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Trade Liberalization, Stabilization, and Growth:
Some Notes on the Mexican Experience

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Abstract

While inflation slowed sharply in Mexico during 1988, imports surged. Although the growth of domestic absorption could be attributed to a higher fiscal deficit, deriving from sharply higher domestic interest rates, this paper argues that the recovery of private investment was the main driving force, as the private sector saved most of its interest income on public debt. The paper also analyzes some of the costs and benefits associated with trade liberalization. While there is no evidence yet that trade liberalization contributed decisively to price stabilization, it may have played an important role in stimulating exports and investment.

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Summary

Although inflation in Mexico slowed in the wake of the comprehensive "shock" stabilization program launched at the beginning of 1988, the trade balance widened as a result of a surge of imports. The Mexican experience thereby demonstrated features in common with other recent shock stabilization programs. This paper argues that the growth of domestic absorption resulted primarily from the recovery of private investment, owing to the change in relative prices brought about by exchange rate appreciation and trade liberalization, and, to a lesser extent, to changes in expectations associated with stabilization and trade liberalization. Although the fiscal deficit increased during 1988 because of the rise in domestic interest rates, the private sector saved most of its interest income on public debt. Some residual increase in domestic consumption may have resulted, however, from low or negative (as perceived ex ante) real interest rates brought about by incomplete credibility.

The paper also assesses some of the potential costs and benefits of trade liberalization. In particular, it identifies where trade liberalization could have provided a firmer anchor for stabilization. However, there is still no firm evidence that trade liberalization has been decisive in stabilizing prices. Although increasing confidence derived from stabilization and clear economic policies should help to raise private capital inflows, the higher demand for imports that was partly caused by trade liberalization could lead to balance of payments difficulties in the near future unless exports rise sufficiently. Thus, the third issue the paper takes up is the potential response of exports to trade liberalization. In the context of a simple maximizing model with country risk, existing productive capacity, and barriers to entry in export activities, the analysis shows how trade liberalization could increase exports, investment, and capital reflows by forcing firms to take risks and by sorting out winners and losers in export activities. The paper underscores the relevance of this model to the Mexican context.

I. Introduction

Inflation in Mexico reached less than 20 percent in 1989, against almost 160 percent during 1987. However, this impressive performance, which came in the wake of the comprehensive shock stabilization program launched at the beginning of 1988, was matched by a strong increase of aggregate demand and a surge of imports. The latter increased in 1988 by more than 50 percent above their 1987 level and are expected to have risen further during 1989 (Figure 1). As exports rose only moderately during the same period, the trade surplus narrowed by US$6 billion from 1987 to 1988, and is expected to have remained at that level during 1989. The Mexican experience thus mirrored some of the events that took place during other shock stabilization programs, notably those of Brazil and Israel. 1/ In Mexico, however, unlike Brazil during the cruzado plan, monetary and wage policies remained tight. Setting aside real ex post interest payments on domestic debt, which increased by 8 percentage points of gross domestic product (GDP) from 1987 to 1988, the same can be said of fiscal policy. Also unlike Brazil and Israel, Mexico introduced an ambitious trade liberalization program before the plan was launched, which was further reinforced at the start of the plan and during its implementation.

Two sets of questions come to mind. First, why did aggregate demand and imports grow? Was it, as Figure 2 seems to suggest, simply the result of the widening operational deficit of the public sector, derived from higher interests on domestic debt? The latter would, of course, imply that the private sector spent its interest receipts from public assets. Or, was it the result of a rise in private spending, which was not directly and positively related to the higher interest receipts? In particular, did the rise in private spending have a speculative component linked to incomplete credibility, as agents were uncertain about the sustainability of the compounded changes in relative prices brought about by trade liberalization, exchange rate appreciation, and price controls (Figure 3)? Or, on the contrary, did private spending rise because successful stabilization improved confidence? To what extent, finally, were distributional effects responsible for an increase in consumption spending?

The second set of questions involves the costs and benefits of trade liberalization, as an instrument to achieve a rapid disinflation and promote faster growth. On the one hand, have the short-run benefits of trade liberalization outweighed its costs? In particular, was the surge of imports a necessary condition to achieve a rapid disinflation, or could trade liberalization have been more selective and targeted? What, on the other hand, are the growth implications of the new trade and exchange rate strategy? Will trade liberalization aggravate the external gap and hence act as a binding constraint on growth, or will it help to alleviate it by boosting confidence and promoting exports?

1/ See Kiguel and Liviatan (1989).

Answers to these questions can only be extremely tentative at this time. In Section II, the paper comments very briefly and rather inconclusively on the potential effectiveness of trade liberalization in reducing inflation. More evidence and a greater degree of disaggregation are needed. Assuming that macroeconomic policies remain unchanged, the reaction of prices after the removal of controls will of course provide more conclusive evidence on this issue.

Section III analyzes the sources of the surge in imports. It first presents some simple econometric estimates of import demand equations, which appear to explain most of the increase in imports through the change in relative prices brought about by exchange rate appreciation and trade liberalization.

From a macroeconomic perspective, however, a worsening of the trade deficit necessarily reflects an increase in aggregate spending, relative to aggregate income. It is argued that most of the worsening of the fiscal balance, which resulted from higher interest payments on public debt, should have been capitalized by the public as a windfall gain and reinvested in financial or physical capital. Most of public sector dissaving should therefore have been automatically offset by higher private savings.

A fall in private savings could also have been induced by lack of confidence in the sustainability of trade liberalization policies and price controls. Although some available evidence points in that direction, the magnitude of that effect does not seem to have been large. Finally, further increases in private consumption could have resulted from income distribution shifts owing, in particular, to the compression of profit margins caused by price controls and exchange rate appreciation. The evidence in favor of such shifts is not clear-cut, although this effect may have been gradually gaining ground with the expansion of output.

Private investment appears to have responded quite positively and predictably to the change in relative prices that followed the exchange rate appreciation and trade liberalization. It also seems to have been affected by a lack of credibility, as evidenced by some accumulation of inventories. Finally, renewed confidence may also have played an increasingly important role, as suggested in particular by the incipient repatriation to Mexico of financial assets held abroad.

Since such a portfolio shift is largely financed from abroad, it could help to restore growth without running necessarily into balance of payments difficulties. On the other hand, the decline in private savings owing to speculation should vanish as stabilization and trade liberalization prove their sustainability. Yet, combined with exchange rate appreciation and sticky wages, trade liberalization can also lead to a fall in output and, with a falling propensity to save, to lower savings, investment, and growth.

FIGURE 1

MEXICO
INFLATION AND PRIVATE SECTOR IMPORTS, 1984-89

Private sector imports

Inflation

Source: Bank of Mexico.

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FIGURE 2
MEXICO
FISCAL OPERATIONAL BALANCE AND CURRENT ACCOUNT DEFICIT, 1965–88

