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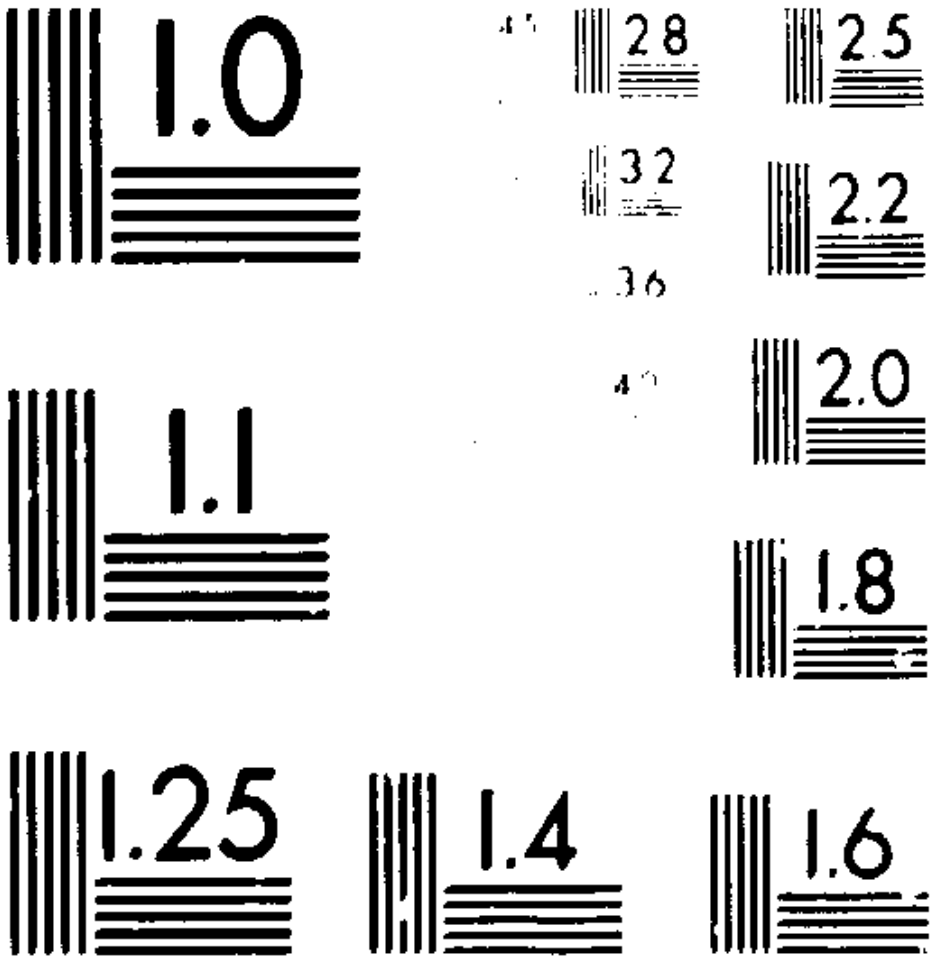

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THE IMPACT OF EXTERNAL DEBT AND FINANCIAL CRISIS ON THE PROCESS OF INDUSTRIALIZATION: A CASE STUDY OF MEXICO'S MANUFACTURING SECTOR*

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Section I - Recent evolution of the industrial structure in Mexico prior to the debt crisis

Among the major Latin/Central American countries, Mexico had been one of the high performers in terms of economic growth during the last decade or so. Despite having one of the highest rates of population growth, per capita output in Mexico increased in real terms by about 42 per cent during 1970-1982, which was higher than that of any other country of the region except Brazil (see Table 1).

Table 1

Country	Per capita output 1970	Per capita output 1982	Percentage change over the period
Argentina	1256	1229	- 3%
Bolivia	317	334	+ 5%
Brazil	528	956	+81%
Colombia	587	831	+41%
Chile	967	927	- 6%
Guatemala	439	514	+17%
Mexico	977	1385	+42%
Peru	648	671	+ 4%
Venezuela	1205	1202	negligible

Source: CEPAL, on the basis of official figures (reported in "Investigación Economica, abril-junio 1983, num. 164, p.269).

As is well known, both Brazil and Mexico borrowed heavily in the international private capital market during most of this period. Nevertheless, it would be rash to infer only from the examples of Brazil and Mexico that all the heavy borrowers among Latin American countries were high performers in terms of growth. Counter-examples are immediately provided by countries like Argentina, Chile or Venezuela which had dismal record of economic growth (see Table 1), although they too borrowed heavily from external capital markets during the same period. This, in itself, is sufficient to warn us against any simple correlation between the extent of external borrowing and the rate of economic growth. The problem must be recognised as far more complex: external finance serves at best as one of the possible routes throught which a high pace of

economic growth can be maintained. Obversely, it is also not true that the lending from international banks during the "recycling phase" of the 1970s necessarily went to countries that sustained a high rate of growth. In short, neither the demand for external credit nor its supply was uniquely determined by the economic growth rates of the concerned developing countries.

This is hardly surprising because the use that is made of external credit must differ widely from country to country. It depends not only on the politico-economic objectives of the Government concerned, but the very need and method of absorption of external credit also depends on the structural characteristics of an economy. In traditional economic analysis, this is often described as the problem of transformation of domestic savings into investment for expanding the productive capacity of the economy. External finance can facilitate or sometimes even hinder such a process of transformation, depending partly on whether external finance supplements or substitutes the process of mobilization of domestic savings.

Effective transformation of domestic savings into productive investment for capacity expansion in a developing country requires some preconditions: either the developing country must already have the required industrial base (and capital goods industries) to use these savings to create new capacities; or, it must have adequate access to external markets where domestic savings may be transformed into required imports of investment goods (e.g. machinery etc.) through international trade. Availability of international credit is useful, indeed essential, insofar as it strengthens this process of transformation of domestic savings into productive investment in general.

Viewed from this angle, it is evident that, even among the heavy borrower Latin American countries, the underlying economic structure of production has been very different (see Table 2).

Two features of Table 2 are especially noteworthy:

(a) despite more or less the same weight of agriculture in GDP (11-13%), the relative importance of food processing and related industries in the manufacturing sector is considerably higher in Mexico (21%) compared to either Brazil (15%) or Argentina (17%).

(b) machinery and the basic capital goods industries are relatively less developed in Mexico with a share of only 19% of manufacturing value added in 1978

compared to either Brazil (30%) of Argentina (24%). Thus, even towards the end of the 1970s, Mexico seemed to have been characterized by an industrial structure which was relatively biased towards consumers' goods industries; it was possibly less capable of internal transformation of domestic savings into productive investment without the essential intermediation by foreign trade.

Table 2

Comparative economic structure, 1977/1978

Distribution of GDP by per cent	Mexico	Brazil	Argentina
Agriculture	11	11	13
Industry	37	37	45
of which, manufacturing	28	28	37
services	52	52	48
Distribution of value added in the manufacturing sector			
Food and agriculture	21	15	17
Textile and clothing	18	10	13
Machinery and transport equipment	19	30	24
Chemicals	14	12	13
Others	33	33	33

Source: The World Bank, World Development Report, 1980

However, during the same period of the late 1970s, the manufacturing sector as a whole in Mexico was undergoing significant structural changes insofar as the capital goods sector maintained a faster rate of expansion compared with other manufacturing production. As Table 3 shows, the manufacturing sector grew at an annual rate of 8.4% during 1977-1981, while investment (capital) goods production grew at 15.5%. This structural change in the manufacturing sector was accompanied by heavy imports of manufactured goods, precisely because such attempts at structural change in the manufacturing sector could not depend exclusively on the process of domestic transformation of savings into investment and the creation of new capacities without relying on outside imports on a very significant scale.

