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TRADE LIBERALIZATION, STABILIZATION, AND GROWTH: SOME NOTES ON THE MEXICAN EXPERIENCE

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

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Abstract

While inflation has slowed down sharply in Mexico during 1988, imports have 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 factor, as the private sector saved most of its interest income on public debt. Some of the costs and benefits associated with trade liberalization are also analyzed. 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.

JEL Classification Numbers
1210, 1340, 4200

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Summary

Although inflation in Mexico has sharply slowed down in the wake of the comprehensive shock stabilization program launched at the beginning of 1988, the trade balance has widened substantially as a result of a surge of imports. The Mexican experience had thus some features which are reminiscent of events that have taken place in other recent shock stabilization programs. This paper argues that the main factor underlying the growth of domestic absorption was the recovery of private investment, due 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 significantly during 1988, due to the sharp increase 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 ex ante perceived 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 some areas where trade liberalization could have played an important role in providing a firmer anchor for stabilization. No firm evidence is found yet, however, that stabilization has played a decisive role in stabilizing prices. On the other hand, although increasing confidence derived from stabilization and clear economic policies should contribute to raise private capital inflows, the higher demand for imports that was partly caused by trade liberalization could cause balance of payments

difficulties in the near future unless exports rise sufficiently. Thus, the third issue tackled in the paper is the potential response of exports to trade liberalization. It is shown how, in the context of a simple maximizing model with country risk, existing productive capacity and barriers to entry in export activities, trade liberalization could increase exports, investment, and capital reflows, by forcing firms to take risks and sorting out winners and losers in export activities. The relevance of this model to the Mexican context is underlined.

I. Introduction

Inflation in Mexico is projected to reach less than 20 percent in 1989, against almost 160 percent during 1987. This impressive performance, which came on the wake of the comprehensive shock stabilization program launched at the beginning of 1988, was matched however 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 rise further during 1989 (Figure 1). As exports rose only moderately during the same period, the trade balance widened by US$6 billion from 1987 to 1988, and is expected to remain at that level during 1989. The Mexican experience had thus some features which are reminiscent of events that took place during other shock stabilization programs, notably 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 GDP from 1987 to 1988, the same can be said of fiscal policy. Unlike also Brazil and Israel, Mexico had introduced before the launching of the plan an ambitious trade liberalization program, that was further reinforced at the start of the plan and during its implementation.

Two sets of questions come then naturally 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

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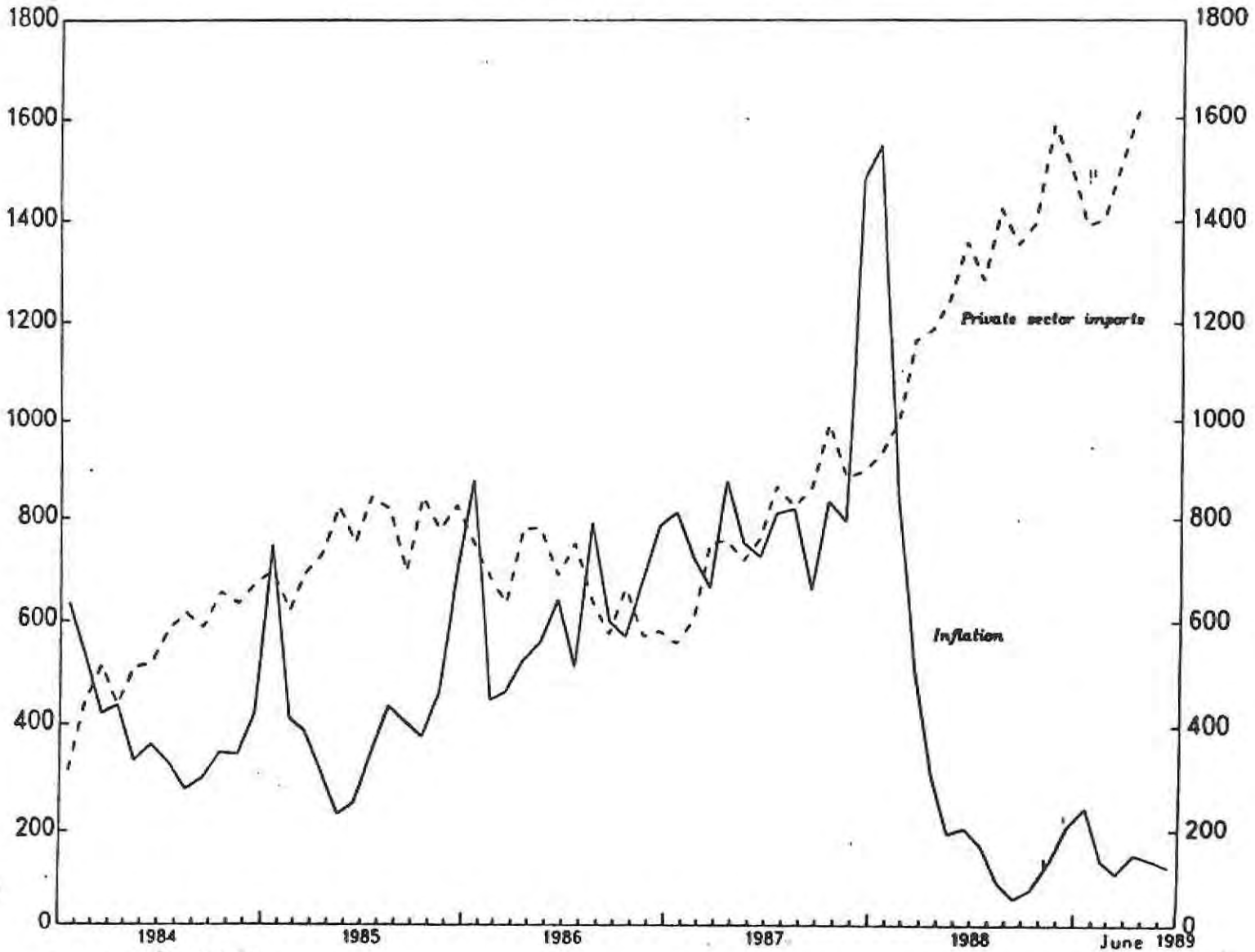
1/ See Kiguel and Liviatan (1989).