Operational balance
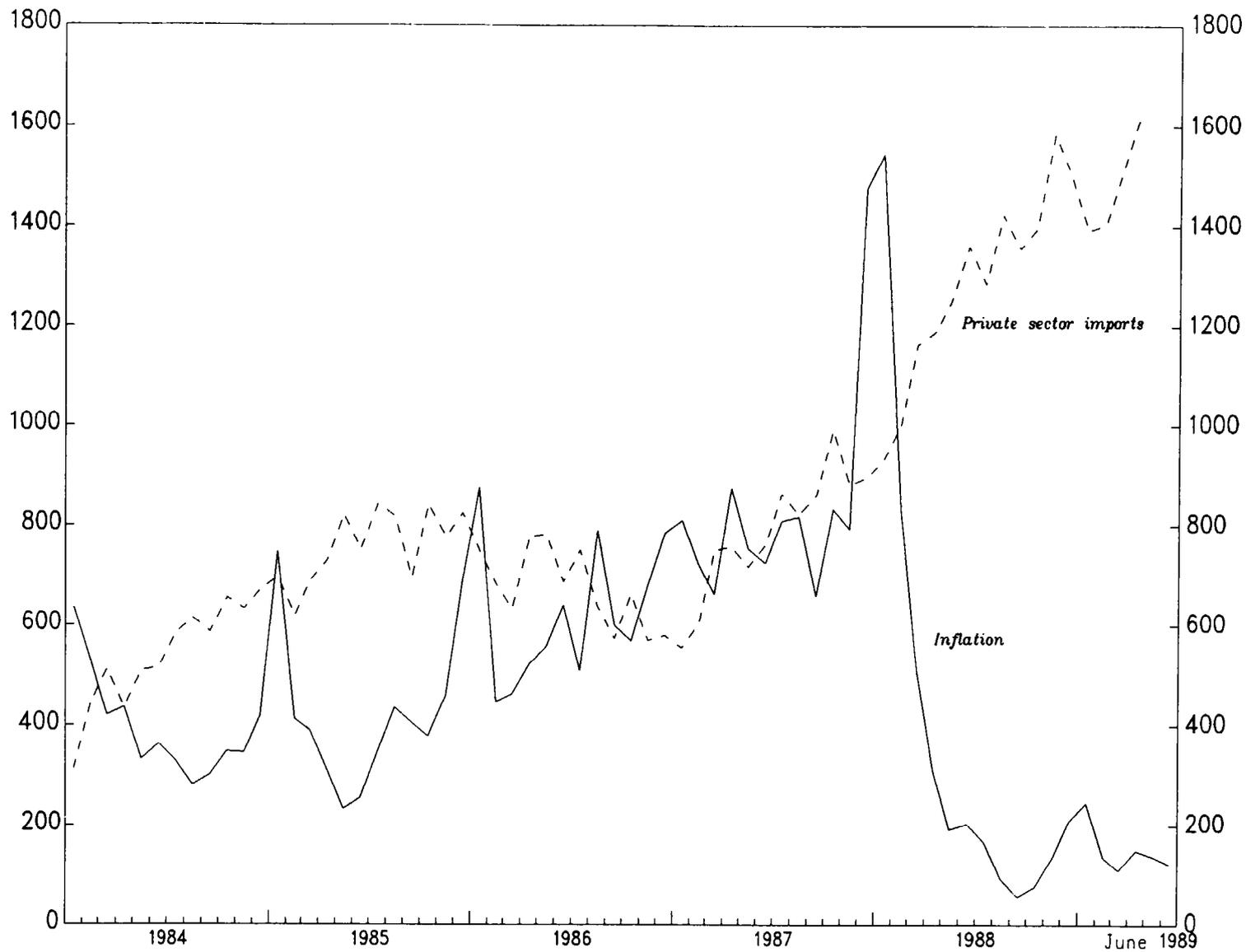
Current account
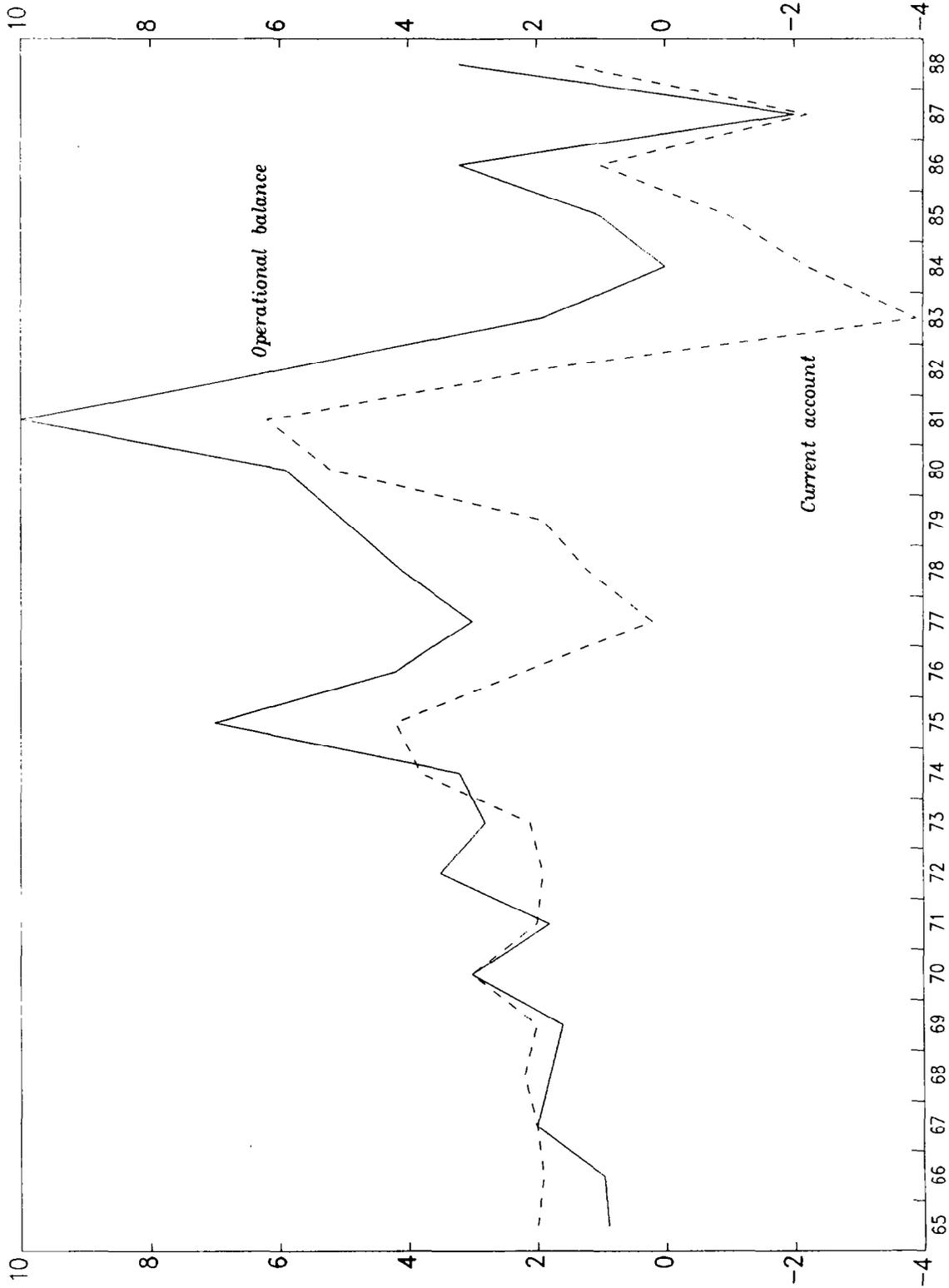
Source: Bank of Mexico.

FIGURE 3
MEXICO
REAL EXCHANGE RATE AND PROTECTION, 1980-89

Import license requirements (right scale)
(as % of imports)

Real exchange rate 1/

Average import tariff (right scale)
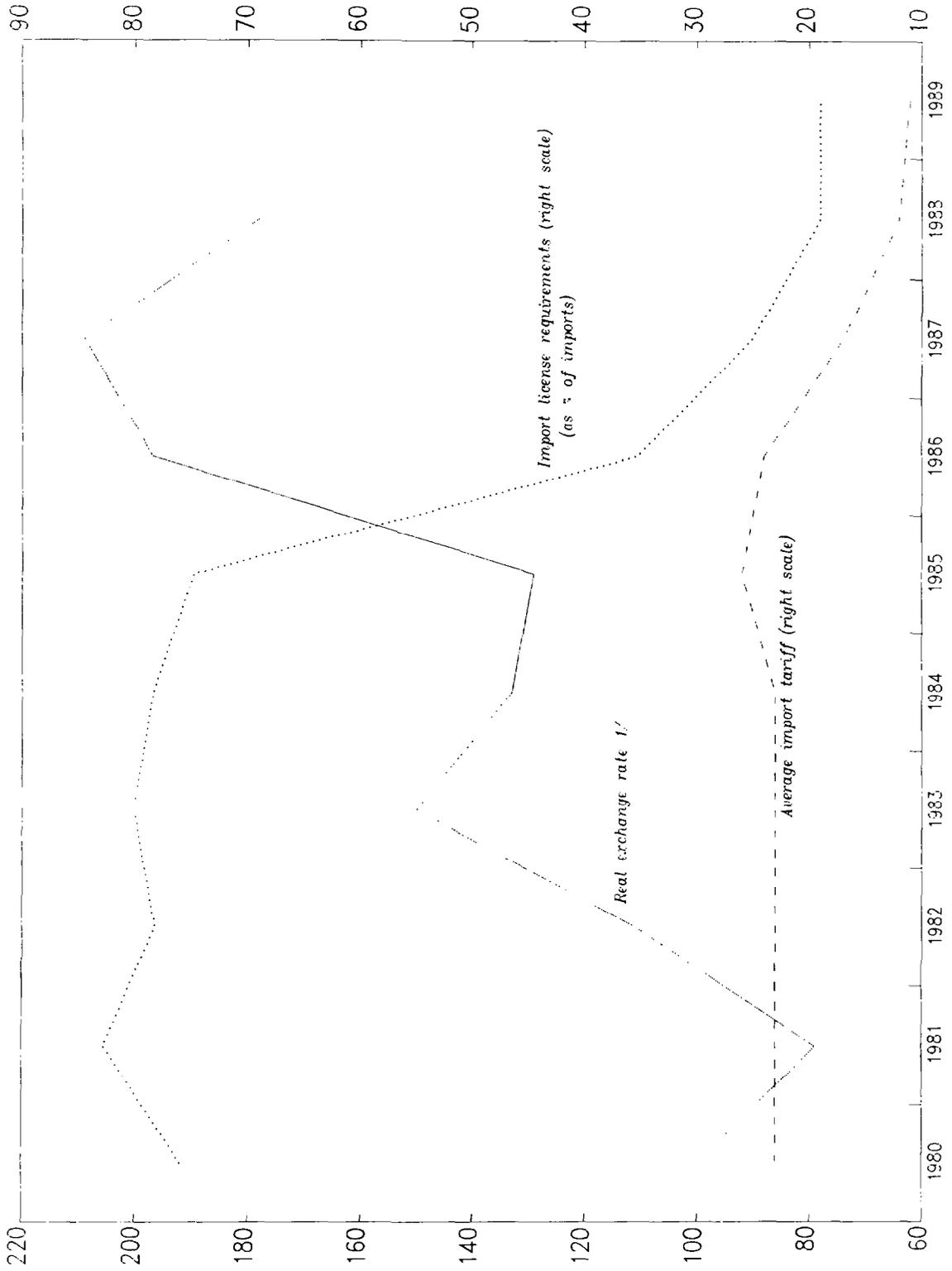
Sources: Bank of Mexico and SECOFI.
1/ Based on consumer prices.