Table 3

Growth in the domestic manufacturing sector and its implications in terms of trade deficit in Mexico (1977-1981)

Annual growth (%) of	1978	1979	1980	1981	Annual average of 1977/1981
Gross Domestic Product	8.3	9.2	8.3	8.1	8.1
Petroleum Sector	16.9	18.2	23.6	17.6	19.1
Manufactures, total of which:	9.0	10.1	7.0	7.7	8.4
Non-durable consumer goods	5.0	8.4	5.5	5.9	6.2
Durable consumer goods	18.4	15.2	9.0	13.5	14.0
Investment goods	22.6	14.8	10.4	15.1	15.6
Balance of Trade on manufactured goods (in billion US dollars)	-3.9	-7.2	-12.3	-16.7	-10.0
Manufacturing trade deficit as percentage of manufacturing output	8.1	11.8	15.4	16.9	

Sources: (a) Banco de Mexico, Indicatores Económicos, various issues;
(b) SSP, Boletín Mensual de Información Económica;
(c) Indicadores de Comercio Exterior

On the eve of the debt crisis of August 1982, the Mexican economy was therefore moving towards an industrial structure, where the share of investment goods in manufacturing output was increasing. But at the same time, the share of imported manufactured goods as a whole was also increasing rapidly (see last row, Table 3). Hence, trade deficit on account of manufactured goods which was only 8% in 1978, more than doubled by 1981. Indeed, roughly during this period (1978-1980) there was both a marked tendency for imports to increase in response to growth in manufacturing output - the manufacturing import elasticity grew from nearly 3% in 1978 to 4% in 1979 and exceeded 6% in 1980. And, this rapid rise in manufacturing imports, which accounted for nearly 78% of the total increase in the import bill between 1977 and 1980[1/] had the following composition in order of importance:

Type of imports	Percentage of total manufacturing import (1978-1980)
1. Non-electrical machinery and equipment	31
2. Basic metal	15
3. Transport and automobile	13
4. Chemicals	9
5. Food	6
6. Electrical apparatus and machinery	6
7. Metal products	4
8. Paper	3
9. Others	13

In general, it is not uncommon for a developing country to incur a systematic trade deficit, especially on account of manufactured goods. An underdeveloped industrial structure typically entails the need to import manufactured products precisely because the underdeveloped industrial structure does not permit a vertically integrated process of domestic production. In this respect, however, Mexico was a somewhat special case as its oil revenue as well as access to external credit allowed it during this period (1979-1981) to increase all imports virtually without an effective foreign exchange constraint. The doubling of import elasticity of the manufacturing sector (from 3 to over 6 between 1977 and 1980) merely emphasises the highly liberal import policy that came into operation during this period. Indeed, all categories of imports classified by use, showed a marked rise and there is no broad area where import substitution may be said to have been distinctly visible. Table 4 represents the pattern of imports as a ratio of domestic availability (domestic production plus imports) to emphasize the point that imports in every category went up prior to the debt crisis. In short, an overall easy external payments position allowed all types of manufacturing imports to rise without competing with one another for foreign exchange.

Table 4

Import as percentage of domestic availability
by commodity groups (1970 constant prices)

Commodity group	1973	1977	1978	1979	1980
Consumers' goods	7.8	5.2	6.3	8.3	13.2
Intermediate goods	21.7	17.2	20.5	22.5	25.5
Capital goods	43.6	41.5	44.1	50.6	54.8
Manufacturing total	22.3	18.9	20.0	26.4	31.0

Source: Based on, SSP, Sistema de Cuentas Nacionales, Mexico, D.F. 1981, reported in René Villarreal, "De la industrialización sustitutiva a la petrodependencia externa y desustitución de importaciones", p.37 en El Sistema Económico Mexicano (com. H.E. González M.)

A striking feature of Table 4 is the generally lower proportion of imports in each category in 1977 compared to 1973. However, this pattern of substitution of import by domestic production was reversed by 1977 when imports in every category increased. Imports of consumers' goods as percentage of domestic availability increased by 5.4 percentage points, intermediate goods by 3.8 percentage points and capital goods by 11.2 percentage points, between 1977 and 1980.

It is therefore plausible to maintain that a sudden tightening of the foreign exchange position in Mexico, as happened in 1982, would have an all-pervading effect on its entire industrial structure particularly because the earlier tendency towards import substitution had been totally reversed by 1977 making domestic production more crucially dependent on imports in virtually every major industrial line of activity. It needs special emphasis that both for new capacity creation through import of capital goods as well as for maintenance imports of intermediate goods to utilize existing capacity, Mexico seemed to have a higher dependence on external scurces by 1980 compared with 1973. Thus, while the industrial structure had undoubtedly become more sophisticated, encompassing a wider range of products during the intervening period, all the broad statistical indicators also seem to indicate a greater degree of "openness" which in this case implied increased dependence on imports for industrial production at home.

The increased openness of the Mexican economy could have been a far more flexible strategy for sustained industrialization if:

(a) it could have led to a lower dependence on imports in the area of non-manufactured goods, and

(b) exports could have been rapidly diversified both in terms of commodities and in terms of geographical regions.

Unfortunately, neither of these happened on any significant scale during the period of liberalized imports prior to the debt crisis (1977-1981). As a matter of fact, the agricultural sector also became more dependent on imports, imports as percentage of domestic availability of agricultural products rose from 3.8% in 1977 to 12.7% in 1980.[2/] At the same time, oil revenues dramatically increased in absolute and in percentage terms in relation to all the other major macroeconomic variables. Thus, the share of oil revenue in total exports rose rapidly, as did the contribution from export tax on oil to Government revenue (see Table 5).

Table 5

Importance of oil revenue in total export and Government revenue (1977-1982)

Year	1977	1978	1979	1980	1981	1982
Percentage of oil revenue in total exports	21.8	30.0	42.2	60.0	68.8	74.0
Oil export taxes as percentage of Government revenue	4.6	6.3	9.9	15.9	-	-
Percentage change in the "real" oil revenue over the previous year */	73.5	67.3	83.4	125.5	26.4	-1.6

Source: Based on IMF, International Financial Statistics and Government Finance Statistics Yearbook, computed by Juan Carlos Moreno.

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*/ "Real" oil revenue is measured as oil export at current prices denominated in US dollars divided by the unit value of manufactured exports from the US.

It is clear from Table 5 that the increased reliance on imports, to the extent that it was not financed by external borrowing, had to be supported almost entirely through expanding oil revenue. Therefore, there was a clear element of asymmetry in the nature of openness of the Mexican economy that rapidly gained in importance, preceding the debt crisis of 1982. On the one hand, the Mexican economy liberalized and depended more heavily on all types of imports (see Table 4) while on the other, revenue from oil was by far the only important source of export which together with external borrowing could support this liberalized and extensive pattern of import essential to the domestic industrial structure. In addition, the economy had also lost a great deal of flexibility by 1980, as a significant proportion (nearly 13%) of domestic availability of agricultural products had also to be imported. Any dramatic squeeze in the foreign exchange position of Mexico was bound to result in serious repercussions in an industrial structure under such conditions of relatively little economic flexibility combined with high dependence on imports.

Section II - The nature of the financial crisis in Mexico and its transmission to industrial crisis

The recent financial crisis in Mexico has a relatively short-term "cyclical" element combined with a longer term "structural" element. In the preceding Section I, we already hinted at the structural element of this crisis which arose from the nature of evolution in the structure of the Mexican economy in general and its manufacturing sector in particular. An increased dependence on imports of all types became embedded in the productive structure (Table 4), while exports diversified at a far slower rate with increased dependence on oil as the dominant export earner (Table 5). At the same time, geographical diversification of neither import nor export was marked during the recent period; it is estimated that in 1980-1981, the United States had a share of nearly 70% of total Mexican imports while 65% of Mexican exports went to the United States alone. Thus, a "liberalized trade regime" for Mexico in the late 1970s meant:

(i) increased dependence on imports to maintain and expand domestic production;

(ii) increased dependence on oil revenue as the major export earner and as support to Government budget, and

(iii) close link with market conditions in the United States both as the dominant importer of Mexican products and as exporter of the Mexican market.