FIGURE 1
MEXICO

INFLATION AND PRIVATE SECTOR IMPORTS, 1984–1989

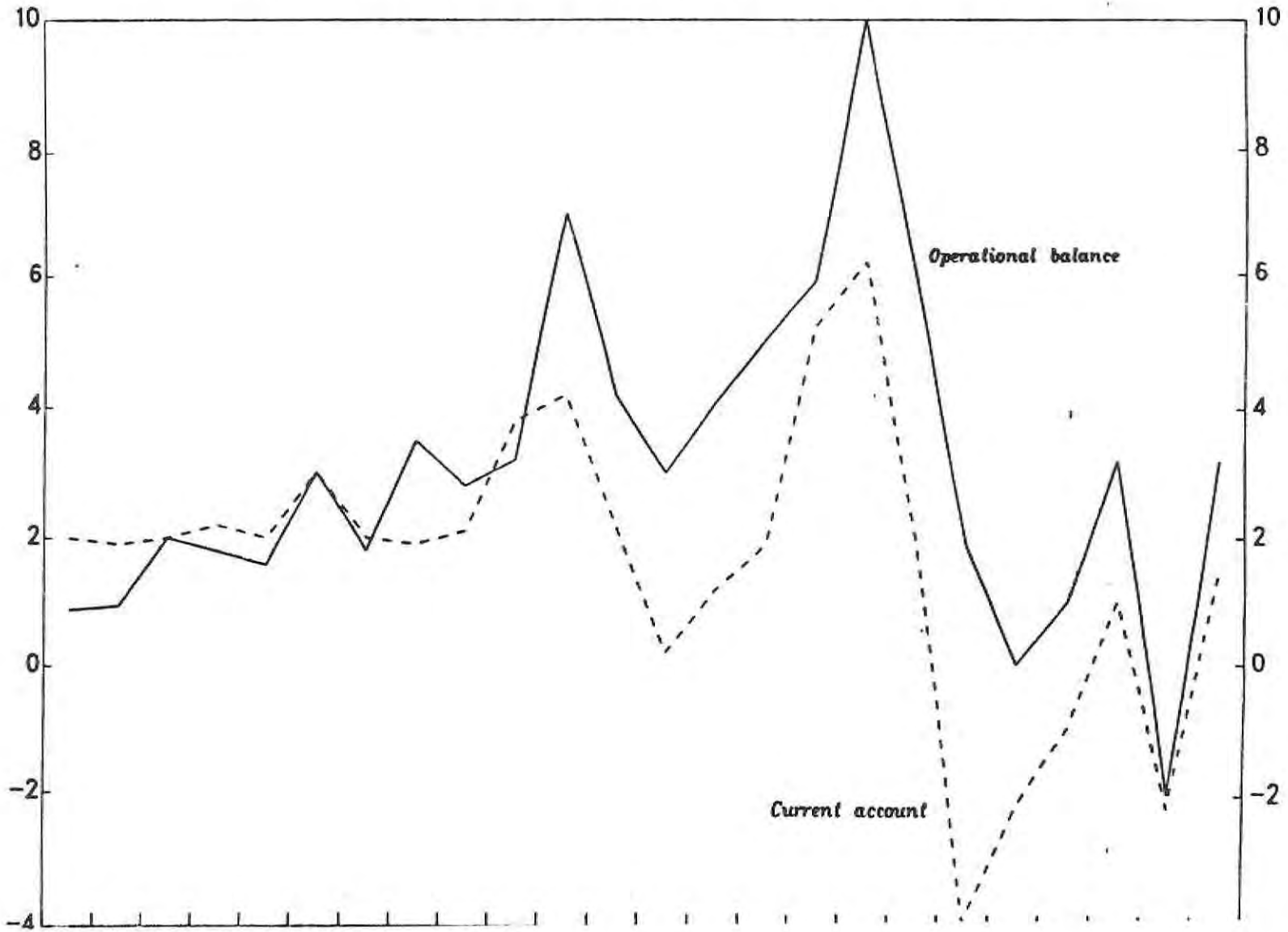


Source: Bank of Mexico.

Figure 2

MEXICO

FISCAL OPERATIONAL BALANCE AND CURRENT ACCOUNT DEFICIT,1965-1988



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 with 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, to the contrary, was it the result of improved confidence resulting from successful stabilization? To what extent, finally, were distributional effects responsible for an increase in consumption spending?