This negative outcome need not occur, however, if exports respond strongly enough to trade liberalization. After briefly surveying the traditional explanations that link export growth to trade liberalization, Section IV presents a simple model that relates investment in the exportables sector to the degree of capacity utilization, the relative profitability of domestic and export production, and the probability of successful outcomes in export activities. The model shows that both trade liberalization and restrictive demand management can play a key role in inducing a transfer of existing capital from home goods to export goods and in promoting, later on, the formation of new capital in the exports sector. The relevance of this model to the Mexican context is underlined. Section V contains concluding remarks.

II. Trade Liberalization, Relative Prices, and Stabilization

Unlike Argentina in the 1970s, Mexico introduced price controls in its stabilization package, together with trade liberalization and a fixed exchange rate, and maintained very tight monetary and fiscal policies. It is thus difficult at this time to isolate trade liberalization from price controls and restrictive demand management to evaluate its effectivenes as a stabilization mechanism.

In principle, foreign price arbitrage should be most effective, in relation to price controls, in competitive sectors with a large number of firms and no barriers to entry. In those sectors, prices are likely to be responsive to changes in supply and demand conditions, which, in turn, can be strongly affected by shifts in expectations. Price controls are thus difficult to implement while the law of one price imposed by an elastic foreign supply is more likely to hold, for example, in the apparel industry. The price of apparels, relative to the overall consumer price index, appears in Figure 4. It fell at the end of 1987, when administered prices were sharply raised in anticipation of price controls. It recovered rapidly during the first five months of 1988, but peaked in June 1988, before declining gradually thereafter, unlike what seems to have occurred in other heterodox programs, particularly in Brazil. Compared with similar programs in other countries, foreign price arbitrage was thus probably instrumental in breaking inflationary inertia rapidly in this and other similar sectors, 1/ although greater credibility and more restricted demand may also have played a significant role.

1/ One such sector is livestock and meat products, which has often exerted significant inflationary pressures in other heterodox stabilization attempts. In Mexico, the price of meat relative to the overall consumer price index rose significantly from May to August 1988, but remained at that level thereafter, under pressure from substantial imports. See Figure 4.

In contrast, foreign price arbitrage should be less effective in the short run in oligopolistic sectors with significant barriers to entry, as firms may hold on temporarily to their profit margins without losing much of their market shares. Prices in these sectors are administered and not very sensitive to short-run changes in market conditions, while price controls are relatively easy to administer owing to the restricted number of firms. However, the potential for foreign price arbitrage is likely to increase over time. As trade liberalization policies are sustained and the credibility of the new trade policies is reinforced, foreign firms should gradually move into the Mexican market, even in the presence of significant entry costs. 1/ But the effectiveness of price controls may tend to wither away, as distortions accumulate and compliance becomes more costly. Thus, in these sectors, although trade liberalization may be much less effective than price controls in breaking inflationary inertia, it may still help prevent a resurgence of inflationary dynamics after controls are removed.

Figure 5 shows the evolution of profit margins during 1987-89, in a sample of oligopolistic industries with administered pricing. 2/ In some sectors, like paper, basic chemicals, and electrical machinery, profit margins were adjusted upward at the beginning of the freeze and they remained relatively high during 1988, before falling at the end of the year and during the first half of 1989. Elsewhere, margins declined steadily after the freeze was implemented, although they had been adjusted upward in anticipation a few months before. Cars and cement fall into this category. Thus, during the first half of 1989, margins in some cases reached levels that were significantly below those of 1987, which would suggest that price controls had then become binding and that foreign price arbitrage may have helped to maintain price discipline. In other cases, however, margins during the first half of 1989 appeared to remain close to average 1987 levels, which would imply that neither price controls nor foreign price arbitrage was excessively binding.

As controls are removed and some prices are adjusted upward, foreign price arbitrage could help prevent margins from returning to their 1987 averages or, in some cases, to force further reductions. However, several qualifications must be made. First, the constrained price equilibrium brought about by price controls will not necessarily be identical to the postfreeze equilibrium with trade liberalization. There are, in fact, indications that prices in many sectors are currently much below foreign prices for equivalent products, so that

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1/ On the issue of trade and entry costs, see Krugman (1987) and Baldwin (1988).

2/ Profit margins were computed using Banco de México data on the cost of intermediate inputs and labor in each sector, weighted by their respective value in the 1980 input-output tables.

FIGURE 4
MEXICO
RELATIVE PRICES IN SELECTED SECTORS, 1987-89 1/

Gasoline

Apparel

Livestock

1987   1988   June 1989
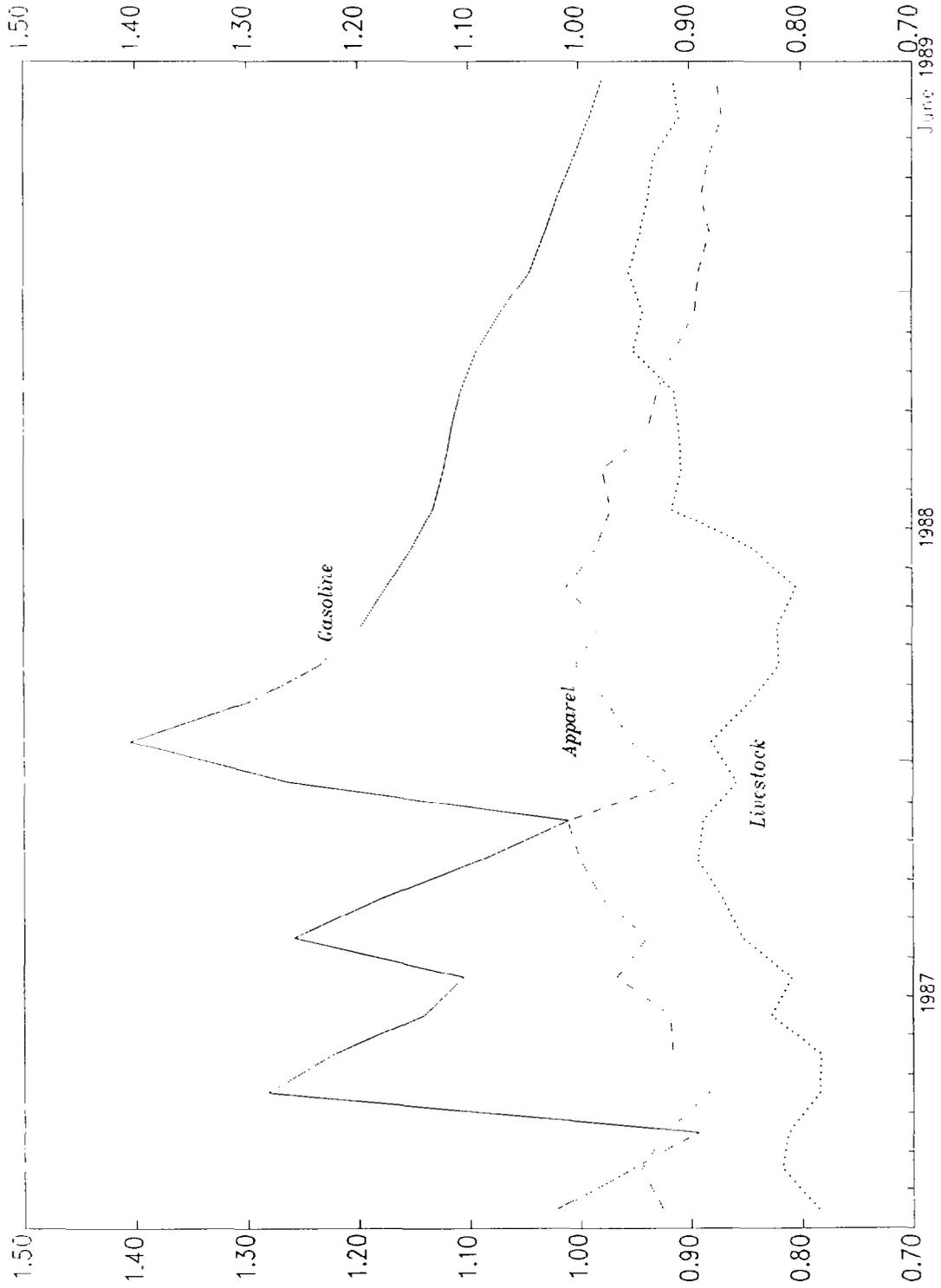
Source: Bank of Mexico.
1/ Deflated by the consumer price index.

FIGURE 5
MEXICO
GROSS PROFIT MARGINS IN SELECTED INDUSTRIES, 1987–89

Sources: Bank of Mexico and INEGI.

