

EMPLOYMENT PAPER

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Trade liberalization in Mexico:
Its impact on growth,
employment and wages

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Fore word

This is one of the case studies prepared within the framework of the research project on “global economic integration and employment policy” carried out by the Employment Policy Department. The case studies are designed to provide detailed empirical assessment of the effects of growth of manufactured trade, induced by trade liberalization, on manufacturing employment and wages in a carefully selected set of countries. While there is widespread concern about the effects, they remain inadequately understood. There exists a large literature on the experience of industrialized countries, but controversies abound. On developing countries, the literature is extremely limited. Given this backdrop, the case studies are expected to make a substantial contribution to our understanding of the changes being engendered by globalization, a subject of much current interest to international organizations, national policy makers, the academic community and civil society organizations.

The experience of Mexico, the paper argues, shows why economic policies cannot be based on simplistic propositions such as “openness is good for growth and development”. At first sight, Mexico appears to have been one of the most successful liberalisers; reform of trade and investment regimes led to quite dramatic growth of manufactured exports and inflows of foreign capital. But a closer look reveals that the main effect of these developments has been a de-linking of trade from growth. Despite the boom in exports and the massive inflows of foreign capital, the Mexican economy has performed very poorly in terms of economic growth, employment and wages. The analysis presented in the paper shows that the growing openness has had two main effects. First, it led to a rather unexpected kind of restructuring of the older industries; the capital-intensive industries (such as automobiles) flourished while labour-intensive industries declined (Mexico was expected to have a comparative advantage in labour-intensive manufactures). The result has been declining employment and wages for low-skilled labour, weakening of the wage-productivity linkage and growth of wage inequality. Second, it has led to the emergence of new “enclaves” that merely serve as bases for assembly operations and have little linkage to the rest of the economy. The *maquiladora* industries have shown a rapid growth and have created employment opportunities for mainly low-skilled labour (thereby compensating to an extent for the job losses in the older industries) but have done little to generate a dynamic growth process in the Mexican economy.

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1. Introduction

According to the “Washington Consensus” programme of economic reform, one global effect to be expected from trade liberalization is a rapid expansion of exports from developing countries (DCs), including labour-intensive manufactures. The idea is that this will promote growth and lead to an improved micro- and macroeconomic performance, since the economy-wide behaviour of most economic variables in DCs tends to depend quite critically on what happens to their counterparts in the export sector.

However, after worldwide liberalization of trade, only a few DCs have experienced a significant expansion of manufactured exports. In fact today, just nine countries (including Mexico) account for nearly 90 per cent of all manufactured exports from DCs.¹ From this perspective, the study of the Mexican experience is particularly important not only because it is the only non-East Asian country in this “group of nine” DCs, but also (and crucially) because it is the sole case in which the rapid expansion of manufactured exports has taken place alongside a process of swift trade liberalization and radical 'neo-liberal' economic reforms. At the same time, the analysis of the Mexican experience has an added significance: Mexico's export expansion took place in a context of both massive inflows of foreign direct investment (FDI) and practically unrestricted market access to the United States - aspects central to the growth agenda of all DCs' today. In this sense, Mexico reflects the aspirations of most DCs: for most of them, particularly in Latin America, their growth strategy today could be summarized as one of desperately seeking FDI and market access. Therefore, Mexico's post-reform experience provides an ideal scenario for assessing their real impact on growth and catching up.

Trade liberalization began with President De la Madrid, who took office in the midst of the 1982 debt crisis. In terms of growth of manufactured exports, Mexico has never looked back: in constant US dollar terms, manufactured exports (including those of so-called *maquila* activities) grew from US\$ 8 billion in 1981 to US\$ 145 billion in 2000, a figure similar to that of the Republic of Korea.² This 19-fold increase (equivalent to an average growth rate of 17 per cent per annum) brought the share of these exports in the country's total goods exports to 80 per cent (from less than 10 per cent in 1981).³

Even bearing in mind that there are few DCs that are in a similarly convenient geographical position (at least as far as manufactured exports are concerned), have such a preferential access to the United States market (via the North American Free Trade Agreement (NAFTA)⁴, and have received a comparable flood of FDI, the performance of Mexican manufactured exports since 1981 has been truly exceptional. However, extraordinary as it is, this export expansion has had a far more complex - and certainly

¹ World Bank (2002) and INEGI (2002); INEGI is the statistical office of the government; see Appendix. Throughout this paper, billion means thousand million. The nine DCs (and their respective shares) are: China (23 per cent), Korea (14 per cent), Taiwan, China (13 per cent), Mexico (12 per cent), Singapore (11 per cent), Malaysia (7 per cent), Thailand (4 per cent), Philippines (3 per cent) and Indonesia (3 per cent). For the calculation of these ratios, 'DCs' exclude high-income OECD countries and ex-communist countries from the former Soviet Union and Eastern Europe

² Unless otherwise stated, all US\$ figures in this paper are of US\$ 2000 value.

³ In 2000, Mexico's manufactured exports were 3.5 times greater than those of Brazil and Argentina taken together. In terms of overall merchandise exports, Mexico's share in the Latin American total doubled from just less than one-quarter to about one-half.

