CONCLUSIONS

Mexico's fiscal crisis, according to Fitzgerald,‡ is simply the imbalance created by the acceleration in public sector accumulation and the inadequacy of its financing. The resulting deficit according to this line of thought is a growing public sector borrowing requirement which stems largely from the refusal of the private sector to accede to higher taxes to pay for what are, after all according to Fitzgerald government activities designed to maintain and increase the profitability of its own activities.§

Interestingly enough, Fitzgerald does not seem to necessarily advocate tax reform in the country. He is obviously less concerned with monetary stability than Solis, and seems to feel that with increased oil revenues, there will be for practical purposes no real savings constraint on investment (either internal or external). Following this line or argument "the problem of accumulation in the Mexican economy of the 1980s will not be demand management in the traditional sense, but rather the planning of the composition of final demand itself and the income distribution that underlies it."¶

†Guillermo Ortiz and L. Solis. Financial Structure and Exchange Rate Experience: Mexico 1954–1977. *J Dev. Econ.* (December 1979), pp. 515–548.

‡E. V. K. Fitzgerald. The Fiscal Deficit and Development Finance: A Note on the Accumulation Balance in Mexico, University of Cambridge, Centre of Latin American Studies, *Working Papers No. 35*, pp. 16–17.

§*Ibid.* p. 18.

¶*Ibid.* p. 17.

Whatever the merits of this line of argument, the central issue between Mexico and the International Monetary Fund remains the size of the country's public sector deficit which in 1987 is likely to remain of 10% of GDP. The Mexican mission to the IMF has argued that a major factor behind the country's half decade of stability is a high degree of deficit spending to meet basic social needs.

The IMF would like to reduce the budget deficit to 5% of GDP by the end of the decade. Mexican officials on the other hand contend that their target is the maximum permissible without causing a major economic contraction. In large part the analysis above indicates that there is adequate scope for tax reform of one sort or another capable of making a significant contribution to the IMF's objective. Financial reforms would also play a key element in enabling the country to solve its current fiscal crisis.