The "cyclical" element of the Mexican financial crisis follows directly from this fact because, both recession and inflation of the American economy would be very powerfully transmitted to Mexico through its close link with the American economy. In particular, this was reflected in the sensitivity of the Mexican economy to the price of oil, especially in the spot market: as the price of oil began softening since late 1981 due to recession in the United States and OECD in general, the export earnings of Mexico began to be squeezed. And, at the same time lack of sufficient diversification of exports, either commodity - or region-wise, limited severely the scope of possible maneuverability of the economy. Broadly speaking, this could be characterized as a situation where export was demand-determined particularly in relation to the United States market conditions while import was supply-determined in terms of what the Mexican economy could pay for in foreign exchange, but not in terms of what the Mexican economy actually required in relation to its existing industrial

capacities. It is a useful simplification to think of the level of demand-determined export as being strongly influenced by the shorter-term cyclical element in the international markets; the longer term structural element determines the required level of imports. But the actual level of imports is determined from the supply side in terms of export earnings plus net inflow of foreign credit.

On the basis of this characterisation, the broad pattern of external trade in the Mexican economy over time can be examined for recent years (1978-1983). This is shown in Table 6: the "oil boom" permitted exports to increase dramatically between 1978 to 1981 by over 210% while manufacturing exports increased over the same period by some 10% only. This was also the period of rapid inflow of external credit (see Table 7), although the net inflow (defined net of debt service payment) was not a steady magnitude as shown in the last row of Table 7.

Table 6

Behaviour of external trade: Mexico 1973-1983

(in billion US dollars)

Year	1978	1979	1980	1981	1982	1983[a/]
1. Total exports	6.5	10	17	21	22	22.5
of which:						
Manufactures	2.0	2.2	2.5	2.4	2.4	3.0
(i) Processed foods	0.3	0.2	0.4	0.3	0.3	-
(ii) Textiles	0.3	0.2	0.3	0.2	0.3	-
(iii) Chemicals	0.2	0.4	0.4	0.5	0.4	-
(iv) Machinery and transport equipment	0.5	0.4	1.0	1.0	1.0	-
(v) Others	0.5	1.0	0.4	0.4	0.4	

Table 6 (cont'd)

Year	1978	979	1980	1981	1982	1983[a/]
2. Total imports[b/] (fob)	8.0	12.0	18.5	24.0	14.5	9.0
of which:						
Consumer goods	0.5	1.0	2.5	3.0	1.5	1.0
Capital goods	2.0	3.5	5.0	7.5	4.5	2.5
Intermediate goods	5.0	7.5	11.0	13.0	8.5	6.0
(i) Chemicals	1.0	1.4	2.0	2.5	1.5	-
(ii) Parts for machinery and transport equipment	1.7	2.5	3.5	4.5	3.0	-
(iii) Iron and steel	1.0	1.5	1.8	2.0	1.0	-
(iv) Others	1.7	2.4	3.5	4.0	2.5	-
Trade Deficit/Surplus	-1.5	-2.2	-1.7	-3.0	+7.5	+13.5
4. Private sector share of imports	63%	67%	64%	63%	63%	

a/ estimated (tentative)

b/ includes unclassified and adjustment terms.

Source: Reliable domestic estimates.

Table 7

External debt of Mexico: 1978-1983

Year	1978	1979	1980	1981	1982	1983[a/]
Total debt	34.0	40.5	51.5	75.0	83.0	87.5
Debt service payment	6.5	10.5	7.5	10.5	11.5	9.0
Debt service payment as percentage of exports	97%	104%	46%	51%	51%	42%
Net inflow[b/]		-3.5	+3.5	+13.5	-3.5	-5.0

a/ estimated

b/ defined as gross increment in debt minus debt service payment.

Source: Reliable domestic estimates.

The easy availability of foreign exchange on account of oil export plus net inflow during 1978-1981 allowed imports also to increase dramatically. Total imports increased by 200% during the brief period 1978-1981 (Table 6). However, in percentage terms, consumers' goods imports had the maximum increase (500%), followed by capital goods' imports (300%) while imports of intermediate goods showed the slowest increase (of about 147%) during 1978-1981. Comparison only in terms of percentages can be somewhat misleading in the present context because the "base" on which these percentages are computed were very different for the three categories of imports mentioned above (Table 6). Thus, even in 1981 consumers' goods imports accounted for only about 12% of the total import bill while capital goods accounted for about 32% of total imports; the remaining 56% of imports was in the form of intermediate goods in 1981.

Even the broad analysis of the pattern of imports during 1978-1981 would tend to suggest that this was a period characterised by faster expansion of imports for final use as consumption or investment item, rather than imports for intermediate use, needed for utilization of existing capacities. And, this is typical of situations of relatively less severe or non-operative foreign exchange constraint when greater maneuverability in terms of foreign exchange allows a developing country to add to its productive capacity in terms of imports of capital goods in addition to higher imports of consumption goods in some cases (e.g. Mexico).

On the basis of the rather aggregated data presented above, one can also see how a sudden squeeze in the foreign exchange position would tend to alter the pattern of imports. When the foreign exchange constraint was largely relaxed (e.g. 1978-1981), imports for final use (consumption or investment) accounted for a larger share of the total import bill. However, a severe foreign exchange constraint, which implies a totally supply-determined level of imports rather than what the economy may require over a medium to long-period, necessitates more severe cut in final-use imports rather than in intermediate-use imports. This is clearly visible in Table 8. Thus, at the initial stage of the oil-led export boom, final-use imports accounted for less than 30% of total imports in 1978.

The massive export and import expansion of the immediate succeeding years led to this share of final-use imports rising to over 43% in 1981. With the squeeze in the foreign exchange situation that became pervasive by the second quarter of 1982, imports had to be restrained and the final-use imports fell by over two percentage points between 1981 and 1982 and it fell by another 5.5 percentage points between 1982 and 1983, as the import squeezed became still more severe. As its mirror image, the share of intermediate-use imports increased correspondingly from 56.5% in 1981 to 63.5% in 1983. This change in the relative shares of intermediate and final use import as induced by a severe foreign exchange constraint, is easy to explain: attempts had to be made to utilize existing capacities by importing maintenance imports for intermediate use, while drastic cuts were made on final-use imports reducing them in many cases to even below the bare minimum requirement of the economy.[3/]

Table 8

(in percentage)

Year	1978	1981	1982	1983[a/]
Share of consumers' goods imports	5.0	11.5	10.5	10.0
Share of capital goods imports	24.0	31.5	31.0	26.5
Share of final-use imports[b/] (i.e. for consumption and investment purposes)	29.0	43.0	41.5	36.5
Share of intermediate use imports	71.0	57.0	58.5	63.5

a/ Estimated on the basis of incomplete data; hence provisional.

b/ Sum of the two preceding rows for each year.

Source: Reliable domestic estimates.

However the implications of the financial crisis in Mexico for the industrial sector have been both deeper and more pervasive than simply a severe restriction on the volume of imports (Table 6) which, in turn, has also implied a substantial change in the pattern of imports in recent years (Table 8). Not only did the pattern of imports change under the financial squeeze in favour of intermediate-use imports for maintaining

utilization of existing capacities against final-use imports largely directed creation of new capacities, but also the export sector was affected in this process. Suppliers' credit, particularly in the form of trade financing usually having a maturity of less than 3 months, became particularly in short supply. Prior to the financial crisis of 1982, branches of banks located outside Mexico had been systematically tapping the interbank money market and had raised nearly 10 billion dollars in extremely short-term interbank credit.

With the deepening of the financial crisis not only was interbank credit virtually stopped, but it also meant a simultaneous reduction in the existing lines of credit by local banks, especially in foreign currency denomination.