⁴ In 2000, over 90 per cent of Mexican exports went to the United States.

weaker than expected - impact on the Mexican economy as a whole, especially on growth, investment, productivity and wages. In particular, it has been associated with both a collapse of the export multiplier and a delinking of the export sector from the rest of the economy. This has produced a situation in which increasing export competitiveness has had little effect on growth and living standards. The main aim of this paper is to investigate into these rather puzzling developments.⁵

2. An overview of Mexico's economic performance over the last 30 years

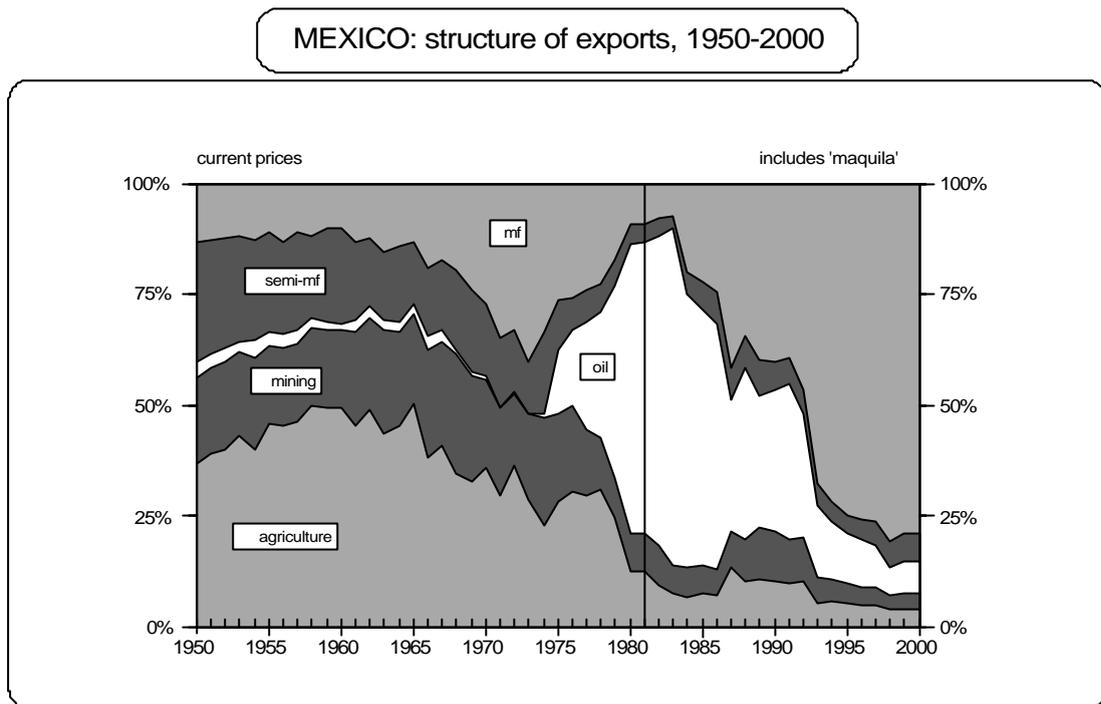
Among the many distinctive features of Mexico's economic performance over the last three decades, seven 'stylised facts' stand out. The first is the rapid expansion of manufactured exports since 1981; and, associated with this phenomenon, the increasing opening up of the United States' market and a large inflow of FDI into the country. The second is the progressive 'de-linking' of the manufacturing export expansion from the rest of the economy, and the rapid decline of the export multiplier; this has led to a decline in the overall performance of the economy, especially in terms of growth of GDP, investment and productivity. The third is the rather unexpected outcome of the attempt to change drastically the structure of relative prices -- in order to 'get the prices right' -- to which trade liberalisation in the mid-1980s was just one input. The fourth is the rapid development of a 'maquila' sector, associated with assembly-type manufacturing export activities in the frontier states. The fifth is the poor overall performance of the 'non-maquila' manufacturing sector. The sixth is that the 'revealed' comparative advantage profile of the 'non-maquila' manufacturing sector shows some peculiar characteristics, which are difficult to interpret from the perspective of mainstream trade theories. Finally, a new and growing gap has emerged between productivity-growth and wage-growth, resulting in a rapid decline in the share of wages in GDP.

2.1 The amazing growth of manufacturing exports since the 1982 crisis

Figure 1 shows the rapid increase in the relative share of manufactured exports in total exports (from 8 per cent to 80 per cent in less than twenty years). Even excluding oil (to avoid the distortions introduced by the sharp price fluctuations), the share of manufacturing exports has still increased massively since 1982 -- from 25 per cent to 85 per cent (Figure 2).

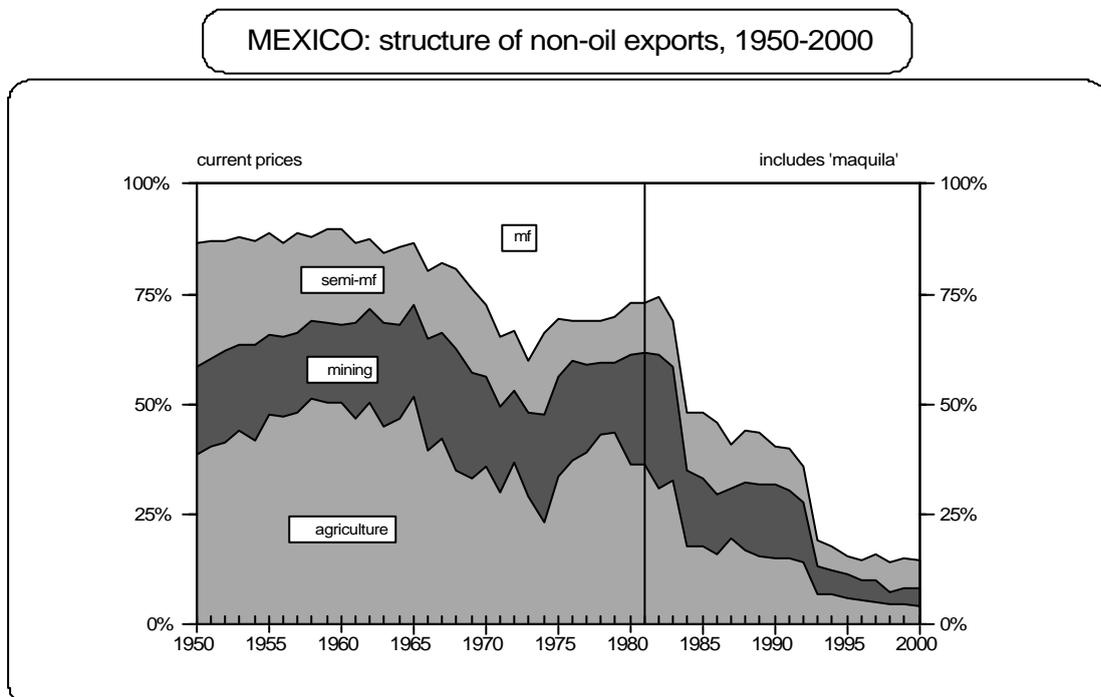
⁵ This paper compares the performance of the Mexican economy during this period with the prognosis made at the beginning of these economic reforms by their main proponents. For this purpose, the forecasts made by De la Madrid's Government in its 1984 neo-liberal economic manifesto the *Programa Nacional de Fomento Industrial y Comercio Exterior* (The National Program for Industrial Development and Foreign Trade) (see PRONAFICE, 1984) are used.