- 4b -
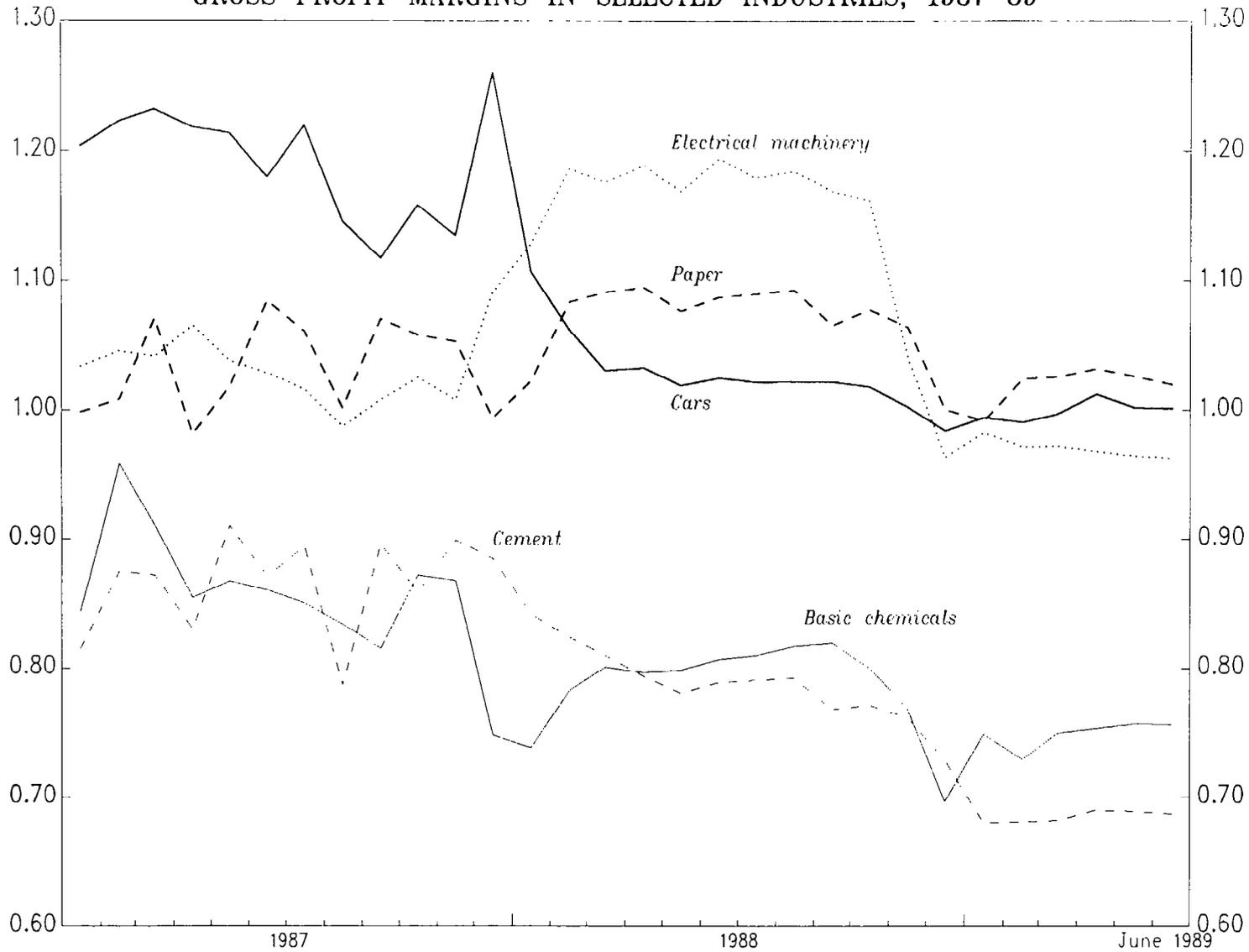
foreign price arbitrage will not prevent substantial increases as controls are lifted. 1/

Second, national accounts data indicate, as Table 1 shows, that gross profit margins increased significantly after 1982 in most industries. Although these increases could be associated with the depreciation of the real exchange rate, their uniformity across sectors and their profile across time suggest otherwise. It seems, instead, that margins increased as a result of restrictive wage policies that did not entirely translate into lower prices, owing to inertia and to higher perceived risk that raised the implicit cost of working capital. 2/ The existence of relatively high margins before the freeze would therefore imply that many industries were better able to absorb the compression of profit margins that occurred after the freeze, and to comply with price controls, often purely voluntarily. It is not clear whether the margins would have returned permanently to their "normal" level, in the absence of price controls and trade liberalization, simply as a result of renewed confidence, lower perceived risks, and higher output. This issue requires further analysis.

Third, it appears that profit margins in the oligopolistic industrial sector will need to remain, after stabilization, lower than before stabilization in order to accommodate substantial price increases in other sectors, in particular, in sectors with significant backward price indexing, owing to long contracts and market imperfections. The relative price of residential rents, shown in Figure 6, is a typical example. It fell steadily during 1982-87, as inflation accelerated, reaching at the end of 1986 only slightly more than half its 1980 level. As inflation fell during 1988-89, it increased again sharply. The U-shaped pattern can be clearly explained by backward indexing of long contracts and by the existence of substantial market imperfections. 3/ 4/ Other goods and services with similar patterns include school tuitions and memberships. Industrial wages also fall to some extent into the same category: although they remained practically constant in terms of consumer prices, they increased significantly after the freeze in terms of producer prices.

1/ Some industries that fall in this category are cookies, beer, and cement.

2/ Higher margins could be seen as an option value factor. See the literature on investment and pricing under uncertainty, in particular Dixit (1989).

3/ Mexican laws protect tenants' rights extensively and prohibit the use of indexed contracts.

4/ Since most of the goods and services with long contracts are by essence nontradables, it is clear that their relative price must rise in relation to the overall consumer price index when the real exchange rate appreciates. The causality of this relationship seems to run from lower inflation to higher nontradable prices, and from higher nontradable prices to a lower real exchange rate, rather than the other way around.

Table 1. Mexico: Gross Industrial Profits, as a Proportion of Sales, 1980-87

	1980	1981	1982	1983	1984	1985	1986	1987
Food, beverages, and tobacco	21.3	21.6	23.0	24.5	24.6	25.5	28.0	28.5
Textiles and leather	27.1	26.8	27.0	28.8	28.7	29.0	29.6	30.7
Wood products	30.8	30.4	32.4	35.5	36.6	36.6	37.7	39.0
Paper and printing	26.7	29.2	30.3	32.4	33.4	33.4	34.8	36.1
Petrochemicals	21.5	22.4	22.4	28.4	28.6	27.8	27.5	30.0
Nonmetalic mineral products	40.1	39.4	40.6	43.9	44.8	45.6	46.8	47.5
Steel	21.5	21.0	19.6	22.1	25.2	24.7	25.7	28.6
Metal products and machinery	21.8	21.6	22.0	25.0	27.4	27.7	29.1	31.1
Other	36.7	38.8	39.5	37.8	41.5	42.8	42.6	42.2

Source: INEGI.

FIGURE 6
MEXICO
CONTRACT PRICES AND INFLATION, 1987–89

Inflation (right scale) 1/

Producer industrial wages

Residential rents 2/

1987   1988   June 1989
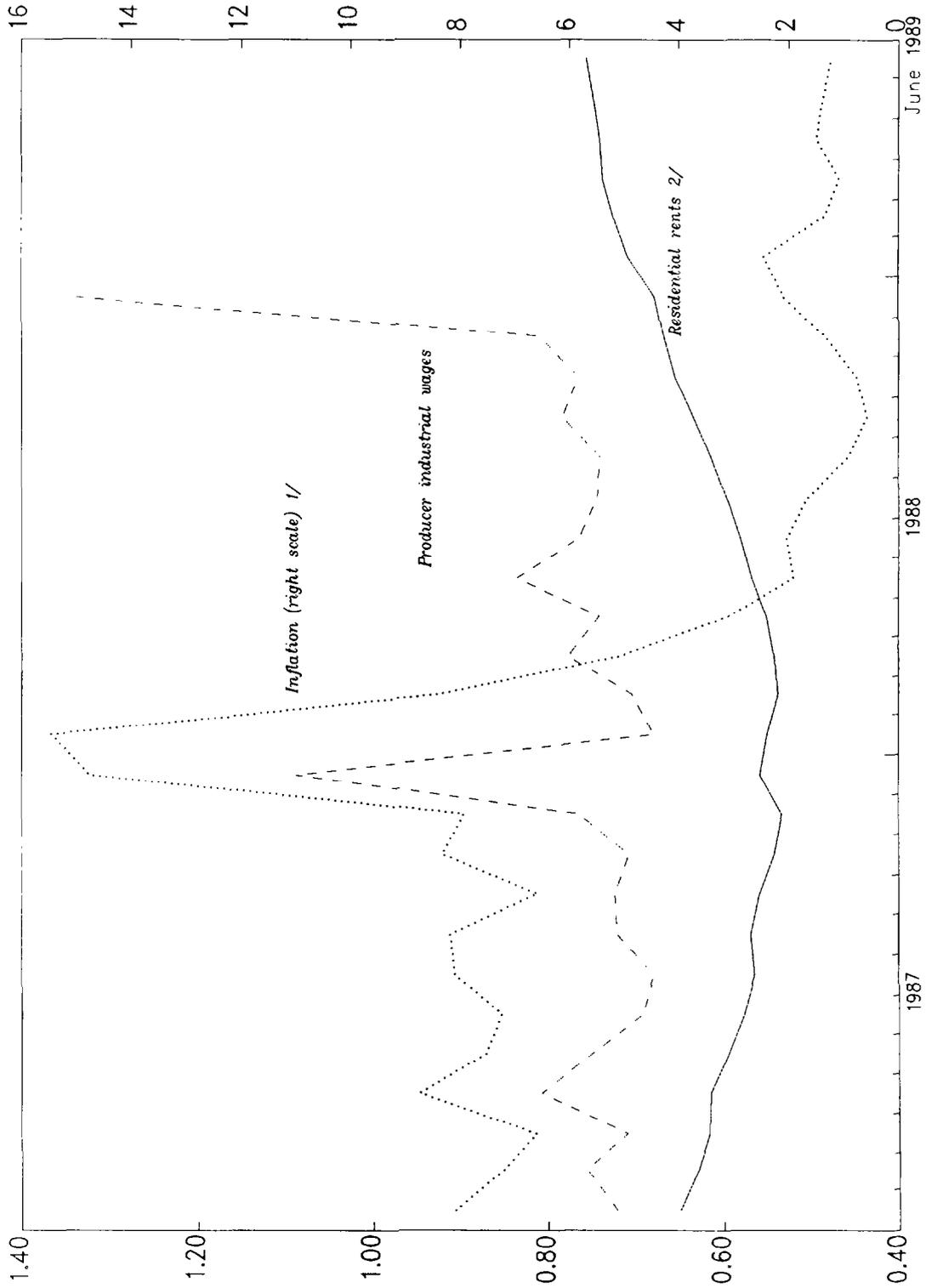
Source: Bank of Mexico.
1/ Consumer price index.
2/ Deflated by the consumer price index.