The result of such sudden withdrawal of credit lines by both the suppliers and the local banks was perhaps most sharply felt in the area of trade financing: the Mexican importers were refused credit by their suppliers under the fear of default while Mexican exporters lost their markets either because they could not extend export credit facilities in foreign currency or because their terms of export financing deteriorated sharply. Thus, although not often recognized, the financial squeeze adversely affected imports as well as exports, due to lack of trade finance facilities on an adequate scale. A related problem is its implication in terms of the patterns of exports and imports: which commodities can be exported and imported under such a severe constraint on trade financing are significantly influenced by the nature of access to trade credit that a firm might have. Thus, the impact of an overall financial squeeze in foreign currency availability often deviates from the planned or socially preferred pattern of exports and imports in many instances due to differential access to trade finance by the firms and other producing units. And, such deviation is likely to be larger and more magnified, the more severe and abrupt the financial crisis, particularly in terms of a reduction in short-maturing suppliers' credit.

On the other hand, lack of longer-maturing investment finance severely restricts imports of capital goods. This, in turn, has constrained investment by both the private and the public sector. This is especially important in the case of Mexico because, its relatively underdeveloped capital goods sector

(Table 2) also meant the operation of a severe constraint on the transformation of domestic savings into productive investment from the supply side. This means that even if private business or the Government were interested in maintaining a high pace of investment, such investment would not actually materialize due to the foreign exchange constraint under a financial squeeze, a situation often elaborated in economic theory in terms of "two-gap" models.

The constraint of an inadequately developed domestic capital goods sector would tend to set a limit to the level of actual investment from the supply side in situations of foreign exchange scarcity. However, investment may also be limited from the demand side due to a somewhat different causal mechanism. The demand for investment goods may fall in the public and in the private sector, insofar as the limited size of the domestic and/or export market or even its rate of contraction negatively feeds back on the decision to invest through the "acceleration principle". And, this is precisely one of the principal routes through which the financial crisis begins to assume a more pervasive macro-economic character than simply restriction on the volume of imports (or exports due to lack of trade finance).

In the case of Mexico since 1982, at least three clear factors on the demand side may be identified as causing such contraction in the level of investment demand. Insofar as public investment is concerned, there has been a sharp reduction in the public sector deficit by 1983. By late 1982, the Mexican Government adopted a programme which called for a sharp reduction in the public sector deficit, falling from about 17% of GDP in 1982 to 8.5% in 1983, 5.5% in 1984 and 3.5% in 1985. While this policy actively supported by the IMF is meant to deal primarily with inflation and balance of payments problems it cannot but reduce public investment very substantially over the coming years, with its consequent "multiplier effect" on domestic demand. Table 9 below provides a summary view of the behaviour of inflation, growth and balance of payments deficit in the context of public sector deficit over a relatively long period of two decades (1963-1983).

Table 9

(in percentage)

PERIOD	1963-1971	1972-1977	1973-1983
Maximum rate of inflation	5.5	30.5	90 to 100
Maximum rate of growth	11.5	8.0	9.0
Minimum rate of growth	3.5	3.0	-6.0
Maximum deficit on current account, without petroleum sector (as percentage of GDP)	3.5	5.5	11.0
With petroleum sector	3.5	5.0	5.0
Maximum fiscal deficit of public sector (as percentage of GDP)	3.0	7.5	16.5

Source: Reliable domestic estimates

Both the inflation rate and the range of dispersion in the growth rate in the Mexican economy appears to have accelerated over time, as shown by Table 9. At the same time, there is perhaps a closer relation between the public sector deficit and current account deficit without petroleum, which is currently used as a justification for reducing the public deficit. Such justification must be counterposed against contraction of domestic demand and growth rate brought about by reduction in public investment in an attempt to limit public deficit. It must also be remembered that at the same time, several rounds of devaluation and inflationary redistribution of income against wages, largely brought about by lagged adjustment of money wages to consumers' goods price level, would tend to shrink the domestic purchasing power further.

Insofar as private investment is concerned, the shrinkage in private investment demand is brought about not only by a shrinking domestic market but also by financial constraints on the level of private investment. Thus, during the period of rapid expansion in external borrowing (1977-1982), the "gearing ratio" of borrowed to internal funds increased substantially for the private business sector as a whole. Information is inadequate and incomplete on this point, partly because the nature and extent of increase in the "gearing ratio" depends on the type of borrowing e.g. whether particular firms raised money in the domestic money market through loans advanced by Mexican banks against

foreign inflow of funds in the form of public debt or direct dollar loans contracted say, by branches of multinational firms. Whatever may be the source of borrowing, there can be little doubt that the overall gearing ratio of borrowed to own capital increased very sharply for private business as a whole, perhaps by an order of 200% at the margin between 1978 and 1981.[4/] Such a sharp increase in borrowed capital in relation to own capital, made the private sector exceedingly sensitive to variation in interest rates and to devaluation of the Mexican Peso, because a devaluation of the Peso would increase the debt burden initially contracted in dollars. To take an example, if the borrowed capital denominated in dollars is US$ 2 million and in own funds is 50 million Pesos, then at the initial exchange rate of US$1 dollar= 25 Pesos, the gearing ratio of borrowed to own capital would be 1 : 1. However a devaluation of the Peso by say, US$ 1 = 75 Pesos would raise the same gearing ratio 3 : 1.

The increasing risk associated with a higher gearing ratio follows primarily from two facts:

(a) it squeezes the profits of the firm net of interest payments and therefore, has a tendency to diminish the self-financing capability of the firm planning future investment;

(b) a highly geared firm is likely to be very sensitive to upward changes in the interest rate insofar as the burden of interest payment to be met out of profits increases sharply for the more highly geared firms. As a result, a higher-geared firm runs a more serious cash-flow problem as the interest rate rises.

As a broad empirical characterization, it seems legitimate to argue that the successive devaluation of the Mexican Peso from 24.5 Pesos per dollar in 1981 to 45 in February 1982, 70 in September 1982, 150 in December 1982, and 154 in 1983, to a "crawling slide" operative since then, enormously increased the gearing ratio of manufacturing business, by increasing the Peso value of dollar denominated debt contacted earlier by these firms. And increased gearing coupled with a high interest rate have tended to create precarious cash-flow problems for a large number of Mexican firms, pushing them to financially bankrupt positions. The problem is further accentuated by the general squeeze on profitability in a contracting domestic market for reasons mentioned earlier. It could be argued that, at least firms that can export

successfully to earn dollars can benefit from the same devaluation interms of their cash-flow position. But in an economy that has shown little dynamism in terms of non-petroleum export (Table 6), such an escape route is available only to a very small section of manufacturing firms. Indeed, the problem is further complicated by the fact that the majority of export-oriented firms in the manufacturing sector typically have multinational connections. According to available estimates, such firms accounted for about 70% of non-traditional exports: in 1975, they accounted for nearly 40% of capital goods exports, more than 60% of intermediate goods exports and more than 90% of durable consumers' goods exports.[5/] Consequently, it seems legitimate to infer that the cash-flow problem related to a higher gearing ratio probably affected even more severely domestically based firms in the Mexican manufacturing sector that did not have multinational connections. However, the problem is more complicated insofar as subsidiaries of transnational corporations were able to borrow perhaps more heavily during 1978-1981 so that, their external gearing exposure might have been even higher compared to domestically based firms.[6/]

To sum up, the mechanism of transmission of the present financial crisis in Mexico can be analytically separated under the following major heads:

(a) A dramatic fall in the final-use imports, particularly of capital goods which adversely affected both public and private investment from the supply side;

(b) The import bill was reduced absolutely, while the relative composition of imports shifted in favour of intermediate-use imports in an attempt to cope with the problem of utilization if existing capacities;

(c) Lack of short-maturing trade finance adversely affected not only the capacity to import by firms, but also their capacity to export;

(d) The increase in the gearing ratio of the private business sector that came about during the period prior to the financial crisis created a severe cash-flow problem for firms, as the gearing ratio was sharply inflated by successive devaluations of the Peso on the one hand and a high interest rate at home and abroad on the other;

(e) In a relatively stagnant home and export market, highly geared firms faced liquidity problems of cash-flow, often to the point of bankruptcy and were compelled to cut down production and investment because of their precarious financial position, aggravating further the problem of effective demand through the investment-multiplier effect.