FIGURE 1



- **[mf]** = manufactured exports; **[semi-mf]** = semi-manufactured exports (mainly processing of primary products); **[oil]** = oil exports; **[mining]** = non-oil mining exports; and **[agriculture]** = agricultural exports.
- *Source:* ECLAC database.

FIGURE 2



- **[mf]** = manufactured exports; **[semi-mf]** = semi-manufactured ones (mainly processing of primary products); **[mining]** = non-oil mining exports; and **[agriculture]** = agricultural exports.
- *Source:* as in Figure 1.

Four main factors account for this phenomenon. Firstly, the severe recession of 1982 forced many manufacturing producers to substitute foreign markets for rapidly declining domestic ones in a desperate bid for survival (the so-called 'distress exports'). Secondly, the United States government -- always fearful that worsening economic problems in Mexico (following the 1982 debt crisis) could turn the usual flow of Mexican immigrants into a tidal wave -- gave Mexican exports increasingly preferential access to the United States market, a process that eventually led to the creation of NAFTA.⁶ Thirdly, in Mexico, trade liberalisation and economic reform in general were part of a new politico-institutional settlement (characterised by a new distributional coalition and a different structure of property rights and incentives⁷) that was not only attractive to capital in general, but to FDI in particular. Finally, the long and relatively successful period of import-substituting industrialisation (ISI) in Mexico had not only generated a significant amount of 'complementary capital'⁸ and a substantial industrial sector, but had also produced a critical mass of both middle-management and skilled labour; these factors, coupled with an abundance of cheap labour, made Mexico an ideal production-platform for the United States market.

Figure 3 shows that not only did manufactured exports grow in quantity, but, unlike the rest of Latin America, Mexico also witnessed a significant increase in the share of 'high technology' exports. Because of this rapid expansion of 'high-technology' exports, Mexico's share in the North American market for 'high-technology' products grew from 4.7 per cent in 1985 to 10.6 per cent in 2000.⁹ For example, by the latter year, the export share of telecommunications equipment grew to 6 per cent of total Mexican exports; the automatic data-processing machines sector moved from a situation where it did not export at all (1985) to accounting for 5 per cent of the total in 2000 (in 2001, just one company in this sector, IBM Mexico, had total exports of about US\$ 3 billion); also, in the "television, radio, and related transmitters and receivers" sector (mainly following investment by Nortel, Nokia and Motorola), Mexico's share in world exports had grown to 7.4 per cent (up from 1 per cent in 1985, an increase in the market-share larger than that of China).¹⁰

⁶ Of all of Samuelson's economic hypotheses, there has probably been none that has influenced United States foreign policy as much as the one that postulates that an increased level of trade between two countries, by tending to equalise factor prices among countries, should reduce the incentive for the movement across frontiers of the factor of production that is abundant in each country -- at the time of the creation of NAFTA, there were already well over ten million Mexicans living in the United States (some estimated indicate a figure as high as 15 million).

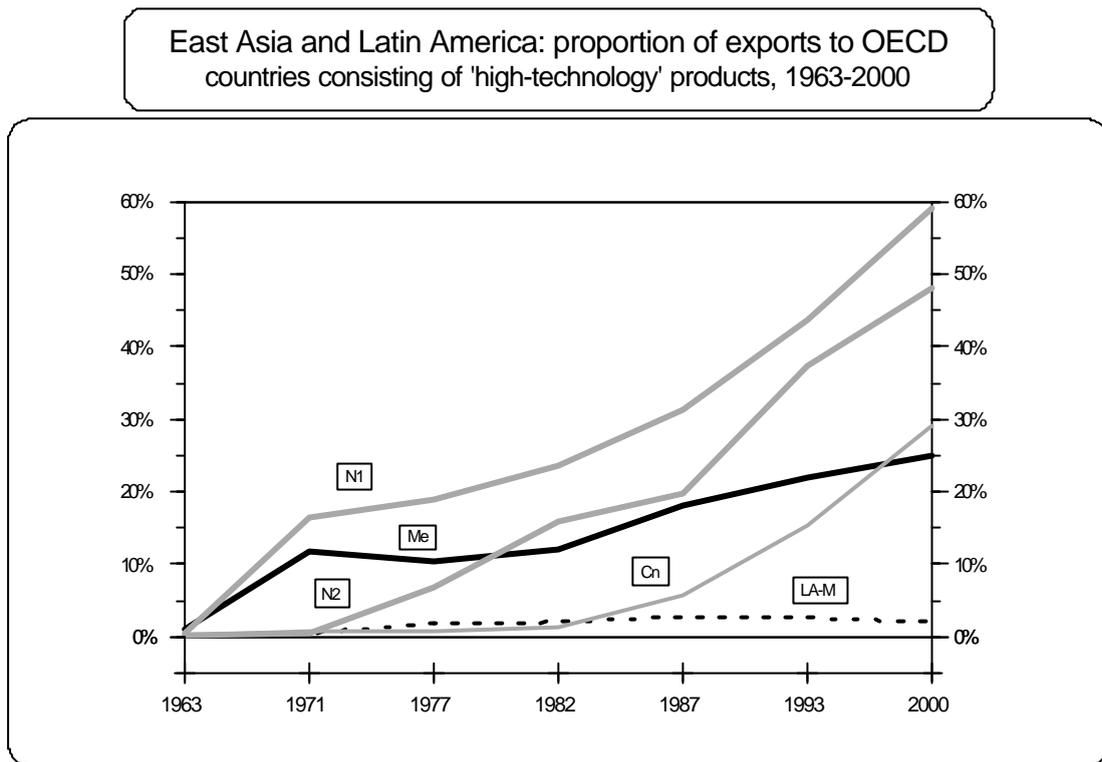
⁷ On this subject, see Palma (2001). On the property rights and incentives issues, see Pagano (1997), Khan (2000), and Di John (2002).