Another sector that could in the future help to generate inflationary pressures is the public enterprise sector. Several public tariffs have declined sharply in relative terms since the beginning of the freeze and will need to be adjusted upward to alleviate the fiscal burden. See, for example, gasoline in Figure 4.

Finally, agricultural prices have started to increase sharply since the end of 1987. Figure 7 shows the evolution of gross profit margins in the agricultural sector. As producer prices of basic agricultural commodities--corn, wheat, and beans in particular--remained controlled and did not rise significantly during this period, the bulk of this increase is accounted for by the sharp increases of uncontrolled agricultural prices. The latter can in turn be explained by adverse weather conditions during 1988 and 1989, limited and expensive agricultural credit, and the removal of subsidies for nonbasic commodities. 1/ As most of the agricultural sector remains heavily protected, these supply shocks translated into higher producer prices. 2/ Their impact at the consumer level was offset, nevertheless, by a fall in the relative prices of basic commodities, made possible by sharp increases in government subsidies and large imports. This situation does not seem to be fiscally sustainable however.

In summary, there is no clear evidence as to the effectiveness of trade liberalization as a stabilization mechanism. On the one hand, trade liberalization may have played an important role in counteracting inflationary expectations and in raising supply in competitive sectors that are largely outside the realm of price controls. On the other hand, in sectors with administered prices, price controls were probably instrumental in breaking up inflationary inertia in the short run, as foreign price arbitrage is less likely to have had an immediate impact. With the passage of time, however, the effectiveness of price controls should be eroded gradually, whereas foreign competition may help to stabilize profit margins in oligopolistic sectors, at levels that are consistent with the need for relative price increases in other sectors. Nevertheless, there is no guarantee that foreign price arbitrage alone will eliminate price increases in many sectors nor clear-cut evidence that across-the-board trade liberalization was essential to achieve stabilization.

1/ Increasing demand, linked to an overall consumption boom after the freeze, may also be partly responsible for the rise in food prices. This issue is discussed in the next section.

2/ Trade liberalization would not have always prevented substantial price increases, however, as domestic prices were below international prices in many cases.

III.   Trade Liberalization, the Fiscal Balance, and Imports

Partial evidence on the causes underlying the surge of imports
observed since 1987 may be obtained through simple econometric estimates
of private import demands. Table 2 presents such estimates of private
sector imports during 1976-89, broken down into consumption, interme-
diate, and investment imports. The proportion of imports subject to
prior licensing is used as an indicator of trade openness, and the ratio
of hours worked in the industrial sector to the number of employees, as
a cycle variable. Except for trend output in the consumption equation,
all coefficients are significant and have expected signs. Consumption
imports are the most sensitive to changes in the real effective exchange
rate, with a long-run price elasticity of nearly 4. In contrast,
intermediate imports are the least sensitive, with an elasticity of
1.7. Similarly, consumption imports showed the strongest response to
trade liberalization, while investment imports had the smallest, which
is not surprising, given that capital imports faced the fewest import
restrictions. Finally, consumption imports were the most strongly
procyclical, intermediate imports the least.

Based on this set of estimates, Table 3 presents some simulation
results for 1988. If the real exchange rate had remained during 1988 at
its average 1987 level, total private imports would have been only
17 percent higher than during 1987, instead of 60 percent. Furthermore,
if protection, as measured by the percentage of imports subject to
previous licensing, had remained during 1988 at its average 1987 level,
private imports in 1988 would have remained at their 1987 level. The
same set of equations was then re-estimated over the period 1976-87, to
test for possible structural change after the freeze, owing in parti-
cular to speculative increases in import demands. The results were not
significantly altered, which would imply that the surge of imports after
the freeze can be explained entirely by changes in relative prices
brought about by trade liberalization and exchange rate appreciation.

These estimates should, however, be viewed with caution. First,
important errors may exist in such simple specifications that do not
explicitly incorporate expectations or structural changes and that rely
on imperfect data, particularly concerning trade liberalization.
Second, these partial equilibrium estimates fail to identify the deeper
sources of the surge in imports.

From a macroeconomic perspective, a worsening of the current
account balance must necessarily be accompanied by a worsening of the
fiscal balance, a fall in private savings, or a rise in private
investment. The macroeconomic balance, expressed in Table 4 in nominal
terms and as a proportion of GDP, indicates that the 4.4 percent of GDP
worsening in the current account deficit that took place from 1987 to
1988 can be explained by a 2.5 percent of GDP decline in exports, mainly
resulting from falling oil prices, and a 2 percent of GDP increase in
imports. Its counterpart was a decline in domestic savings of
2.5 percent of GDP, and an increase in private investment of nearly

FIGURE 7
MEXICO
GROSS PROFIT MARGIN IN AGRICULTURE AND LIVESTOCK SECTORS, 1987–89
(1983=100)
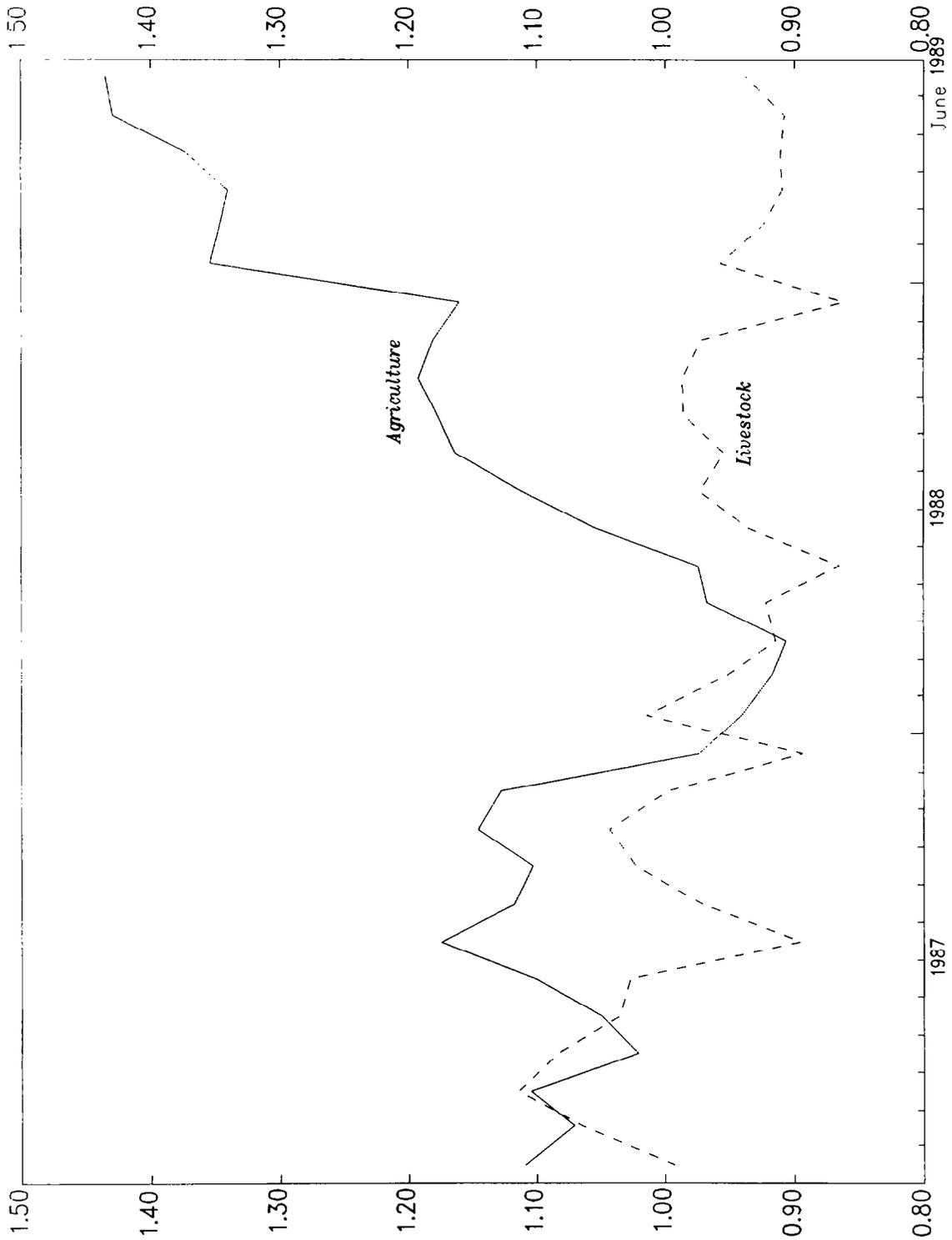
Sources: Bank of Mexico and INEGI.