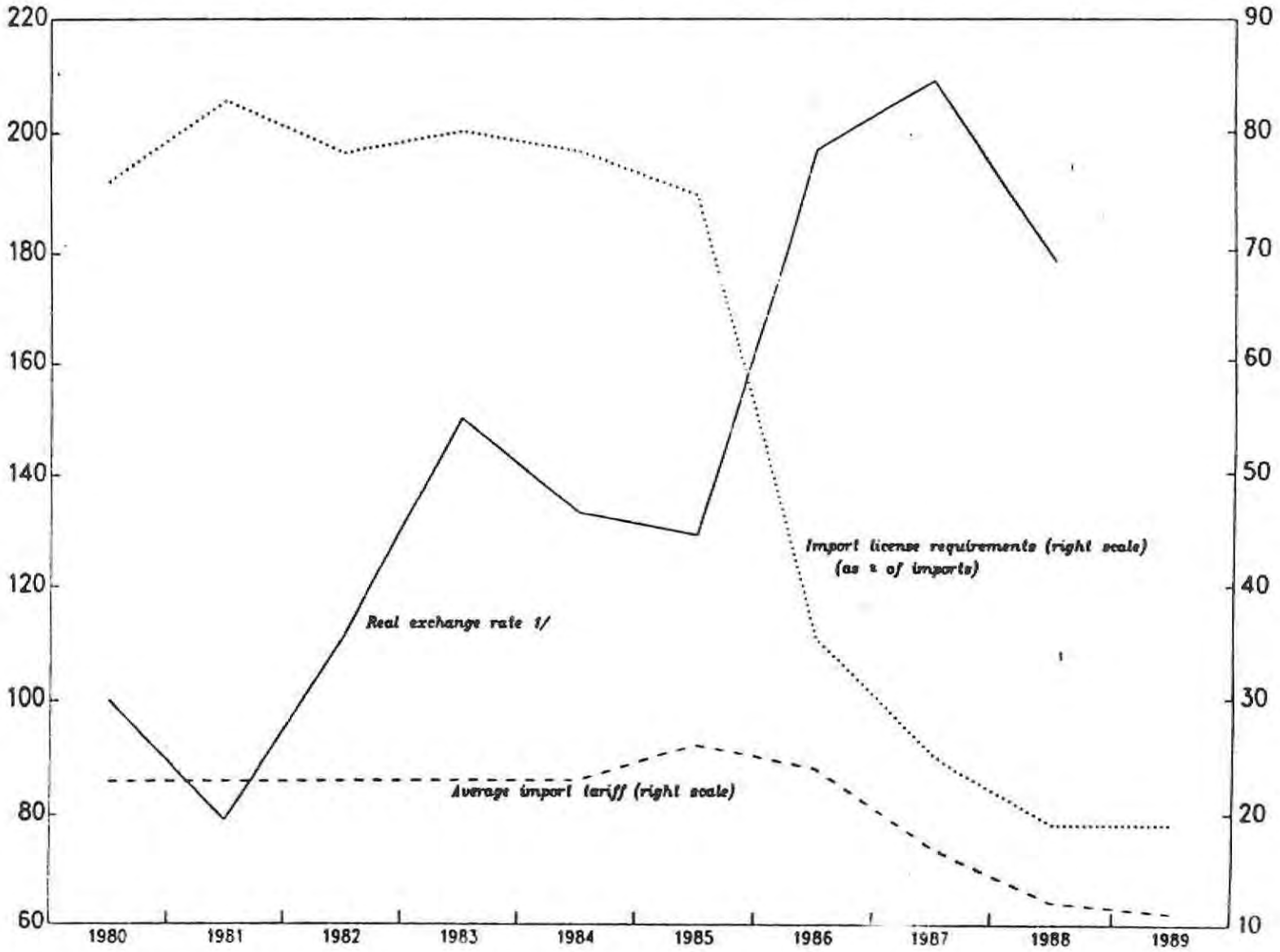
The second set of questions involves the costs and benefits of trade liberalization, as an instrument to achieve a rapid disinflation and to promote faster growth. Have the short-run benefits of trade liberalization outweighted its costs? In particular, was the surge of imports a necessary condition to achieve a rapid disinflation, or could trade liberalization have been more selective and targeted? What are, on the other hand, 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 contribute to alleviate it through a boost in confidence and the promotion of exports?

Answers to these questions must of course be at this time extremely tentative. 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 is needed to answer this question. Assuming unchanged

Figure 3

MEXICO

REAL EXCHANGE RATE AND PROTECTION, 1980-1989



macroeconomic policies, the reaction of prices after the removal of controls will of course provide more conclusive evidence on this issue.

Section III then goes on to analyze 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 must necessarily be a reflection of an increase in aggregate spending, relative to aggregate income. It is argued that most of the worsening of the fiscal balance, that 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 dis-saving should have been therefore automatically compensated by higher private savings.

A fall in private savings could also have been brought about, however, by the expectation that trade liberalization policies and price controls were not sustainable. Some available evidence points in that direction, although the magnitude of that effect does not seem to have been large. Further increases in private consumption could finally 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, on the other hand, 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 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 due 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.

This negative outcome need not occur, however, if the exports response to trade liberalization is sufficiently strong. 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 learning by doing benefits acquired 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. Some

concluding thoughts are given in Section V.