⁸ Using this concept in the 'new growth theory' framework.

⁹ See, for example, ECLAC 2002, and UNCTAD (2002).

¹⁰ The increases in the market-share of both countries were 6.4 per cent and 5.7 per cent, respectively.

FIGURE 3



- [N1] = First-tier NICs; [N2] = Second-tier NICs; [Me] = Mexico; [Cn] = China; [LA-M] = Latin America excluding Mexico.
- *Source*: CAN (2001).

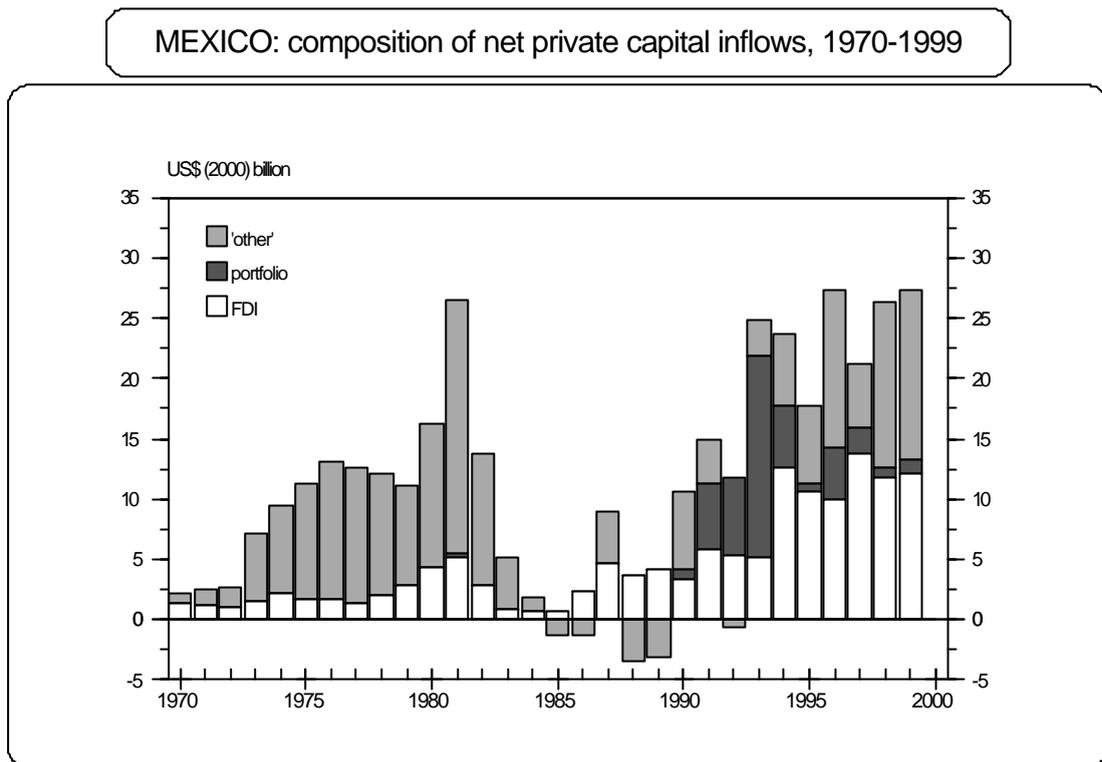
Regarding the newly created magnetism for FDI, Figure 4 shows not only Mexico's long-term attractiveness (though clearly cyclical) to international financial markets, but also the growing share of net FDI in these net private capital inflows. Between 1982 and 1999, Mexico received US\$ 110 billion in net inflows of FDI¹¹; this represented about half the total net private inflows (up from just 20 per cent in the period between 1970 and 1981). According to another source (the UNCTAD database), in terms of gross inflows, Mexico received a total of US\$ 167 billion between 1982 and 2001. In fact, gross FDI inflows into Mexico almost reached US\$ 100 billion in only seven years (1995 –2001), up from US\$ 51 billion for the period between 1988 and 1994, US\$ 16 billion for 1982-1987, and US\$ 20 billion for 1974-1981. In terms of all FDI inflows into Latin America, Mexico's share in this whole period fluctuated between one-quarter and one-half.¹² As a result, the stock of FDI in Mexico increased from US\$ 10 billion in 1970 to US\$ 15 billion in 1980, US\$ 28 billion in 1990, US\$ 45 billion in 1995, and US\$ 113 billion in 2001 (an 8 per cent annual growth rate in constant dollar terms).¹³

¹¹ As mentioned above, throughout this paper US\$ means US\$ of 2000 value.

¹² See also UNCTAD (2001), and Crispi (1998).

¹³ The latter figure was 50 per cent larger than that of Argentina and more than half that of Brazil, representing almost one-fifth of Latin America's FDI stock. Mexico's FDI stock in 1970 represented just one-sixth that of Brazil; in 1980 this figure had gone up to one-half, in 1990 to 60 per cent, and in 1996 it was nearly equal; however, large FDI inflows into Brazil in the late 1990s (mainly attracted by the privatisation of utilities) again increased the gap in Brazil's favour.