Table 2. Mexico: Private Import Demand Estimates 1/

	Constant	Lagged Dependent Variable	Trend Output	Real Exchange Rate	Import Licenses as a Percentage of Imports	Hours Worked per Employee	R^2	S.E.	H
Consumption	-12.24 (-1.50)	0.68 (10.10)	.12 (0.40)	-1.21 (-3.70)	-0.40 (-5.00)	3.98 (2.40)	0.91	0.22	1.29
Intermediate	-12.06 (-2.10)	0.67 (7.80)	0.79 (2.70)	-0.58 (-2.50)	-0.27 (-4.10)	2.79 (2.40)	0.92	0.15	1.51
Capital	-15.52 (-2.90)	0.63 (8.10)	0.91 (2.70)	-1.22 (-3.90)	-0.23 (-3.20)	3.74 (2.30)	0.87	0.22	1.60

1/ Estimated with quarterly data over the period 1976-1/1989-2. All variables are natural logarithms. Figures in parentheses are t statistics. The source of all data is Indicadores Económicos, Banco de México.

Table 3. Mexico: Private Import Simulations

(In millions of U.S. dollars)

	1987	1988 Actual	A	1988 Projected B	C
Consumption imports	483	1,525	1,403	828	658
Intermediate imports	7,105	10,623	10,555	8,303	7,119
Capital imports	1,855	3,203	3,261	2,011	1,779
Total	9,443	15,352	15,220	11,142	9,555

Notes: A: With actual 1988 exchange rate and import licenses.
B: With 1987 actual average exchange rate and 1988 import licenses.
C: With 1987 average exchange rate and import licenses.

Table 4. Mexico: Macroeconomic Balance, 1986-88

(In percent of GDP)

	1986	1987	1988
Total savings	18.1	18.6	20.4
External savings	0.9	-2.8	1.6
Foreign inflows	-1.4	3.6	-0.9
Domestic inflows 1/	1.5	-1.7	-1.4
Net official reserves	0.8	-4.7	3.9
Domestic savings	17.2	21.3	18.8
Conventional definition			
Public	3.7	7.4·	0.7
Private	13.5	13.9	18.1
Adjusted definition 2/			
Public	1.5	5.2	6.4
Private	15.7	16.1	12.4
Investment	18.1	18.6	20.4
Public	5.2	5.3	5.0
Private	12.9	13.3	15.4
Memorandum items:			
Petroleum exports	4.8	6.1	3.8
Other exports	7.2	9.6	9.2
Merchandise imports	8.8	8.7	10.7

Sources: Banco de México and INEGI.

1/ Short-term private assets and errors and omissions (outflow -).
2/ Interest payments on the domestic public debt are excluded from the public sector accounts.

2 percentage points. Using the usual operational definition of the
fiscal balance, the decline in domestic savings can, in turn, be
interpreted as a large fall in public savings, from 7.4 percent of GDP
in 1987 to 0.7 percent in 1988, only partially offset by an increase in
private savings, from 13.9 percent of GDP in 1987 to 18.1 percent in 1988.

As Table 5 indicates, the deterioration of the fiscal accounts was
entirely the result of sharply higher domestic real interest rates,
measured on an ex post basis. The primary account improved in fact by
nearly 1 percentage point of GDP from 1987 to 1988, in spite of the
large decline in revenue from petroleum exports and a 0.4 percent
reduction in import duties, linked with trade liberalization and
exchange rate appreciation. If domestic interest payments had not been
counted as public expenditures, private savings would have fallen
instead by nearly 4 percentage points of GDP while public savings would
have risen by about 1 percentage point of GDP, from 1987 to 1988
(Table 4).

The issue then is how to account for interest payments on the
domestic public debt and how to assess their impact on private savings
and investment. Interest payments are a transfer to the private
sector. Whether or not real interest rates during 1989 were perceived,
ex ante, as high, it is clear that the public could not have considered
as permanent the income accruing from real ex post rates of about
2.5 percent a month. Since holders of interest bearing public debt are
not likely to be liquidity constrained, they should have capitalized
this transitory interest income and the demand for consumer nondurables
should only have increased to an extent corresponding to the propensity
to consume out of wealth. For example, an assumption of a rate of
10 percent, about twice a "normal" real interest rate, over an
extraordinary interest income amounting to 8 percentage points of GDP
acquired along the year, should yield an increase of only 0.4 percent of
GDP in private nondurable consumption. 1/

Higher holdings of government debt may also have raised the demand
for other components of the private sector's wealth, stocks, housing,
and physical investment. 2/ The same portfolio effect could also have
stimulated spending in consumer durables, to the extent that durables
are seen as forming part of private wealth. That durable goods
production increased by 3.2 percent from 1987 to 1988 while nondurable

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1/ This argument needs, however, a qualification, as interest
payments that appear in Table 5 incorporate the inflation tax on money
balances. This explains why interest payments were so negative in 1986
and 1987. Lower income households, who are likely to be liquidity
constrained, probably spent the proceeds from the lower inflation tax on
their money balances, even though they might not have perceived this
income gain to be permanent.
2/ The limited supply response of stocks and housing should have led,
in turn, to an increase in their prices, which could have contributed,
by raising private wealth, to a further increase in consumption.

Table 5. Mexico: Selected Accounts of the
Public Sector, 1986-88

(In percent of GDP)

	1986	1987	1988
Fiscal balance			
Conventional	-14.8	-15.0	-11.3
Operational	-0.6	2.7	-4.1
Primary	1.7	4.8	5.5
Current primary	6.9	10.1	10.5
Interest payments			
Domestic			
Conventional	11.9	15.5	12.9
Inflation adjusted	-2.2	-2.2	5.7
External	4.5	4.3	3.9
Import duties	0.8	0.8	0.4

Source: Banco de México.

goods output remained constant provides some support for this
hypothesis. The magnitude involved appears to be rather small, however,
which suggests that only a small percentage of the income derived from
high interest payments was used to purchase durables.

One must then find alternative explanations for the rise in private
consumption, for example, by examining the macroeconomic balance
expressed in constant terms, as shown in Table 6. The consumption
deflator increased substantially more during 1988 than the overall GDP
deflator, owing in particular to the decline in petroleum prices and to
the increase in residential rents; thus, real private consumption, as a
proportion of real GDP, increased by only 0.6 percent from 1987 to
1988. The income loss resulting from falling petroleum prices should
not have had a significant impact on private consumption, because it was
temporary and affected, in the short run, only the public sector. The
increase in the price of consumption items, like residential rents, may
also have been perceived as a transitory consequence of the temporary
decline in inflation brought about by price controls. If so, the public
should have reduced its nominal savings to accommodate most of the
resulting relative loss of income.

Another potential explanation is that the public did not perceive
trade liberalization to be sustainable, especially in the context of an
exchange rate appreciation, and so rushed to buy imported goods,
particularly--although not exclusively--durables. As Calvo (1987) has
noted, an incredible trade liberalization lowers the cost of current
consumption, relative to future consumption, and leads to a substitution
of future for current consumption. Trade statistics indeed show that
imports of consumer goods in the textile, mechanical, and electrical
sectors increased from 1987 to 1988 by 240 percent, 286 percent, and
556 percent, respectively. However, three qualifications should be
made. First, even though private consumption imports increased
220 percent from 1987 to 1988, this increase represented only
0.5 percent of GDP. On the other hand, part of these increases may
reflect a reduction of smuggling that should not have had an effect on
the overall balance of payments. Finally, since there appeared to be no
shift after the freeze in the estimated private imports demand that was
presented above, the speculative increase in demand must have been
spread across all goods, imported and domestic, so as to be already
reflected in the cycle or real exchange rate variables.

An across-the-board increase in demand could also have occurred if
ex ante interest rates had been perceived as high, and if the income
effect had dominated the substitution effect, so that high rates would
have led to higher consumption and lower savings. Given the degree of
financial openness that prevails in Mexico, this hypothesis would be
consistent with an expected real depreciation. In turn, this hypothesis
does not appear to be unreasonable for 1988 as a whole, given the
constraints imposed by trade liberalization and the value reached by the
real exchange rate in the recent past. A rough indication of the
applicability of the hypothesis may be obtained if one compares the real

Table 6. Mexico: Macroeconomic Balance, 1986-88

(In constant 1980 pesos, and as a proportion of GDP)

	1986	1987	1988
Private consumption	63.7	62.8	63.4
Public consumption	12.0	11.8	11.6
Gross investment	16.4	16.1	16.9
Change in inventories	-1.7	-1.2	-0.2
Exports	16.3	17.6	17.7
Imports	6.8	7.0	9.3

Source: Banco de México.

exchange index of the current year with a three-year moving average that includes changes in the average import tariff. As shown in Table 7, a 13 percent expected real depreciation is obtained for 1988. 1/

However, in spite of the high level of public debt in Mexico, which should reinforce the income impact of high interest, recent estimates of private consumption demand in Mexico do not seem to indicate that private consumption responds positively to real interest rates. Gomez Oliver (1989) finds instead that a 1 percentage point increase in the real interest rate would reduce private consumption, on account of the substitution effect, by 0.2 percent of GDP. Given a public debt of about 20 percent of GDP, and a propensity to consume out of disposable income of about 1, the income effect of higher interest receipts would exactly match the substitution effect, with no overall effect on private consumption.