SECTION III - FINANCIAL MECHANISMS CREATED FOR DEALING WITH EXTERNAL DEBT AND THEIR IMPLICATIONS FOR THE MANUFACTURING INDUSTRIES

The nature and dimensions of the industrial crisis that has gripped the Mexican economy cannot be comprehended adequately without analysing the new financial arrangements for the servicing of external debt that came into existence following the financial crisis. In a state of manifest insolvency on her foreign exchange account, on August 20, 1982, Mexico announced 90-day moratorium, subsequently extended for a further 120 days, on repayment to banks of all principal on all maturities of public sector debt except for trade related debt and bond issues; also excluded were interbank debt of overseas branches of Mexican banks. Repayment of a significant part of private sector debt was also in arrears by August, 1982.

The moratorium was intended to permit time for discussion of a formal rescheduling to take place. The authorities of the creditor countries reacted swiftly: a facility of $ 925 million was arranged by U.S. authorities, matched by a similar amount by agencies of the BIS, guaranteed by a number of central banks. This provided "bridging finance" until Mexico could reach agreement with the IMF on an adjustment programme and financing. An advisory group, comprising of major commercial banks with substantial exposure to Mexico was formed, while the IMF backed by central banks asked the commercial banks to commit themselves to add another $ 5 billion (implying about 7 % increase in banks' exposure) to ensure the viability of the IMF programme underlying Extended Fund Facility of SDR 3,4 billion. By February, 1983 this $ 5 billion was fully committed, while the banks were compelled and encouraged to roll over or refinance their maturing loans, while maintaining their exposure to the agencies of Mexican banks abroad to avoid total disruption of credit lines. The critical role of BIS - reporting banks in Mexico was to ascertain no drastic reduction in net flowsin the wake of a sudden financial panic. As Table 10 indicates, this was a largely successful operation, emphasizing the fact that banks were "trapped" to lend and Mexico was "trapped" to borrow. Both sides recognized this by the end of 1982.

TABLE 10

Business of BIS reporting banks with Mexico (1980 - 1982)
(in billion U.S. dollars)

	1980	1981	1982
Lending to Mexico	8.7	12.9	10.1
Deposits from Mexico	1.1	2.2	1.1
Net lending to Mexico	7.6	10.7	9.0

Source: Bank of England Quarterly Bulletin, March 1983, p. 49, based on BIS data

Thus, backed by the IMF, a formal agreement of $ 5 billion credit was reached by March 1983. A total of 530 banks agreed to take part in fresh credit relations with Mexico, accepting terms of 6 years with 3 years of grace and interest rates 2.25 % over Libor and 2.165 % over the U.S. Prime. Mexico also requested about $ 2 billion in credit lines for exports from the U.S., France, Germany, Japan, Britain, Canada and Switzerland. A further credit of $ 1.7 billion was granted for gains imports from the U.S. Commodity Credit Corporation during 1983.

One of the most complex issues in the renegotiation of debt was the private sector debt, which stood at 14.0 billion or 17 percent of total debt.[7/] The Mexican government devised several mechanisms to deal with private sector's foreign debt e.g. (a) Private debtors could pay in pesos to the Central Bank and obtain dollars for future delivery as payments became due. (b) To deal with suppliers' credits, Mexican importers could pay the peso equivalent of their obligations to Banco de Mexico to obtain in exchange a dollar-denominated certificate of deposit which earns on par with Libor interest. Such certificate can be assigned to the foreign supplier, allowing him to obtain other financing or to retain it as security of payment. Similarly, all mechanisms of forward cover of private sector debt are handled (since end 1982) through the Fund for Exchange Risk (FICORCA). But, in all cases, a prior agreement to restructure maturities must be obtained from the foreign creditor, while FICORCA only has the obligation to make available

foreign exchange to the private domestic borrower. In brief, financial mechanisms have been broadly set up since 1982 to make foreign exchange available to service private sector debt, provided the private debtors can generate equivalent amount in pesos at an exchange rate that has undergone massive devaluation, imposing a heavy burden denominated in pesos. And, the extent to which the dollar denominated debt of the private sector is serviced by such mechanism of pesos converted into dollars without any corresponding trade surplus by the private sector or an increase in private external debt, the public sector external debt in dollars must increase. Or in symbols, using dollars as the accounting unit, Net increase in external debt (D) = Import (M) + Debt Service (R) - Exports ... (i) assuming reserve position unaltered.
Writing subscript 'p' and 'g' for the private and the government (public) sector respectively, the above identity can also be written as,
Net increase in dollar denominated public debts,

$$\dot{D}g = (M_p - E_p - \dot{D}_p) + R - (E_g - M_g) \quad .... \quad (ii)$$

Since the possibility of increased private borrowing either in the Euro-dollar market or through suppliers credit has become limited and even firms with transnational connections under the present financial crisis are unable to borrow from their parent companies on a significant scale, increase in private debt ($\dot{D}_p$) may be assumed to be relatively small (unless large foreign private investment takes place), so that, debt service averaging about $ 13 billion per year over the coming three years (1984-86) has to be met from trade surplus mostly created in the government sector. The private sector traditionally had a trade deficit ($M_p - E_p$, negative) in recent years and heavy import dependence, so that it cannot be expected to create a significant trade surplus either. This implies conversion of private external debt into public debt probably through an increase in net public debt by the extent, private deficit plus debt service exceeds trade surplus of the public sector (mostly oil), as shown by the decomposition in equation (ii) above.

The main thrust of the above argument is to emphasize a simple fact which is often recognized, but seldom underlined. The new financial mechanisms and institutions for dealing with private debt are essentially designed to ensure private debt servicing through availability of foreign exchange. This will probably entail a shift in the composition of debt in favour of public external debt over time. However, these mechanisms do not have any significant "additionality" in the sense of relaxing the foreign exchange constraint on industrial growth; at best, they only relax somewhat the foreign exchange constraint on the private sector at the cost of imposing a more severe constraint on the public sector. This would typically imply an excess of private savings over private investment in domestic currency, converted to a more or less equivalent amount of increase in external debt of the public sector net of change in the reserve position of the central bank.[8/]

In this context, it would be interesting to speculate whether the consequent drop in public investment caused partly by the I.M.F. - backed stabilization programme to reduce the public sector deficit as percentage of GDP from 17 % in 1982 to 8.5 % in 1983 and 5.5 % in 1984 and also partly by the tightening of the foreign exchange constraint on the public sector investment through the 'new' financial mechanisms described above - affects private investment in a positive or in a negative manner. Table 11 provides some broad indication on this point of the relation between public and private investment. It is plausible to argue on the basis of the Table 11 that there is very little evidence of "crowding out" of private investment by public investment, as often argued by the monetarist economists (especially, 1978-80); except for the year 1981, private and public investment seem to maintain a complementary (positive) relation of moving in broadly the same direction.

TABLE 11

Relation between public and private investment in Mexico
(1978 - 83) (as percentage of GDP)

Year	1978	1979	1980	1981	1982	1983[a)]
Total gross investment	23.5	26.0	28.0	29.0	21.0	13.0
Private investment	16.5	18.0	18.5	16.0	10.5	5.5
Public investment	7.0	8.0	9.5	13.0	10.5	8.0

a) provisional personal estimate.

Source: Reliable domestic estimates.

And, it seems also plausible to argue that public investment is the relatively more autonomous variable for managing the level of effective demand, as it can be made less sensitive to uncertain profit expectations, whereas private investment is largely dependent on the state of the effective demand in the economy. Consequently, a squeeze on private investment can take place through a sharp reduction in public investment, as seems to be the case in Mexico since 1982.