FIGURE 4



- 'other' mainly represents bank lending.
- *Source:* World Bank (2001); see also Palma (2002b)

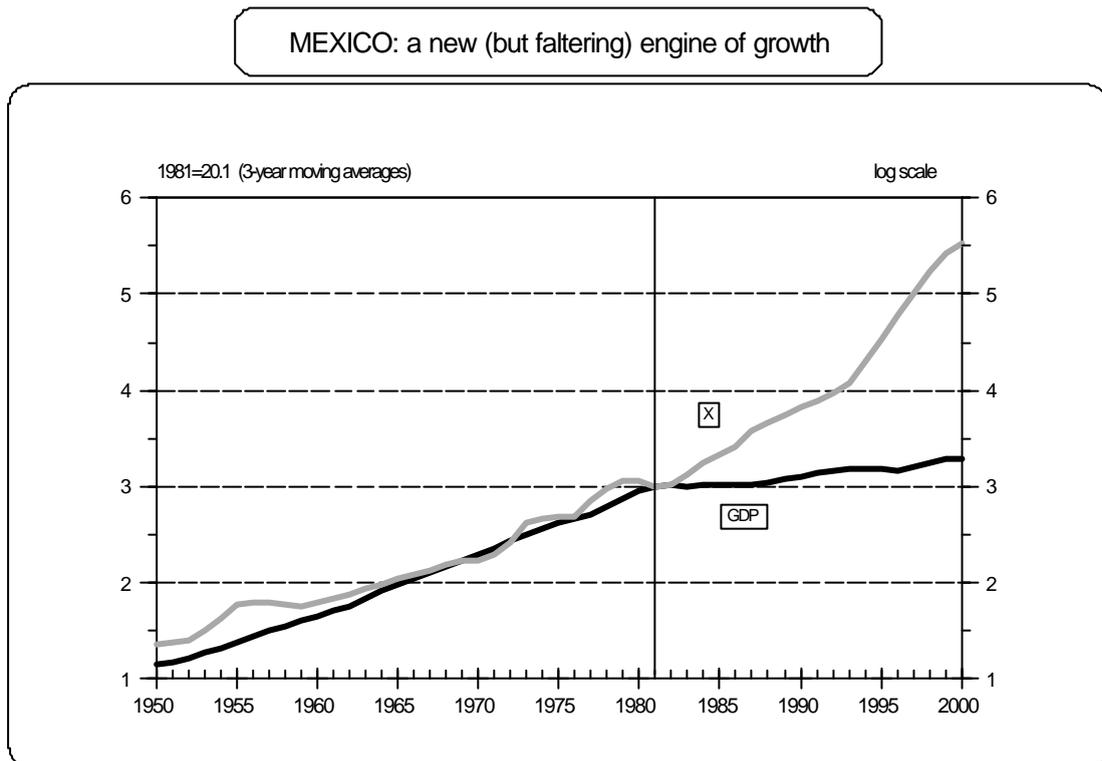
One of the characteristics of new inflows of FDI to Latin America during the 1990s that turned out to be beneficial to Mexico was their concentration in a few countries and sectors. Thus, there were three clear 'winners' in the region. First, in primary commodities, there was Chile, which between 1990 and 1998 received more than the respective figures for Brazil, Mexico and Argentina combined. Second, in services (particularly utilities), Brazil received about the same as Mexico, Argentina and Chile combined in this period. Finally, in manufacturing, Mexico received over these seven years more than twice as much as Brazil, Argentina and Chile combined.

This FDI played a critical role in Mexico's rapid manufactured export expansion: by 2000, nearly two-thirds of these exports came from foreign affiliates. Finally, although the specific figures for Mexico are not available, it is known that about half of the capital inflows into Latin America in the 1990s went towards the creation of new assets, and one-quarter each towards privatisation, and mergers and acquisitions.

2.2 The 'de-linking' of exports from the domestic economy and the collapse of the export multiplier

Economic reform and NAFTA certainly moved Mexico's 'engine of growth' towards the export sector; however, for any engine to be at all effective, the power it generates must be properly 'harnessed' -- as Figure 5 illustrates, this certainly has not happened in Mexico.