II. Trade Liberalization, Relative Prices, and Stabilization

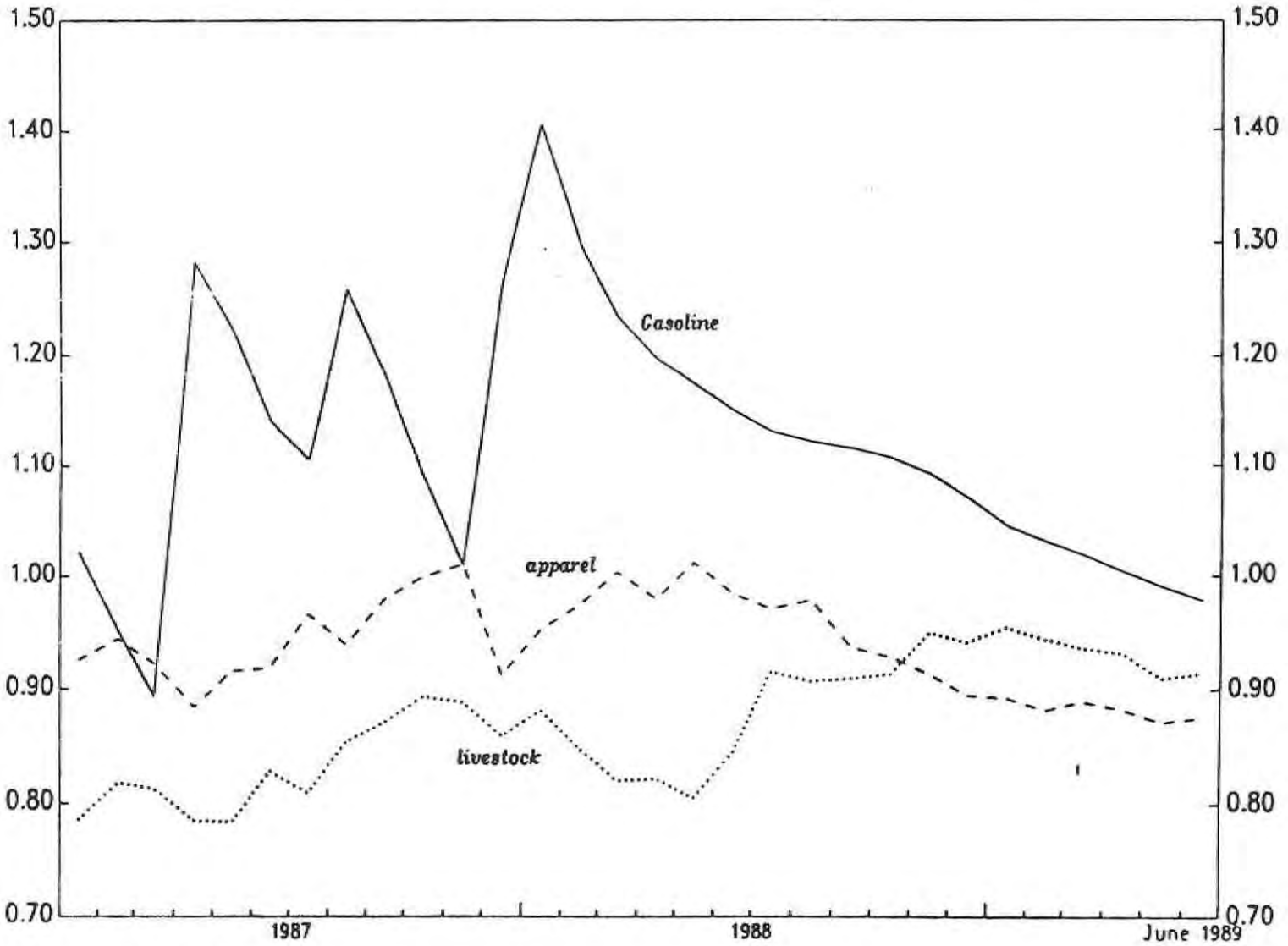
Unlike Argentina in the 70s, Mexico introduced price controls in its stabilization package, together with trade liberalization and a fixing of the exchange rate, and maintained very tight monetary and fiscal policies. It is thus difficult at this time to identify the effectiveness of trade liberalization as a stabilization mechanism, in isolation from price controls and restrictive demand management.

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. One example that should fall within this category is 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, as administered prices were sharply raised in anticipation of price controls. It then recovered rapidly during the first five months of 1988, but peaked in June 1988, before declining gradually thereafter, unlike what seemed to have occurred in other heterodox programs, particularly in Brazil. Compared to similar programs in other countries, foreign price arbitrage was thus probably instrumental in breaking inflationary inertia rapidly

FIGURE 4

MEXICO

RELATIVE PRICES IN SELECTED SECTORS 1/, 1987-1989



Source: Bank of Mexico .

in this and other similar sectors, 1/ although greater credibility and more restricted demand may also have played a significant role.

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. Owing, on the other hand, to the restricted number of firms in these sectors, price controls are relatively easy to administer. The potential for foreign price arbitrage is likely however 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. 2/ The effectiveness of price controls may, on the other hand, 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 play an important role in preventing a resurgence of inflationary dynamics after controls are removed.

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.

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

Figure 5 shows the evolution of profit margins during the period 1987-89, in a sample of oligopolistic industries with administered pricing. 1/ In some sectors, like paper, basic chemicals and electrical machinery, profit margins were adjusted upward at the beginning of the freeze and remained relatively high during 1988, before falling at the end of the year and during the first half of 1989. In other cases, margins declined steadily since the implementation of the freeze, although they were adjusted upward a few months before, in anticipation of the freeze. Cars and cement fall in this category. Thus, margins in some cases had reached during the first half of 1989 levels which were significantly below 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 be still close to average 1987 levels, which would imply that neither price controls no foreign price arbitrage were excessively binding.

As controls are removed and some prices are adjusted upward, foreign price arbitrage could play a more important role to prevent margins from returning to their 1987 averages or, to force, in some cases, further reductions. Several qualifications must however be made. First, there is no reason why the constrained price equilibrium brought about by price controls should be necessarily identical to the post-freeze equilibrium with trade liberalization. There are, in fact,