The broad argument outlined in this section can therefore be summarized as follows: the 'new' financial mechanisms created since the debt crisis of 1982 in Mexico were largely aimed at making foreign exchange available at the appropriate time for the private sector to meet its obligations for servicing external debt. This, in turn, tightened the foreign exchange constraint operating on the public sector economic activity in general and public investment in particular. In addition, the IFM-supported programme of reducing the public sector deficit as percentage of GDP imposed further local currency constraints on public investment. Since public and private investment seem to have maintained a relationship of complementarity rather than substitutability in recent years in Mexico (1978-83), the reduction in public investment, instead of creating space and stimulating private investment, led to a <u>simultaneous reduction</u> in both types of investment. Thus the overall effect has been

compounded, leading to a fall in investment by both the public and the private sector. And the transmission of the financial crisis into an industrial crisis has engulfed not only the public sector but also private business.

SECTION IV - DIMENSIONS OF THE INDUSTRIAL CRISIS

The dimensions of the industrial crisis in Mexico that has been triggered off by the severe financial crisis emanating from the obligation of servicing an outstanding external debt exceeding 85 billion dollars (Table 7) can be comprehended in terms of broad numbers of overall economic growth. Prior to the crisis, the GDP in Mexico maintained an average growth rate well over 8 per cent per annum. In every single year between 1978 and 1981, the annual GDP growth rate was over 8 %. However, following the crisis of 1982, the GDP growth rate actually turned negative: it was - 0.2 % in 1982 and was in the neighbourhood of - 5 % in 1983[9/]. In the first quarter of 1984, GDP might have fallen by another 1.5 percentage points. According to various available estimates and impressions by economic journalists, retail sale dropped by some 25 % between 1982 and 1983; private investment dropped during the same period between 40 and 50 % (see also Table 11), while consumer purchasing power was estimated to have dropped between 30 to 40 % in one single year.

While the overall level of economic activity took a sharp negative turn, its impact was uneven among various productive sectors of the economy contributing to GDP. Breakdown of available data for 1981 and 1982 suggest that, except for three major sectors - petroleum, electricity and financial services - all other sectors registered a negative growth rate already in 1982 and this pattern is likely to have been more or less unaltered in 1983. Table 12 below gives a more detailed breakdown of the behaviour of GDP in 1981 and 1982 by the major sectors.

TABLE 12

(Computed at 1970 constant prices)

	Annual percentage change over previous year		Percentage sectoral weight (1982) in GDP
	1981	1982	
GDP	8.0	- 0.2	100
Agriculture and related activities	6.0	- 0.5	9
Mining including petroleum	15.5	9.5	4
Manufacturing	7.0	- 2.5	24
Construction	12.0	- 4.0	6
Electricity	8.0	7.5	2
Commerce	8.5	- 1.5	25
Transport and Communication	10.5	- 2.5	8
Financial and other services	6.5	4.0	22

Source: Reliable domestic estimates.

The most striking aspect of Table 12 is the deceleration in the growth rate in every major sector of the economy in 1982 over its previous level; indeed, the deceleration was strong enough to make the growth rate negative in most sectors, except petroleum, electricity and financial services mentioned above. The same tendencies towards further deceleration are likely to have been greatly accentuated in 1983 and perhaps in the first quarter of 1984 to result in a negative growth rate of nearly 5 percent in GDP in 1983 compared with only - 0.2% in 1982.

TABLE 13

Ranking of sectors with above-average (percent) rate of decline	Decline in 1982 over 1981	
	Percentage points	Absolute decline at 1970 prices (billions of Mexican pesos at 1970 prices)
1. Construction	- 4.0	- 2.0
2. Manufacturing	- 2.5	- 5.5
3. Transport and Communication	- 2.5	- 1.5
4. Commerce	- 1.5	- 3.5

Source: Derived from Table 12 and same sources

It is useful to note that in Table 13, the two very adversely affected sectors - construction and transport and communication - roughly belong to economic and social infrastructural facilities, mostly lying in the sphere of public sector economic activity. It is therefore plausible to suggest that social and economic infrastructural development have been most severely affected in Mexico as a result of the current economic crisis, measured in percentage points. And, the extent to which these sectors are characterized by large external economies for the rest of the productive sectors, sharp deceleration in their production, creates problems for efficient functioning for the rest of the economy. These problems and their full impact may not be immediately visible in the short-run except in unemployment rates but lack of adequate infrastructural facilities would gradually build up more serious problems in the longer run. This also suggests that the dimensions of the current economic crisis in terms of decline in production entails a kind of "trade-off" between current production and future productive capacity of the economy because, sectors that are crucial for maintaining and augmenting future productive capacities of the economy in terms of 'economic overheads' had to undergo the most severe squeeze following the crisis.

However, it is slightly misleading (in Tables 12 and 13) to describe the dimensions of the present economic crisis exclusively in percentage terms. This is because construction, transport and communication together have a relatively small base on which the percentages are calculated, accounting for only 14 % of GDP (Table 12). In contrast, commerce and manufacturing each contributes about 1/4th of GDP (Table 12) so that, their larger base entails a much larger absolute reduction in production. Indeed, more elaborate statistical investigation bears out the point; in absolute terms, at 1970 constant prices, commercial activities declined from 235 billion pesos in 1981 to 231 billion pesos in 1982 i.e. by 4 billion pesos. Similarly, manufacturing output declined from 224 billion in 1981 to 219 billion at 1970 prices i.e. by 5.0 billion pesos. In constrast, output of construction sector declined from 52 (in 1981) to 50 (in 1982) by 2.0 billion pesos and that of transport and communication went down from 69.5 billion pesos (in 1981) to 68.0 billion pesos (in 1982) i.e. about 1.5 billion pesos. Thus, as the last column of Table 13 shows, the absolute decline in the level of economic activity was the highest for the manufacturing sector among all the sectors of the economy.

In this sense, the present economic crisis has a most pronounced industrial dimension with the manufacturing sector being hardest hit in absolute terms. And perhaps, even its future is partly crippled by sharp declines in economic overheads and infrastructural facilities, as pointed out earlier [10].

More disaggregated information about the nature and pattern of contraction in the manufacturing sector by individual industrial branches is not yet systematically available. However, some useful insights into the process of contraction of manufacturing industries under the impact of the recent financial crisis can be obtained by disaggregating the data as far as possible, as shown in Table 14, for the same year 1982.

TABLE 14

Composition of decline in manufacturing output for some major sectors, 1982 (percentage decline over 1981 level)

Industrial branch ranked in order of percent contraction	Percent change in 1982 over 1981 level of output
1. Trucks	- 33.0
2. Automobiles	- 21.0
3. Copper	- 19.0
4. Steel	- 7.5
5. Iron	- 7.0
6. Alcoholic beverages	- 2.5
7. Synthetic fibre	- 0.5
Sectors without declining output in 1982	
8. Fertilizers	+ 15.0
9. Basic chemicals	+ 3.0
10. Cement	+ 7.5

Source: Reliable domestic estimates.

Table 14 is suggestive insofar as it shows a decline in some capital goods (e.g. trucks), some consumers' goods (e.g. automobiles, beverages, fibres) as well as some raw materials (e.g. copper, steel, iron) production. From the point of view of economic theory, this suggests the lack of operation of any simple "acceleration principle" or a "propagation effect" resulting in contraction from consumers' goods industries transmitted to capital goods industries; indeed, the time-lag involved in such propagation of contractionary effect is likely to be considerably longer than can be captured by the annual figures of 1982 over 1981.