FIGURE 5

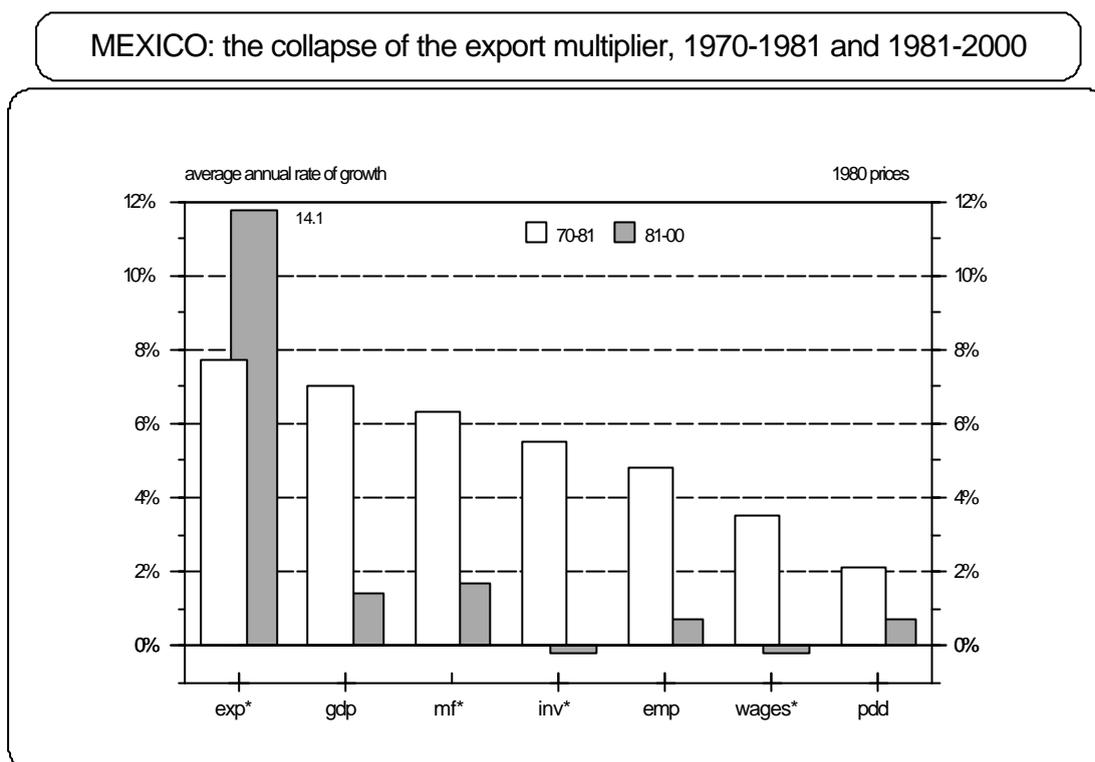


- [X] = exports; and [GDP] = Gross Domestic Product. Exports do not include oil. The original data were first transformed into a 3-year moving average.
- *Source:* see Appendix about sources of data on Mexico throughout the paper.

In the case of the Mexican economy, its inability to harness the power generated by its remarkable export expansion seems to be its most important economic failure since President De la Madrid implemented his radical trade liberalisation policies. In fact, as Figure 5 shows, not only did the long-lasting strong relationship between exports and GDP (built during ISI) practically disappear after 1981, but the sharp acceleration in the rate of growth of exports has been associated with a sharp decline in the rate of growth of the economy -- not precisely the type of picture promised by the advocates of the reform!¹⁴

¹⁴ See especially PRONAFICE (1984).

FIGURE 6



- **exp** = exports; **mf** = manufacturing sector; **inv** = investment; **emp** = employment; **wages** = remuneration paid to both blue- and white-collar workers; and **pdd** = productivity.
- Exports in both periods do not include oil. Manufacturing does not include 'maquila'. The source used for the investment figure (Central Bank) does not provide information for agriculture and utilities, and for the rest, there is systematic information only up until 1994; so, the investment growth figure in the second period refers to 1981-1994, and only includes mining, manufacturing, construction and services. Due to lack of data, wages are only included until 1999.

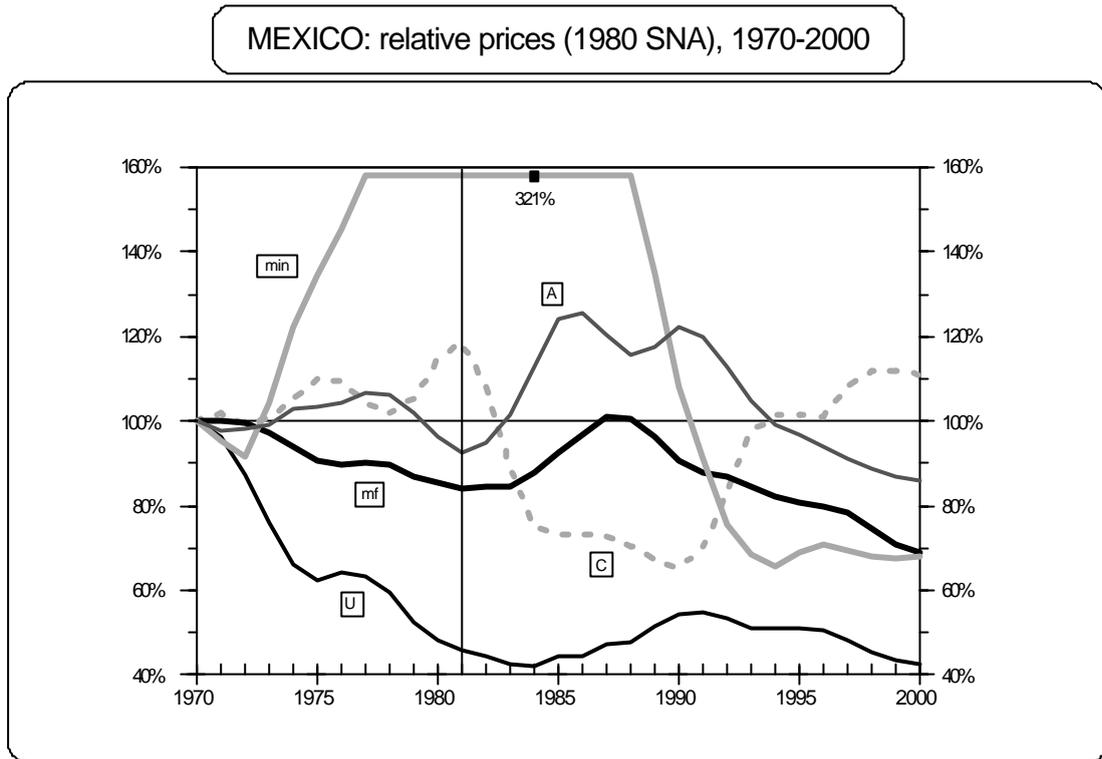
As can be seen in Figure 6, when compared with 1970-1981, the performance of the 1981-1999 period is surprisingly poor in all respects except export growth. In particular, the collapse of the ratio of the rate of growth of GDP to that of exports is amazing: from 0.9 to 0.1 ! How could this have happened ?

2.3 Trying 'to get the prices right'

Figure 7 shows that according to INEGI's System of National Accounts (SNA), based on 1980 prices, Mexico's relative prices experienced a number of remarkable changes between 1970 and 2000.¹⁵

¹⁵ These relative prices were obtained by dividing the nominal output of each sector by its value at 1980 prices, and then expressing these ratios as shares of the respective ratio for total output.

FIGURE 7



- 1970 = 100. [A] = agriculture; [min] = mining; [mf] = manufacturing; [C] = construction; and [U] = utilities. '1980 SNA' = INEGI's 1980 System of National Accounts (available only until 1994; see Appendix).