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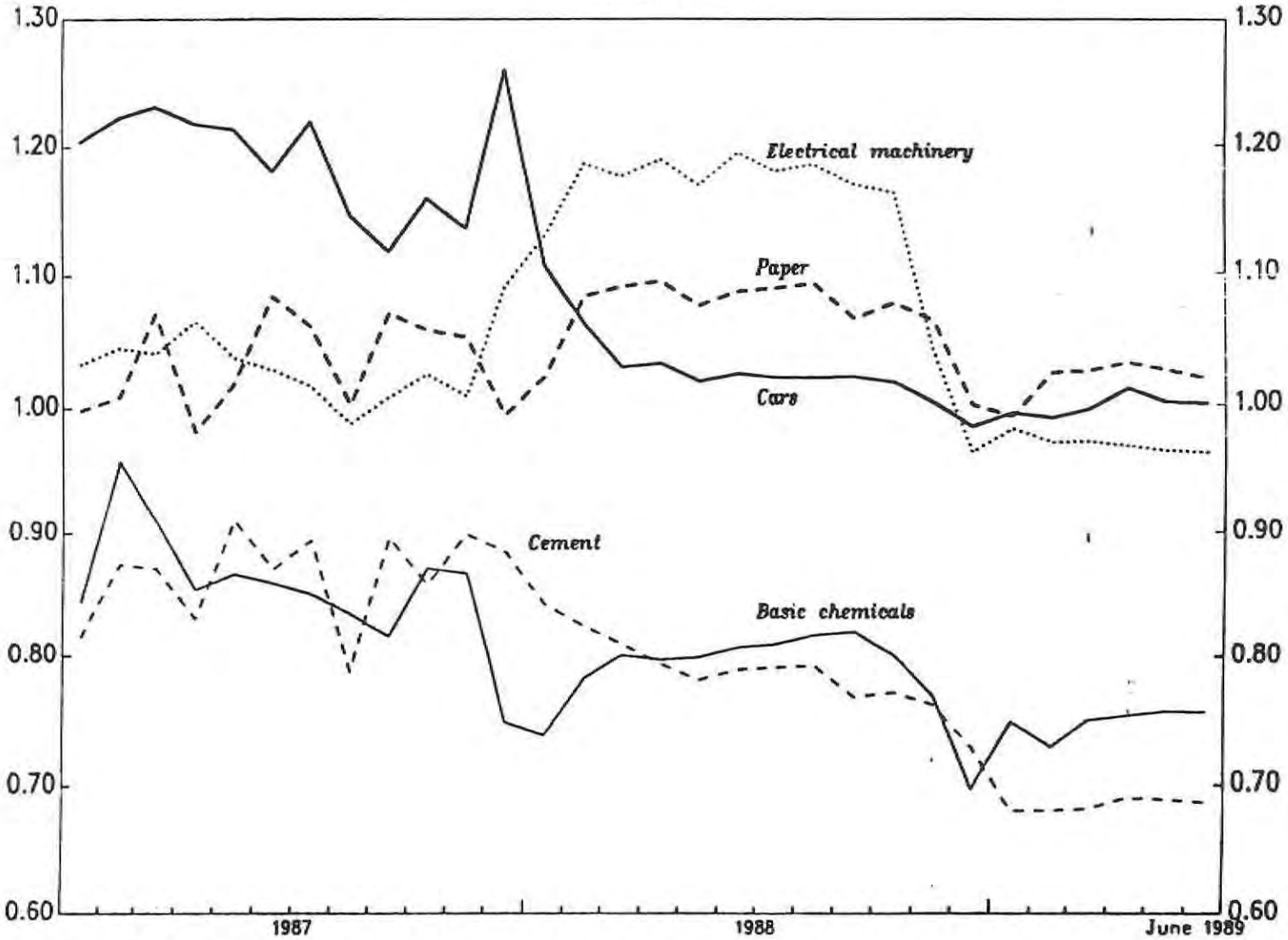
1/ Profit margins were computed using Banco de Mexico data on the cost of intermediate inputs and labor in each sector, weighted by their respective weights in the 1980 input-output tables.

FIGURE 5

MEXICO

GROSS PROFIT MARGINS IN SELECTED INDUSTRIES , 1987–1989

(1980=100)



Source: Bank of Mexico and INEGI.

indications that prices in many sectors are currently much below foreign prices for equivalent products, so that foreign prices arbitrage will not prevent substantial increases, as controls are lifted. 1/

Second, National Accounts data indicate, as showed in Table 1, that gross profit margins had 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 seems to suggest otherwise. It seems, instead, that margins increased as a result of restrictive wage policies which 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 prior to 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 on a purely voluntary basis. It is not clear, on the other hand, 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

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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).

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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.