On the other hand, it is not likely that the public expected a real depreciation immediately after the freeze, as the exchange rate was still perceived to be undervalued and the public expected the Government to hold to the exchange rate for some time, in spite of rising prices. If a real appreciation had been expected instead, it would have been consistent with low or negative real ex ante interest rates, in spite of very high ex post real rates. Private savings could then have fallen on account of the substitution effect, because the public preferred to hold durable goods rather than financial assets. That durable goods production increased marginally above nondurable goods output from 1987 to 1988 provides limited support for this hypothesis.

With the passage of time, the public should have started to expect a real depreciation. Low real ex ante interest rates should then have given rise to capital flight while at the same time stimulating spending. This seems to have been the case, since capital flight, measured by the sum of short-term private capital flows and errors and omissions, reached 1.4 percent of GDP in 1988, and was concentrated in the second half of the year, when pressures against the exchange rate started to accumulate.

A last possible explanation for the consumption boom, which would concern both nondurables and durables, could be the distribution effects, common to other shock stabilization programs, resulting in particular from the differential in the propensity to consume of low- and high-income groups. As noted above, profit margins in the industrial sector fell in many industries during 1988, although this

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1/ If one looks at past values of the exchange rate, this comparison involves more the state of psychological expectations than true market fundamentals. Faced with substantial uncertainty on market fundamentals and the possibility of self-fulfilling equilibria, the public may, however, end up forming its expectations adaptively. This seems to have occurred in Mexico since the crisis.

Table 7. Mexico: Real Exchange Rate and Expected Equilibrium Real Exchange Rate, 1980-88

(1980 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Real exchange rate (Banco de México index)	100.0	84.2	115.2	124.4	103.0	99.1	144.6	157.5	130.1
Real adjusted exchange rate 1/	100.0	84.2	115.2	125.4	108.0	101.0	145.8	150.5	117.4
Equilibrium expected real exchange rate 2/	115.6	108.9	98.7	99.8	108.3	114.5	109.8	116.6	132.4
Percentage expected depreciation	1.0	20.8	-14.4	-20.4	5.2	13.3	-24.7	-22.5	12.8

Source: Banco de México.

1/ Adjusted for the average import tariff rate.
2/ Determined on a three-year moving average of part adjusted real exchange rates.

effect did not become widespread until 1989. At the same time, real producer wages increased by 6.5 percent during 1988, while industrial wages increased, in terms of basic goods, by more than 10 percent. Banco de México data do not, however, reflect a significant real wage increase in terms of consumer prices for any income class during 1988, owing in particular to the sharp increase of housing rents. Thus, evidence from available data for 1988 does not allow us to draw clear conclusions on this issue. 1/

Explanations must also be found for the rise in private investment that took place during 1988 in the form of fixed capital and accumulation of inventories, in spite of very high ex post real interest rates and falling profit margins in many sectors. As noted above, one possible explanation is that the private sector reinvested in physical capital part of its extraordinary interest earnings on public debt, as a portfolio operation. However, while machinery imports increased by 56 percent from 1987 to 1988, purchases of domestically produced equipment increased by only 3 percent. This seems to indicate that it is the decline in the cost of capital imports, brought about by trade liberalization and exchange rate appreciation, that has played the crucial role in stimulating and channeling abroad the higher demand for investment. 2/ However, lack of credibility may also have played some role by inducing speculative purchases. Although the estimated demand equation for private capital imports does not appear to have shifted significantly in 1988, the reduction of inventories, as reported by national accounts statistics, was significantly lower in 1988 than during previous years. The latter could be interpreted as providing limited evidence of speculation.

Data for the first semester of 1989 are still preliminary and incomplete. They suggest that private demand for both consumption and investment goods continued to be strong, so that a further widening of the current account deficit is expected for the year as a whole, in spite of significant further improvement in both the primary and operational fiscal balances. The continued high consumption demand for both durables and nondurables could be associated with distributional impacts of rising wages and employment. Many employers report that bottlenecks have started to appear in the labor market, causing wages to rise for many categories of skilled labor. Firm evidence is still lacking, however. Confidence appears to be growing, as evidenced by

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1/ Helpman and Razin (1987) show that distribution effects can also arise intertemporally, as a result of fixing the exchange rate. Wages have increased, in terms of foreign prices, by at least 25 percent from 1987 to 1988, and this could provide a significant base for such intertemporal distribution effects.

2/ Given the limited size of the tradables sector in Mexico, a real appreciation raises the demand for capital if the higher returns obtained in the nontradable sector dominate the decline in returns to capital in the tradable sector. See Lizondo and Montiel (1989).

falling interest rates, significant capital reflows, a booming stock market, and a strong recovery of locally produced machinery, which rose by 20 percent during the first four months of 1989, compared with the same period of 1988. Renewed confidence may thus have started to have a positive impact on consumption, by raising expected permanent income, and on investment, by lowering perceived risks and reducing incentives to wait.

IV. Trade Liberalization, Exports, and Growth

A sustainable growth recovery, to a level of 5 to 6 percent a year, is likely to require a sizable increase in investment, by at least 5 percentage points of GDP above the 20 percent level reached in 1988. 1/ Savings must therefore rise by a comparable amount. External savings, in the form of new lending to the public sector, are not likely to recover significantly in the next few years. External savings channeled to the private sector may, however, rise rapidly. Foreign lending to the private sector could pick up strongly, given the robust financial wealth of most enterprises and the rapid growth of private exports, which should constitute a guarantee of solvency to external creditors. 2/ Direct foreign investment is also likely to increase rapidly, given trade liberalization and the recent change in foreign investment regulations. Finally, private capital reflows could become a key source of new capital formation. Indeed, if improved confidence leads simultaneously and systematically to an increase in investment and to a return of flight capital, 3/ no balance of payments difficulties need to occur. In this case, to the extent that trade liberalization was a decisive factor in achieving stabilization and in improving confidence, it would undoubtedly have had a positive impact on growth. However, while investment and capital imports are flow items, the return of private capital is, at least in part, a stock adjustment. It is thus not clear how much of it can be counted on as a permanent source of financing. On the other hand, private capital flows remain by nature volatile. A sound and steady financing base must therefore continue to rely on large domestic savings. In particular, further efforts to raise public savings are needed. However, it is not clear how much room exists for a further widening of a primary current surplus that already stood in 1988 at 11 percentage points of GDP. The residual must therefore be essentially provided by private savings.

A shift in relative prices, such as the one that followed trade liberalization and exchange rate appreciation, may reduce private

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1/ See Ize (1989) for a growth programming exercise which is based on some incremental capital output ratio estimates that are consistent with this order of magnitude.

2/ There are strong indications that large Mexican exporting firms currently face a very elastic supply of foreign credit.

3/ See Blejer and Ize (1989).

savings temporarily, if the public perceives this shift to be unsustainable. But provided that the trade deficit can be sustained, expectations should turn around, aggregate demand should fall, and private savings should recover. However, a shift in relative prices can have an additional and perhaps more lasting impact on private savings, by channeling aggregate demand toward imported goods away from domestic goods. Following well-known Keynesian lines, this shift in demand will tend, in the context of a rigid price structure, to lower output and employment. 1/ If the marginal propensity to save falls with income, at least temporarily, private savings will decline, as a proportion of GDP, hence constraining investment and growth. 2/

The import demand estimates presented in the previous section indicate that in order to cut imports in 1988 down to the level of 1987, with the average real exchange rate and degree of trade liberalization that prevailed during 1988, GDP would need to fall by about 8 percentage points, which could have a substantial impact on private savings. This estimate assumes however that exports would remain constant, which is clearly not a realistic assumption. As domestic demand falls, exports should increase. Furthermore, trade liberalization could also lead simultaneously to an increase of exports, making up for the slack in output and employment.

The key issue is then the extent and speed with which trade liberalization promotes exports. A large theoretical and empirical literature exists on this topic. 3/ The three main arguments may be summarized as follows. First, trade liberalization can reduce the cost of imported inputs to exporting firms, thereby improving profitability and sales. Much of this, however, can already be achieved through drawback systems, which do not require across-the-board liberalization. In Mexico, comprehensive drawback systems were put in place as early as 1985. On the other hand, trade liberalization did not have much impact on the rapid growth of border industries, which have continued to import most of their inputs within the set of existing inbound regulations. Second, in a general equilibrium framework, trade liberalization must lower profits and output in the importables sector, reducing labor demand and wages, which in turn raise profitability and output in the exportables sector. However, this mechanism requires a flexible price and wage structure, which may be hard for Mexico to

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1/ See Dornbusch (1980).

2/ Recessionary pressures have been observed to develop in many heterodox stabilization experiences after the initial demand boom, as reported for example by Kiguel and Liviatan (1989). This could also occur in Mexico. If so, it could further depress output, savings, and growth.