A related point is the contraction in some major raw materials production (e.g. steel, iron and copper), while some other raw materials (e.g. fertilizer, basic chemicals and cement) showed expansion during 1982. When considered in conjunction with the earlier tables 6 and 8 depicting changes in volumes and patterns of imports by broad categories during the same period, it is useful to remember that some of the domestic production of raw materials require imports of other types of raw materials for production and the deceleration in their production may be partly explicable in terms of this supply side constraint imposed by limited imports. On the other hand it is also possible that some raw materials (e.g. steel, iron, copper) registered negative growth, perhaps primarily due to the existence of a demand constraint in their final-use industries (e.g. trucks and automobiles). Thus the decrease in branch-wise industrial production suggest a complex interplay of decreased demand from the user industry and final demand on the one hand and a more stringent supply constraint, largely imposed through a lower ability to import. The statistical decomposition between the demand-side effect and the supply-side effect of the overall economic contraction is not yet possible[11/], but the wide range of industries subject to serious contractionary effect during 1982 (table 14) suggests the operation of both these elements in the Mexican economy under the impact of an all-embracing financial crisis.

In this context, a little more clarity on the question of demand and supply-side constraints in reducing domestic production is perhaps possible by analysing the available information on the time-pattern of contraction in 1982 by quarterly data. This is shown in Table 15. By the third quarter of 1982, at the height of the financial crisis, the biggest drop was in the index of machinery and equipment (-50.0) over the previous quarter, followed by durable consumers' goods (-34.0) while raw materials and non-durable consumers' goods had a relatively modest fall during the same quarter at -14.5 and -9.0 measured by the same index. Since, both machinery and equipment as well as durable consumers goods are final-use items, their disproportionately large drop in relation to raw material production suggests the strong influence of the final demand constraint in addition to the import squeeze resulting from the severe supply constraint.

TABLE 15

Quarterly change in manufacturing production.
the time-pattern of contraction
(index, 1970 level = 100)

Type of goods		Over previous quarter of 1982		
		II	III	IV
Total consumers goods	- 1.0	- 1.8	- 13.0	n.a.
Non-durable consumer goods	+ 1.0	- 3.3	- 9.0	n.a.
Durable consumer goods	- 9.5	+ 6.0	- 34.0	n.a.
Total capital goods	- 2.5	- 2.5	- 18.5	n.a.
Machinery and equipment	- 3.0	+ 1.0	- 50.0	n.a.
Raw materials	- 2.3	+ 3.0	- 14.5	n.a.

Source: Reliable domestic estimates.

To sum up, the contraction in the level of economic activity in general and manufacturing activity in particular assumed serious proportions by 1982. And this contractionary process continued to accelerate throughout 1983 although reliable quantitative data is not yet available. In this contractionary process, a tightening supply-constraint triggered off by sudden import restrictions played an important role. But the process of downward movement in domestic production, particularly in the manufacturing sector was further aggravated by declining demand brought about through fall in inter-industry use as well as reduction in final demand. The vulnerability of a heavilly import-dependent industrial sector was thus aggravated by a decline in demand in the next phase of the contractionary process.

SECTION V - ADJUSTMENT COSTS IMPOSED BY EXTERNAL DEBT SERVICING AND SUGGESTIONS FOR NEW FINANCIAL MECHANISMS FOR REDUCING ADJUSTMENT COSTS

The broad features of macro-economic changes undergone by the Mexican economy since the financial crisis of 1982 can briefly be summarized.

(1) It involved a large reduction in domestically produced output - the output growth rate was -0.2 % in 1982 and - 5.0 % in 1983, with a more than proportionate fall in import level (Table 6). At the same time, the export level was more or less stable around 22 billion dollars, mostly accounted for by oil exports and some increase in manufactured exports. This entails a shift in domestic composition of output from non-traded to traded goods for servicing the massive outstanding external debt.

(2) During 1982-83, imports fell not only in absolute amount (Table 6) but the composition of imports also shifted in favour of raw materials needed to sustain existing domestic capacities (Table 8). The constraint operating particularly on the import of final-use goods implied drastic reduction in capital goods imports and constrained both private and public investment from the supply side.

(3) The reduction in public and private investment led to corresponding reduction in the size of the domestic market through the "multiplier effect". Consequently, reduced effective demand, further compounded by a fall in real wages and inflationary redistribution of income in conjunction with the above mentioned supply constraint from the import side, led to significant deceleration in the momentum of growth in production in every single major productive sector of the economy (Table 12).

(4) Although the deceleration of growth was uneven among sectors, the manufacturing sector and economic overhead and infrastructural investment were most severely affected. In absolute terms, the manufacturing sector had the maximum drop in output while, in percentage terms, infrastructural facilities like transport, communication and construction suffered the most (Table 13).

(5) At the micro-level, manufacturing firms with very high indebtedness and a rapidly increased debt to equity ratio during the period of financial expansion of 1979-81 stood highly exposed to the financial risk of monetary insolvency: their financial profits were squeezed while their interest payment commitment had increased dramatically, straining in many cases their cash-flow position to the point of bankruptcy. Such a climate naturally discourages private investment, while the I.M.F.-sponsored policy of drastically reducing public sector deficit also squeezed public investment.

On the whole, it could therefore be said that the "financial discipline" of a stabilization programme squeezed both the expansion of potential output resulting from investment and current output. Thus, the utilization of existing capacities are low and the pace of industrialization has grossly slowed down since 1982. However, it needs emphasis that the basic analytical content of this "financial discipline" is essentially to make the servicing of external debt (public and private) possible in foreign exchange. This requires generating significant trade surplus and, as has been already seen (Table 6) Mexico was successful in generating such significant export surplus - almost 8 billion dollars in 1982 and over 13 billion in 1983 despite severe reduction in domestic output (Table 12).

Nevertheless, the creation of such export surplus in the present context had very serious adjustment costs associated with it which must also be recognized. On the one hand, it meant a shift in the composition of domestic production (GDP) in favour of tradel rather than domestically consumed goods, as the share of exports in GDP rose. And, on the other hand, this shift had to be brought about by a dramatic squeeze of the total import bill which fell by nearly 40% between 1981 and 1982 and by another 38 % between 1982 and 1983 (Table 6). The cost of adjustment is then twofold: (1) domestic total (and per capita) consumption and investment fell drastically, as a higher proportion of GDP was exported simply to service debt and, (ii) the level of GDP fell, as imports kept being reduced throughout 1982 and 1983.

How this complex problem of lack of sufficient vertical integration combined with lower domestic demand can affect a manufacturing industry can be illustrated briefly by means of the recent experience of the Mexican automobile industry (for which some relevant data are available).

The automobile industry as a whole experienced very sharp drop both in production and in sales during the current recession, as the following Table 16 shows in some detail by comparing figures for the first half of 1982 and 1983.

TABLE 16

Drop in new passenger car sales (in thousands)

Company	Jan-June 1982	Jan-June 1983	Drop
Chrysler de Mexico	25.8	12.2	- 52.6
Ford Motor Company	22.1	14.3	- 35.3
General Motors de Mexico	13.1	7.2	- 45.2
Niisan Mexican (Datsun)	24.7	21.3	- 13.6
Renault de Mexico	10.9	9.2	- 15.4
Vehiculos Automores Mexicanos (Ramblers,Jeep)	5.7	0.3	- 95.0
Volkswagen de Mexico	64.4	39.8	- 38.2
Trucks	113.8	43.2	- 62.0

Source: Mexican Automobile Industry Association
(reported in Lloyd's Mexican Report, November, 1983).

This must raise a question of predominant importance in the present context. Are there alternative financial mechanisms which can alleviate such exceedingly high adjustment costs for servicing external debt? In order to answer this question, it must first be recognized that the costs imposed on the economy for generating the export surplus needed for the servicing of external debt have been imposed in a rather haphazard and arbitrary manner under the compulsions of the present "stabilization programme". For example, when the overall import bill is squeezed, trade-related external finance of short maturity is also drastically reduced. Consequently, firms which, for whatever reasons, are able to have access to their external financing of trade (e.g. branches of multinationals) would be in a better position irrespective of the type of commodities they import or export. A more imaginative and coordinated financial mechanism is needed for trade financing both on the export and on the import side, which would be more selective in keeping with national priorities during such adjustments.