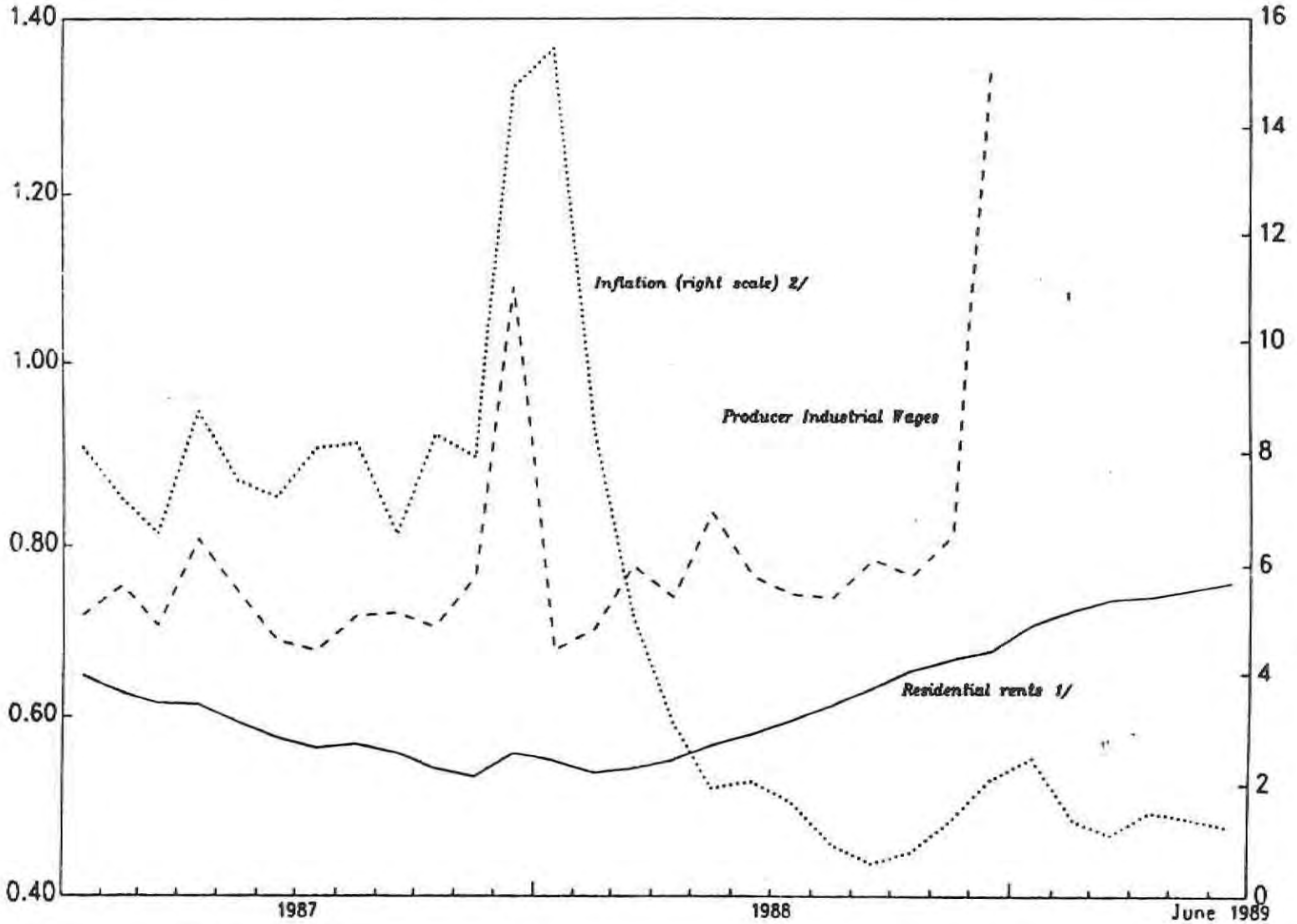
before stabilization, in order to accommodate substantial price increases in other sectors, in particular in sectors with significant backward price indexing, owing to long contracts and market imperfections. The relative price of residential rents, shown in Figure 6, is a typical example. It fell steadily during the period 1982-87, as inflation accelerated, reaching at the end of 1986 only slightly more than half their 1980 level. As inflation fell during 1988-89, it increased again sharply. The U-shaped pattern can clearly be explained by backward indexing of long contracts and by the existence of substantial market imperfections. 1/ 2/ Other goods and services with similar patterns include school tuitions and memberships. Industrial wages fall also to some extent in the same category. Although they remained practically constant in terms of consumer prices, they increased significantly after the freeze in terms of producer prices.

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

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

2/ 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 however from lower inflation to higher nontradable prices, and from higher nontradable prices to a lower real exchange rate, rather than the other way around.

FIGURE 6
MEXICO
CONTRACT PRICES AND INFLATION, 1987–89



Source: Bank of Mexico.

Finally, agricultural prices have started to increase sharply from the end of 1987 onward. See the evolution of gross profit margins in the agricultural sector shown in Figure 7. 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 both 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 impacts at the consumer level were 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 synthesis, there is no clear evidence at this time on the effectiveness of trade liberalization as a stabilization mechanism. Trade liberalization may have played an important role in counteracting inflationary expectations and in raising supply in competitive sectors which are largely outside the realm of price controls. On the other hand, in sectors with administered prices, price controls are likely to

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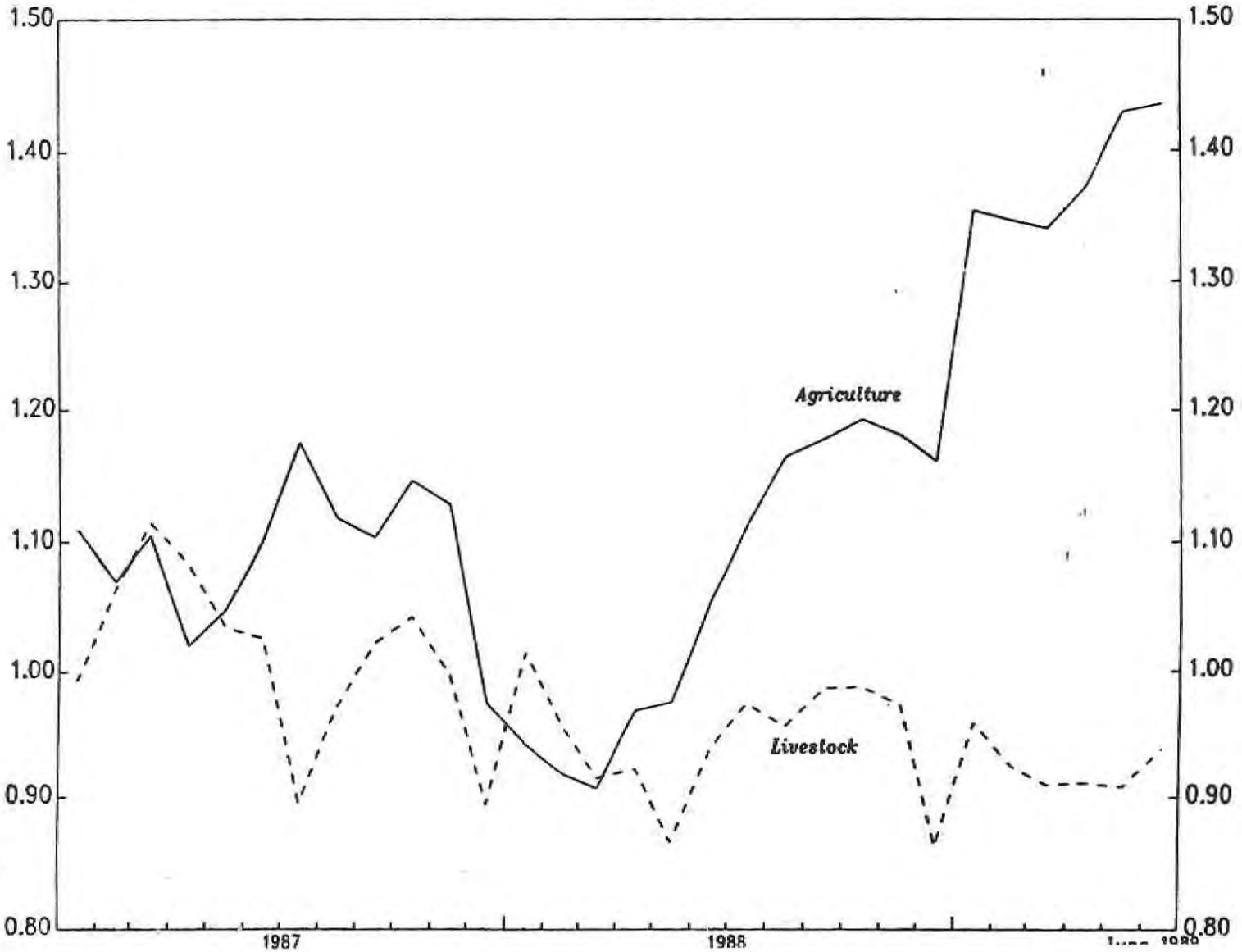
1/ Increasing demand, linked to an overall consumption boom after the freeze, may also be partly responds for the rise in food prices. This issue is discussed in the next section.