3/ Some recent contributions include Sachs (1987), Edwards (1988), Rodrik (1988), Michaely, Choksi, and Papageorgiou (1989), and Whalley (1989). Cohen (1989) analyzes the effects of trade liberalization on exports in Mexico.

achieve in the near future under current conditions. Third, trade liberalization increases competition and forces entrepreneurs to leave their quiet life as monopolists in a protected market. By compelling firms, as a matter of survival, to become more efficient, trade liberalization can thus improve their competitiveness and allow them to export. While this argument has an intuitive appeal, it has been generally criticized for relying on fuzzy satisficing behavior, rather than clear-cut optimizing behavior. 1/

Profit maximization does not necessarily need to be discarded to show that trade liberalization can promote exports by reducing profitability in home sales, as the following simple model illustrates. Consider the decision problem faced by a firm that has existing productive capacity in Mexico, assumed to last for two periods. Let r* be the returns obtained during each period on capital sent abroad. Because investment is partly irreversible, however, a capital loss δ is incurred when selling the plant and moving the capital abroad. r_H is the expected rate of return obtained in home sales, which may be uncertain in the presence of country risk. The risk incurred in export activities is compounded by the fact that the firm has not yet explored foreign markets. With probability P, the firm might be successful and obtain a return r_F. With probability 1-P, it may fail and obtain zero returns. Once the firm has decided to venture abroad, however, it will know after one period whether it will be successful or not. Hence, in the second period, the firm may return to the home market if it was unsuccessful during the first period. In order to find out, the firm must commit all its capacity to exports. To simplify things, take a zero-rate of discount. If the firm decides to venture in foreign markets, its expected returns, averaged over the two periods, are:

$$\hat{R}_F = \frac{1}{2} (Pr_F + Pr_F + (1-P) r_H).$$ (1)

The first term in the right-hand side of equation (1) corresponds to expected returns obtained abroad during the first period. The second term is the expected return during the second period, if the firm is successful during the first period. It will then have a certain return r_F. However, the ex ante likelihood of this outcome is P. The third term is the expected return if it fails abroad and returns to the home market in period 2.

Suppose now that average expected returns over the two periods under the different options are ranked as follows:

$$0 < r* - \frac{\delta}{2} < \hat{R}_F < r_H < r* < r_F.$$ (2)

1/ See Rodrik (1988).

Thus, because $r_H > r^* - \frac{\delta}{2}$, it is worth producing in the country instead of selling the plant and moving capital out. However, because r^* is greater than r_H and R_F, given existing country risks, it does not pay to bring capital back into the country for new plant and equipment. Furthermore, it is profitable to produce in the country, once existing capital is taken as a sunk cost. Existing capital is thus tied up in the country although no new investment or capital reflows is taking place. Because $\hat{R}_F < r_H$, firms will decide not to export and will concentrate instead on the home market.

Suppose now that trade is liberalized and that because of increased competition from abroad domestic returns fall below expected foreign returns while remaining above returns obtained by selling off the plant. Firms will now decide to restructure their existing capacity toward exports, even though ex ante expected returns are lower than the world rate of return. Current exports are thus directly stimulated by trade liberalization. Furthermore, after the first period, some firms will have failed and some will have succeeded in foreign markets. Entrepreneurs who have failed will return to the home market and will let their existing plant conclude its useful life in serving the domestic market. They will then close the plant. The ones that have succeeded, however, will no longer face expected returns $\hat{R}_F$ in foreign markets, but will instead have returns $r_F > r^*$. For those firms, it will now pay to invest in the country and to bring capital back home. In a traditional maximizing framework, trade liberalization can thus also promote investment and future exports, while playing a key role in forcing capital back into the country and in achieving structural change. A numerical example, given in the appendix, indicates that such a scenario is indeed quite possible.

Restrictive demand policies could similarly help to promote exports by depressing home returns, particularly if a depressed level of domestic demand were perceived to be a lasting consequence of the debt crisis. The model could also easily be extended to introduce expectations of future government policies and external constraints. Thus, if trade liberalization is not expected to be carried out or sustained, firms may expect r_H to go back rapidly to its protected level. If so, a trade liberalization announcement may not depress expected home returns sufficiently to generate a shift of existing capacity toward exports. Similarly, the export response to a fall in domestic demand caused by a binding external constraint may not be significant until firms realize that the external constraint is bound to become a permanent feature.

These two factors can help to explain the relative sluggishness of non-oil exports between 1982 and 1985, in spite of a significant real exchange rate depreciation. Firms did not believe the Government's

announcements of radical changes in trade policies and did not realize
at first that the debt crisis was here to last. The failure of the
Mexican economy to recover its usual growth rate, based on import
substitution and foreign financing, which became obvious in 1985, and
the decisive step taken by the Government to confirm its determination
to alter trade policies, led, however, to a radical revision of firms'
expectations and hence to a dramatic recovery of exports. 1/ The plunge
in the price of oil in 1986 may have pushed the process one step further
by intensifying the restrictiveness of the external constraint and
depressing even more expected domestic returns, while confirming expec-
tations of lasting changes in real exchange rates and trade policies.

V. Conclusions and Policy Implications

This paper addresses three aspects of the potential effects of
trade liberalization in Mexico. It comments first briefly on possible
price effects and identifies some areas where trade liberalization could
have played, or could play in the near future, an important role in
providing a firmer anchor for stabilization. It should be stressed that
the conclusions are quite tentative. Unlike Argentina in the late
1970s, Mexico used trade liberalization and a preannounced exchange
rate, in conjunction with very restrictive demand policies, and price
and wage controls. It is thus difficult as yet to pinpoint precisely
which element of the package did most of the job. The pieces of the
puzzle should, however, start to fall into place with a more
disaggregated analysis and a careful monitoring of prices, after
controls are removed.

The paper then examines the possible short-run costs of trade
liberalization, implied by the loss of foreign exchange that accompanied
the sharp increase in imports. In spite of an apparently clear linkage
between the fiscal deficit and the trade balance, it is argued that most
of the surge in imports was not causally related to the fiscal
deficit. Instead the paper contends that imports rose mostly in
response to the higher private investment spending resulting from the
change in relative prices brought about by exchange rate appreciation
and trade liberalization. Incomplete credibility, later followed by a
gradual return of confidence, seems also to have played some role.

Although increasing confidence should at the same time help to
raise private capital inflows, the higher demand for investment could
nevertheless run into balance of payment difficulties unless exports
rise sufficiently rapidly to accommodate the higher imports. Thus, the
third issue tackled in the paper is the potential response of exports to
trade liberalization. The paper shows, in the context of a simple
maximizing model with country risk, existing productive capacity, and

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1/ Financial strengthening of indebted firms may also have played an
important role in the recovery of exports after 1985.

barriers to entry in export activities, how trade liberalization could increase exports, investment, and capital reflows by forcing firms to take risks and by revealing winners and losers in export activities.

Various related issues need to be explored. First, a general methodological issue: should short-term changes in real interest rates be incorporated into the definition of the fiscal balance, in order to assess the fiscal stance? Based on a distinction between temporary and permanent transfers, it would seem that short-run changes in public savings, owing to short-run changes in real interest rates, should have no income effects on private spending. Their wealth effect on demand could be captured, on the other hand, by replacing the actual real ex post interest by a constant real interest factor. Portfolio effects associated with an increase in holdings of public debt may stimulate the demand for consumer durables, however. Further analysis of this issue is needed. 1/

Some more specific policy issues also deserve attention. First, would a more targeted and gradual trade liberalization be desirable in the sort of circumstances faced by Mexico in recent years? Foreign price arbitrage seems to be more immediate and more needed in competitive sectors where price controls are ineffective, and low barriers to entry and product differentiation prevent firms from using their monopoly power to resist, at least temporarily, price adjustments. A more targeted trade liberalization could then have been perhaps more cost effective, and, for that reason, more credible, 2/ at least in the short run. At the same time, however, this approach would have required an increased reliance on price controls in administered sectors, particularly over a medium-run horizon, and it is not clear whether this would have been feasible. On the other hand, a more targeted trade liberalization might not have achieved the general turn around of exports that was observed in Mexico from 1985 on.

A second policy issue concerns the role of the real exchange rate. To what extent are sharp real depreciations an essential part of the adjustment process? The simple model developed in Section IV shows that where firms do not want to invest because of country risk, it is not so much the returns on exports, per se, that matter—and hence the exchange rate—as the relative home and foreign returns. A real exchange rate depreciation might not then be more effective than a reduction in protection or a contraction of domestic demand. Besides, the sustainability of these alternative policies matters, so that a

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1/ The distinction between ex post and ex ante real interest rates, which should also be made for a correct assessment of private behavior, but which is generally not made, owing in particular to data limitations, is another argument in favor of a constant real interest rate proposal.

2/ On the issue of the timing of trade liberalization, see Rodrik (1987) and Blejer and Ize (1989).

sustainable moderate trade liberalization may achieve more than a sharp but unsustainable real exchange rate depreciation, which may end up lowering both home and external expected return by raising inflation, macro instability, and country risk.

A last policy issue is the role of monetary policy. A tight monetary policy may not be the best means of directly raising savings and investment. As was suggested above, high interest rates may raise private savings, but, given the high levels of domestic public debt that prevail in many developing countries, they may at the same time lower public savings, with no net effect on overall domestic savings. On the other hand, while high interest rates can induce capital reflows, and thereby raise external savings, they can also tend to choke investment and may exert inflationary pressures on the supply side. It seems, however, that monetary policy has a key indirect role to play in promoting growth by preventing balance of payments crises. By preserving external equilibrium, monetary policy should help to stabilize macroeconomic expectations, promote confidence, and improve the willingness to save and invest in the country. 1/

1/ Similar views can be found in Dornbusch and Reynoso (1989).

Mexico: Numerical Example, Exports Model

Take:

$P = .4$

$r^* = .1$

$\delta = .08$

$r_H = .08$

$r_F = .12$

Then:

$r^* - \dfrac{\delta}{2} = .06$

$\hat{R}_F = .07$

Hence:

$r^* - \dfrac{\delta}{2} < \hat{R}_F < r_H < r^* < r_F$

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