Secondly, the very large reduction in manufacturing output, perhaps the most severely affected sector in the economy in absolute terms (Table 13), points to the possibility that the output reduction in this sector was caused not only by the shrinking size of the domestic market for manufactured goods, but also due to lack of crucial import items needed to maintain a higher level of utilization of existing domestic capacities. Although efforts were visible in terms of shift in the composition of import from final - to intermediate - use (Table 8), the reduction in the total import bill was so severe that the manufacturing industry was frequently starved of even essential maintenance imports. This can be assumed to be a fairly general feature of the manufacturing sector in most developing (particularly newly industrializing) countries: the lack of vertical integration in their manufacturing or industrial structure make capacity utilization highly sensitive to the availability of crucial, imported raw materials.

The phenomenal drop in automobile sales, resulting in excess capacity, ranging between 30-70 per cent in most existing factories is only partly accounted for by the drop in demand. The other important element is the drop in production brought about by inability to import essential items needed as parts or maintenance imports in the production process. According to available information, on an average the passenger car manufacturing directly and indirectly used around 50 % imported items in total ex-factory value added, while trucks and jeeps used around 40 %. This is indirectly borne out also by the massive trade deficit caused by domestic manufacture of automobiles[1 2/]. Thus, as Table 17 shows, the automobile production in Mexico actually was a serious burden on the foreign exchange position of the economy rather than being an 'import-substituting' item. And, a reduction in the level of automobile production actually improved rather than worsened the trade balance on account of domestic automobile production, because of their very large import component in relation to exports of final automobiles.

TABLE 17

(in million dollars)

Year	Trade deficit on account of automobile production	% of national deficit
1971	285	27.7
1981	2.148	57.7
1982	0.730	national trade surplus in 1982 (Table 6)

Nevertheless, the automobile manufacturing sector cannot be treated in isolation, because it was also an important user of other domestically produced goods. In particular, reduction in automobile production led to an immediate reduction in the demand for domestically produced steel. Domestic demand for steel fell by 40 % in 1983 due to general reduction in manufacturing output including automobiles (Tables 13 and 16). As

a result, production of iron and steel was cut back by 30 % to about 4.3 million tons in the public sector. Nor was it possible to reduce such shock of contraction in output through interindustrial chain reaction by means of higher exports. For example, export of steel to the United States in 1983 was resisted by protectionist argument from the American steel industry and related interest groups.

Although in the absence of more detailed information of the extent of vertical integration in various branches of Mexican manufacturing industry (which is shown by the inverted Leontief input-output matrix $(I-A)^{-1}$), it is not possible to conduct such analysis further, the broad point emerges clearly even from the sketchy information on the automobile manufacturing process. The deceleration in production and sale of domestically produced automobiles in Mexico by -21 % between 1981 and 1982 and about - 45 % between 1982 and 1983 highlights the general nature of the problem in a particular context. Even if the initial drop in output and sales is caused partly by lack of effective demand and partly by lack of adequate spares and maintenance imports, it soon may trigger off a chain reaction through interindustrial interdependence. Thus, a supplying industry (like steel) may be faced with lower effective demand and the user industries (like transport and communication) may not be provided with adequate trucks etc., because of the forced drop in domestic production under the stringent import restrictions. In this manner, the reduction in the level of activity of any one industry has adverse interindustrial repercussions on related industries. However, the overall impact of such repercussions i.e. the strength of such negative chain reactions depends on the quantitative and qualitative aspects of the interindustrial network, captured by Leontief input-output analysis for which data is not available relating to the 1982 or 1983 industrial structure. In this context, it can hardly be doubted that the total cost of reduced output through such an interindustrial chain reaction is typically likely to outweigh the original cost of maintenance imports. Or to put it differently in terms of foreign exchange costs only, the amount saved through restricting maintenance imports is likely to be only a small fraction of the value of output foregone in foreign exchange in most instances.

The above type of consideration points to the basic economic rationale of imaginative programme financing mechanisms in the industrial sector. The final output or industrial product has to be looked upon as the outcome of a vertically integrated process of production. And, at times of a financial crisis making imports especially scarce, the programme finance must attempt at providing the required foreign exchange at all levels of the vertically integrated production plan, at least in the form of maintenance imports. Disparate financing of projects, instead of such a vertically integrated programme, is less valuable insofar as it does not take adequately into account the existing industrial structure and adequate utilization of existing capacities which is the most pressing problem in many developing countries in the grip of a sudden financial crisis. Indeed, such imaginative programme financing permits to make a smoother transition to what the economy is forced to achieve under compulsion, namely a shift in the composition from final-use to intermediate-use imports (Table 8). This process could be made less painful and far more efficient in economic terms, if the mechanism of programme financing could be directed first at carefully choosing the industrial branches and commodities as end-products and then, at providing for finance in all the required intermediate steps. It is not always recognized that a major benefit of this would be to prevent inter-industrial contraction in output through the kind of chain-reaction elaborated above, that would otherwise have taken place due to shortage of essential maintenance imports.

To summarize, even on a very limited scale and without major net resource flows, the adjustment cost of the industrial sector could be reduced during a financial crisis by paying special attention at least to two particular areas of finance. First, trade-related short maturing finance needs to be provided on the basis of national priorities and not simply be left to the arbitrary criterion of access to external sources of credit by individual firms. Second, some commodities/industries that are considered especially important either because of their final-use or intermediate interindustrial connections would need to be programme-financed in a systematic and imaginative manner by examining their production

as a vertically integrated process. In contrast to isolated project finance, the purpose of such programme financing is to maintain and facilitate domestic production from the supply side by providing for the required maintenance and other necessary imports so that, input requirements at all the stages of that vertically integrated production process are satisfied. The "supply-shock" of an import squeeze could be partly cushioned by this strategy. Programme financing rather than isolated project financing then emerges as a crucial instrument to deal with "supply shocks" imposed by a serious financial crisis.

FOOTNOTES

1/ Claudia Schatan, "Effectos de la liberalizacion del commercio exterior en Mexico", Economia Mexicana, Num 3, 1981, CIDE p.79. On the same subject, for a longer view, see J. Ros and A. Vazquez, "Industrializacion y Comercio exterior 1950-1977", Economia Mexicana, CIDE, num 2, 1980.

2/ Source same as Table 4.

3/ E.G, the lack of self-sufficiency in important food items does not permit consumer goods item to fall below its estimated 1983 level in short-term without serious problems.

4/ Tentative personal calculation based on rudimentary data.

5/ Kurt Unger, The importance of foreign firms in trade and manufacturing in Mexico (mimeo, 1983). The export weight of foreign-linked firms seem to have decreased slightly since 1978, but exhaustive industrial census data permit classification relating to 1975 as the latest available bench-mark.

6/ See Robert B. Cohen, "The debt crisis and bank lending to subsidiaries of transnational corporations in Latin America" (mimeo, 1984).

7/ This estimate based on reliable data is in sharp contrast to other private researchers' estimates which put private sector debt at a much higher figure.

8/ Analysis of redimentary financial data for 1982 and 1983 does suggest this to be the plausible outcome: excess of private savings over investment as percentage of GDP jumped from 9.8% in 1981 to 15.7% in 1982 according to computations (unpublished) carried out by Angel Calderon.

9/ The New York Times estimates -4 % while preliminary analysis of Bank of Mexico data suggest a figure of about - 4.7 % according to information available in March, 1984.
Cf. Mexico News, World Paper, March, 1984 which roughly tally with estimates by the present author on private investment (Table 11) and lagged adjustment of salary to prices taking into account increased unemployment rate.

10/ To the extent, a part of commercial activities provides the necessary economic overheads for marketing of manufacturing output, the decline in commercial activities (Table 13) would also affect adversely the future of manufacturing industries.

11/ Could be attempted in terms of standard input-output techniques with import separated for each "cell" and final demand independently computed, if relevant data for 1982 were available.

12/ Made public under "the national programme for the rationalization of the automobile industry (Sept. 13, 1983) statement by Minister of Commerce and Industrial Development).