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

FIGURE 7
MEXICO

GROSS PROFIT MARGIN IN AGRICULTURE AND LIVESTOCK SECTORS,1987-89

(1980=100)



have been the key instrument to break 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 while foreign competition may help to stabilize profit margins in oligopolistic sectors, at levels which are consistent with the need for relative price increases in other sectors. Nevertheless, there is no guarantee that foreign price arbitrage will be sufficient to avoid price increases in many sectors and no clear-cut evidence yet that across-the-board trade liberalization was essential to achieve stabilization.

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 over the period 1976-1989, broken down in consumption, intermediate 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

Table 2. Mexico: Private Import Demand Estimates */

	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

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

smallest, which is again not surprising, given that capital imports faced the least 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 1976-1987, to test for possible structural change after the freeze, due in particular to speculative increases in import demands. The results were not significantly altered, which would imply that the surge of imports after the freeze can entirely be explained by changes in relative prices brought about by trade liberalization and exchange rate appreciation.

These estimates should however be taken with caution. First, important specification 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 do not identify the deeper sources of the surge in imports.

From a macroeconomic perspective, a worsening of the current account balance must necessarily have as counterparts 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

Table 3. Mexico: Private Import Simulations

(In millions of U.S. dollars)

	1987	1988 Actual	1988 Projected A	1988 Projected B	1988 Projected 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

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

(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 Mexico 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.

terms and as a proportion to 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 due to falling oil prices, and a 2 percent of GDP increase in imports. It had as a counterpart a decline in domestic savings of 2.5 percent of GDP, and an increase in private investment of nearly two 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 one 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 were not counted as public expenditures, private savings would fall instead by nearly 4 percentage points of GDP while public savings would rise by about 1 percentage points 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. However, whether or not real interest rates during 1989 were perceived, ex ante, as high, it is clear that income accruing from real

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

(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 Mexico.

ex post rates of the order of 2.5 percent per month could not possibly have been considered by the public as permanent. 1/ If so, transitory interest income should have been capitalized and the demand for consumer nondurables should only have increased to an extent corresponding to the propensity to consume out of wealth. Assuming, for example, 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.

Higher holdings of government debt may also have raised, however, the demand for other components of 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. The fact that durable goods production increased by 3.2 percent from 1987 to 1988 while nondurable goods output remained constant during that period provides some support for this hypothesis. The magnitude involved appears to be rather small, however, which seems to suggest that only a small percentage of the income derived from high interest payments was

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1/ Interest payments that appear in Table 5 are net of the inflation tax on money balances, as part of domestic public debt is financed by money creation. This explains why interest payments are so negative in 1986 and 1987. It could then be argued that the reduction of the inflation tax accruing from lower inflation should permanently increase net interest payments. It is likely, however, that the public did not perceive it as a permanent income gain during 1988, given the lack of credibility revealed by the very high ex post real interest rate.

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.

used to purchase durables.

Alternative explanations must then be found for the rise in private consumption. A main explanation can be obtained by examining the macroeconomic balance expressed in constant terms, as shown in Table 6. As the consumption deflator increased substantially more during 1988 than the overall GDP deflator, due in particular to the decline in petroleum prices and to the increase in residential rents, real private consumption, as a proportion of real GDP, increased by only 0.6 percent from 1987 to 1988. The income loss due to falling petroleum prices should not have had a significant impact on private consumption, as it was likely to be temporary and affected, in the short run, only the public sector. On the other hand, 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 that may also have played some role is that the public did not perceive trade liberalization to be sustainable, particularly in the context of an exchange rate appreciation, and 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 consumption goods in the textiles, mechanical, and electrical sectors increased from

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 Mexico.

1987 to 1988 by 240 percent, 286 percent, and 556 percent, respectively. Three qualifications should however be made. First, even though private consumption imports increased 220 percent from 1987 to 1988, this increase only represented 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, as no shift appeared to exist 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 or domestic, so as to be already reflected in the cycle or real exchange rate variables.

An across-the-board increase of demand could have occurred if ex ante interest rates were perceived to be high, and if the income effect dominated the substitution effect, so that high rates 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 this may be obtained by comparing the real exchange index of the current year to 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

Table 7. Mexico: Real Exchange Rate and Expected Equilibrium Real Exchange Rate

(1980 = 100)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Real exchange rate (Banco de Mexico 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 Mexico.

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

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 was expected instead, it would be 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, as the public preferred to hold durable goods, rather than financial assets. As noticed above, the fact that durable

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1/ By only looking 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.