Firstly, the huge changes in the relative prices of mining should come as no surprise, particularly for a new major oil-exporting country. Its relative prices first increased five-fold between 1972 and 1983, only to fall in the next ten years to less than one-sixth of their 1983 level. Secondly, the relative prices of utilities fell by about two-fifths between 1970 and 1984, reflecting massive state investment in these activities during this period. Oddly enough, they subsequently rose with the beginning of the privatisation process, thus moving against the prevailing world trend of continuously falling prices for some of these activities, particularly telecommunications (reflecting massive technological advances). While relative prices in this sector did, in the end, come down in 2000, they were still above the early 1980s' level.¹⁶ Thirdly, and again not surprisingly, the relative prices of construction have followed the overall economic cycle very closely, mostly in an augmented fashion. Fourthly, the relative prices of services (not including utilities) -- not shown in the graph -- changed very little during this period, holding in 2000 the same relative position they had occupied in 1970. To some extent, this is to be expected due to the large size of this sector in the economy (i.e. its weight in the total index), and to the low speed of its technical change.

¹⁶ This was clearly another DC where concessions given to new private owners, weak competition laws, and even weaker regulatory public institutions resulted in pre-privatisation promises of significant consumer gains remaining mostly unfulfilled.

Finally, the relative prices of the two remaining tradable sectors, agriculture and manufacturing, first moved in opposite directions before the 1982 crisis, and then together as a result of the post-'82 reforms. Initially, they increased due to the fact that the devaluation of the real exchange rate between 1982 and 1987 more than compensated for the fall in tariffs, but then they fell steadily when the exchange rate began to move in the same direction as changes in tariffs. Table 1 shows the rapid and significant changes in one component of these relative prices, i.e., the fall in the average tariff of the manufacturing sector during De la Madrid's government (1982-88).¹⁷ Initially, average tariffs were not reduced but were made more uniform across the industry.¹⁸ However, soon afterwards, this government began a rapid reduction in the overall level of tariffs as well -- reductions that went well beyond the commitments undertaken by its accession to GATT in 1986. As a result, when De la Madrid left office (1988), the average manufacturing tariff (weighted by production) was less than half the level it was when he had taken office six years previously; and this new level was now fairly uniform across the industry.

However, as regards these changes in relative prices, Figure 8 shows another (not very well known) feature of the Mexican economy in the 'reformed' period: most of the actual changes in relative prices in Mexico took place before the beginning of trade and financial liberalisation, with the structure of relative prices in the year 2000 looking extraordinarily similar to that of 1981, the year before the debt crisis and the beginning of President De la Madrid's period of office.

The fact that relative prices practically returned to their pre-trade liberalisation level -- of their own impetus -- seems to indicate that all those trees destroyed for countless articles and books emphasising the need to liberalise, so that Mexico would be able to 'get its prices right' (i.e., so that relative prices might be able to find their own level), may in the main have been wasted. It seems that, either at the end of ISI, prices were not that far wrong after all, or that the remedy did not really work. Perhaps this is a paradigmatic case of the 'economics of the Gattopardo', in which 'for everything to stay just as it is, everything has got to change'!¹⁹

¹⁷ For a description of De la Madrid trade reforms, see GATT (1993); for a review of the whole programme of reforms, including NAFTA, see WTO (1998).

¹⁸ In 1986, average and median tariff were still roughly the same as in 1980, but the standard deviation of the level of tariffs across the 49 activities of the manufacturing sector had fallen by half.

¹⁹ See *Il Gattopardo*, by Giuseppe Tomasi di Lampedusa.

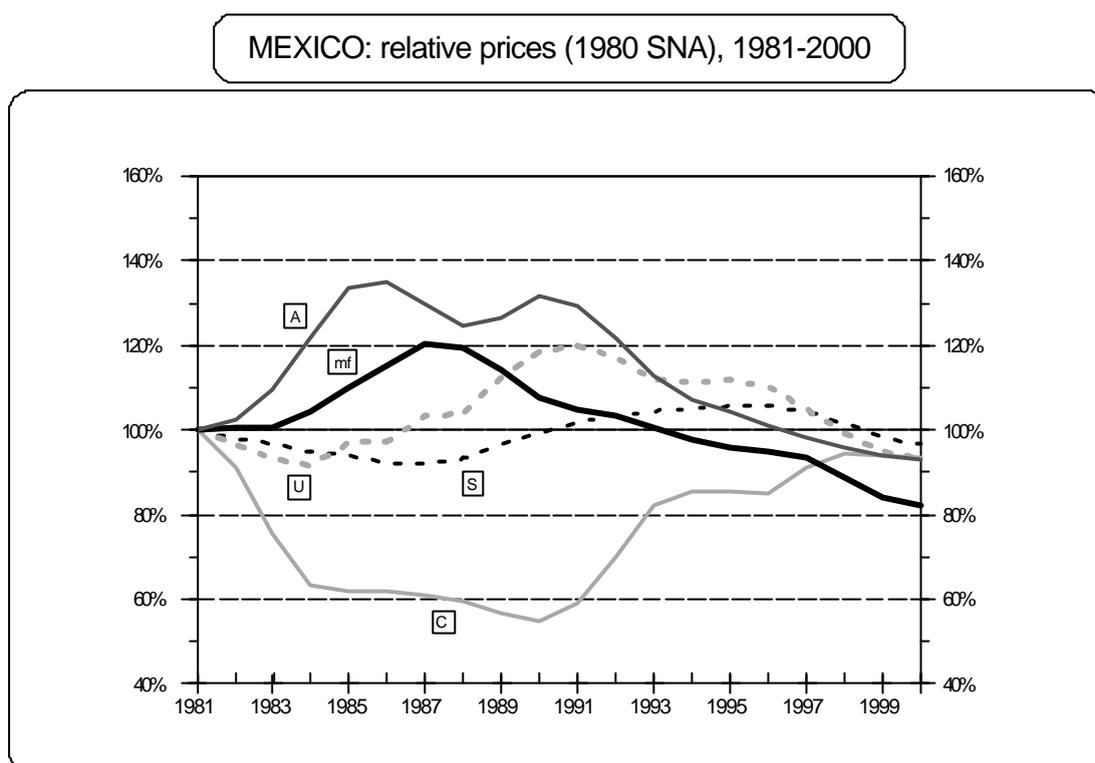
TABLE 1: Average Tariffs by Manufacturing Groups, 1980-95