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 however to expect a real depreciation. Low real ex ante interest rates should have then given rise to capital flight at the same time as stimulating spending. This seems to have been the case, as 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, that would concern nondurables as much as durables, could be, as noted in other shock stabilization programs, distribution effects due in particular to the differential in the propensity to consume of low- and high-income groups. As noticed above, profit margins in the industrial sector seem to have fallen in many industries during 1988, although this effect does not seem to have become fully widespread until 1989. As noticed also above, real producer wages have increased by 6.5 percent during 1988, while industrial wages have increased, in terms of basic goods, by more than 10 percent. Banco de Mexico data do not reflect however 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 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, which has played the crucial role in stimulating and channeling abroad the higher demand for investment. 2/ Lack of credibility may also have played some role, however, 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

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1/ As shown, however, by Helpman and Razin (1987), 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, which 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).

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 a significant further improvement of both the primary and operational fiscal balances. The continued high consumption demand for both durables and nondurables could perhaps be associated with distributional impacts of rising wages and employment. As reported by many employers, bottlenecks in the labor market have started to appear, and, as a result wages may have risen for many categories of skilled labor. Firm evidence is still lacking however. There are also some indications that confidence has been gaining ground, as evidenced by 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 moths of 1985, compared to 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 waiting incentives.

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

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1/ See Ize (1989) for a growth programming exercise which is based on some ICOR 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/ On this issue, see Blejer and Ize (1989).

public savings are needed. However, it is not clear how much room there exists for a further widening of a primary current surplus which already stood in 1988 at 11 percentage points of GDP. The residual must therefore be essentially provided by private savings.

As it was noted above, a shift in relative prices, such as the one that followed trade liberalization and exchange rate appreciation, may reduce private 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. A shift in relative prices can have however 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

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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.

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. 1/ In a nutshell, the three main arguments may be synthesized as follows. First, trade liberalization can reduce the cost of imported inputs to exporting firms, hence improving profitability and sales. Much of this, however, can already be achieved through drawback systems, which do not require across-the-board liberalization. In the case of Mexico, comprehensive drawbacks systems were already put in place in 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 in-bound 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. This mechanism requires however a flexible price and wage structure, which may not be achievable in Mexico in the near future under current conditions. Third, trade liberalization increases competition and forces

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

entrepreneurs to leave their quiet life as monopolists in a protected market. By forcing 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 however for relying on fuzzy satisficing behavior, rather than clear-cut optimizing behavior. 1/

Profit maximization does not necessarily need to be discarded however to show that trade liberalization can promote exports by reducing profitability in home sales. To see this, consider the following simple model. Consider the decision problem faced by a firm which 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 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 however to find out, the firm must commit all its capacity to

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1/ See in particular Rodrik (1988).

exports. Take to make things easier, a zero-rate of discount. If the firm decides to venture in foreign markets, its expected returns, averaged over the two periods, are:

$$\hat{R}_F = \frac{1}{2} (Pr_F + Pr_F + (1-P)\, r_H) \tag{6}$$

The first term in the right-hand side of equation (6) 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:

$$0 < r^* - \frac{\delta}{2} < \hat{R}_F < r_H < r^* < r_F \tag{7}$$

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 that 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 contribute to promote exports, by depressing home returns, particularly if a depressed level of domestic demand is perceived to be a lasting consequence of the debt crisis. The model could also be easily 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 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 expectations of lasting changes in real exchange rates and trade policies.

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

V. Conclusions and Policy Implications

This paper addressed three aspects of the potential effects of trade liberalization in Mexico. It commented first briefly on possible price effects and identified 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. The conclusions are however quite tentative. Unlike Argentina in the late seventies, Mexico used trade liberalization and a pre-announced exchange rate, in conjunction with very restrictive demand policies, and price and wage controls. It is thus difficult to pinpoint very precisely at this point which element of the package did most of the job. Elements 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 examined 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 apparent clear linkage between the fiscal deficit and the trade balance, it was argued that most of the surge in imports was not causally related to the fiscal deficit. The paper argued instead that the rise in imports was mostly due 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, seem also to have played some role.

Although increasing confidence should at the same time contribute 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 was the potential response of exports to trade liberalization. It was shown how, in the context of a simple maximizing model with country risk, existing productive capacity and barriers to entry in export activities, trade liberalization could increase exports, investment, and capital reflows by forcing firms to take risks and revealing out winners and losers in export activities.

Various related issues would 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 could also stimulate the demand for consumer durables, however. Further analysis of this issue is therefore needed. 1/

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, due in particular to data limitations, is another argument in favor of a constant real interest rate proposal.

Some more specific policy issues also deserve attention. First, would a more targeted and gradual trade liberalization be desirable in a context such as the one 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, perhaps more credible, 1/ 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 was 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 in a situation where firms do not want to invest because of country risk, it is not so much the returns on exports, per se, which matter, 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/ On the issue of the timing of trade liberalization, see Rodrik (1989) 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 mean to raise directly savings and investment. As it 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, lower at the same time public savings, with no net effect on overall domestic savings. On the other hand, while high interest rates can induce capital reflows, hence raising external savings, they would also tend to choke investment and may exert inflationary pressures on the supply side. It seems that monetary policy has however a key indirect role to play in promoting growth, by preventing balance of payments crisis. By preserving external equilibrium, monetary policy should thus contribute to stabilize macroeconomic expectations, and can thus have a powerful impact on confidence and on the willingness to save and invest in the country. 1/

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

APPENDIX

Mexico: Numerical Example, Exports Model

Take:

$$P = .4$$

$$r^* = .1$$

$$\delta = .08$$

$$r_H = .08$$

$$r_F = .12$$

Then

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

$$\hat{R}_F = .07$$

Hence:

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

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