(weighted by production, %)

	1980	1986	1987	1988	1990	1993	1995
22 Drinks and flavorings	96.6	44.1	19.7	19.8	19.8	19.8	19.8
21 Beer and malts	93.5	37.9	19.4	19.4	19.4	19.4	19.4
53 White goods	68.3	44.5	19.8	19.7	19.7	19.8	19.7
43 Glass and glassware	66.8	40.7	18.7	16.3	16.5	16.5	15.0
56 Cars	59.8	31.1	17.2	18.5	18.5	18.5	14.3
39 Washing preparations and perfumery	54.4	41.3	18.7	18.6	18.8	18.8	14.9
26 Other textile industries	50.3	40.4	18.3	17.6	17.7	17.7	29.1
48 Metal furniture	47.4	43.4	17.9	16.2	16.8	16.8	17.4
12 Fruit and vegetables	45.0	42.2	19.1	18.5	19.0	19.0	20.0
15 Coffee	44.4	45.0	20.0	20.0	20.0	20.0	23.6
23 Tobacco	42.3	45.0	20.0	20.0	20.0	20.0	51.1
45 Ceramics	41.7	35.8	16.1	16.1	16.5	16.5	16.5
49 Metal structures	41.7	31.7	16.1	15.8	16.1	16.1	16.1
13 Products of the milling industry (wheat)	40.9	37.7	18.3	11.1	11.3	11.3	36.7
20 Alcoholic beverages	39.8	29.9	29.9	19.9	19.9	19.9	18.1
19 Other food products	39.6	34.4	16.2	16.1	17.2	17.2	23.1
30 Other wood products	39.5	42.5	19.2	17.8	17.9	10.2	14.1
14 Products of the milling industry (maize)	35.4	41.5	19.5	10.5	10.5	10.5	20.9
50 Other metal products	35.2	28.3	14.5	13.1	14.0	14.0	14.0
55 Electric equipment	34.7	37.3	15.5	15.4	15.6	15.6	15.6
37 Plastic resins and synthetic fibers	34.6	32.8	12.6	10.6	12.1	12.1	13.7
40 Other chemical products	34.4	29.0	12.1	11.6	13.7	13.7	13.7
27 Clothing	33.9	44.9	20.0	20.0	20.0	19.8	34.0
41 Oilskin products	33.4	36.6	16.2	16.0	16.1	16.1	13.0
28 Leather and shoes	29.2	36.5	16.8	15.3	16.2	16.2	32.4
31 Paper and pulp	29.1	30.0	13.3	5.6	9.4	9.3	10.1
35 Basic inorganic chemicals	27.0	24.5	9.5	7.7	9.8	9.8	8.9
52 Electrical machinery and equipment	26.8	35.3	16.9	15.3	15.9	15.9	12.9
57 Motors and car parts	25.7	31.3	12.5	11.9	13.2	13.2	13.2
42 Plastic products	24.8	30.4	18.0	14.7	15.4	15.4	12.9
38 Medicinal products	24.2	19.7	16.4	12.7	15.7	15.7	14.3
51 Non-electrical machinery	22.4	28.8	14.7	14.0	15.6	15.6	15.6
47 Non-ferrous metals	21.2	25.0	10.9	12.4	12.4	12.4	12.4
54 Electronic equipment	17.4	36.8	17.5	17.3	17.6	17.6	17.6
58 Other transport equipment	16.9	16.9	6.6	6.3	12.6	12.6	10.3
29 Articles of wood	16.8	29.7	15.7	15.2	15.4	15.4	15.7
25 Jute and other hard fibers	16.3	20.4	11.7	7.3	11.7	11.7	33.2
24 Cotton, wool, synthetic fabrics	14.3	38.2	34.2	13.8	14.2	14.2	34.8
32 Books and other products of the printing industry	14.1	7.9	5.6	3.9	3.9	3.9	3.9
11 Dairy and meat products	13.4	23.8	11.2	4.3	10.8	11.0	35.9
36 Pesticides and fertilizers	10.7	7.7	3.3	2.5	10.2	10.2	6.6
46 Iron and steel	10.3	18.6	7.3	8.0	10.1	10.1	9.8
16 Sugar	10.1	1.2	0.7	0.7	10.0	10.0	9.9
34 Basic petrochemicals	9.3	4.4	2.0	0.9	4.9	4.9	4.9
17 Animals fats and vegetable oils	9.0	11.2	4.8	2.3	13.7	13.7	18.6
59 Other manufacturing industries	4.4	37.8	17.7	17.2	18.0	18.0	18.1
33 Oil refinery	2.2	2.1	1.0	1.1	4.4	4.4	4.4
44 Cement	1.0	22.5	10.0	10.0	10.0	10.0	10.0
18 Animal feed	0.1	29.7	9.9	9.9	10.0	10.0	10.0
Median	29.2	31.7	16.2	14.7	15.6	15.4	15.6
Average	31.6	30.4	14.8	12.8	14.5	14.3	17.8
Standard deviation	21.2	11.9	6.5	5.8	4.2	4.2	9.5

- The 49 activities identified by INEGI's accounts are ranked according to their 1980 level of tariffs. As in other similar tables, numbers on the left are the numbers used by INEGI to identify each activity.
- *Sources*: Blanco Mendoza (1994); SECOFI (1994); and Dussel Peters (2000a).

FIGURE 8



- [A] = agriculture; [mf] = manufacturing; [C] = construction; [U]= utilities; and [S] = services. Mining is not included due to the erratic movements of the price of oil.

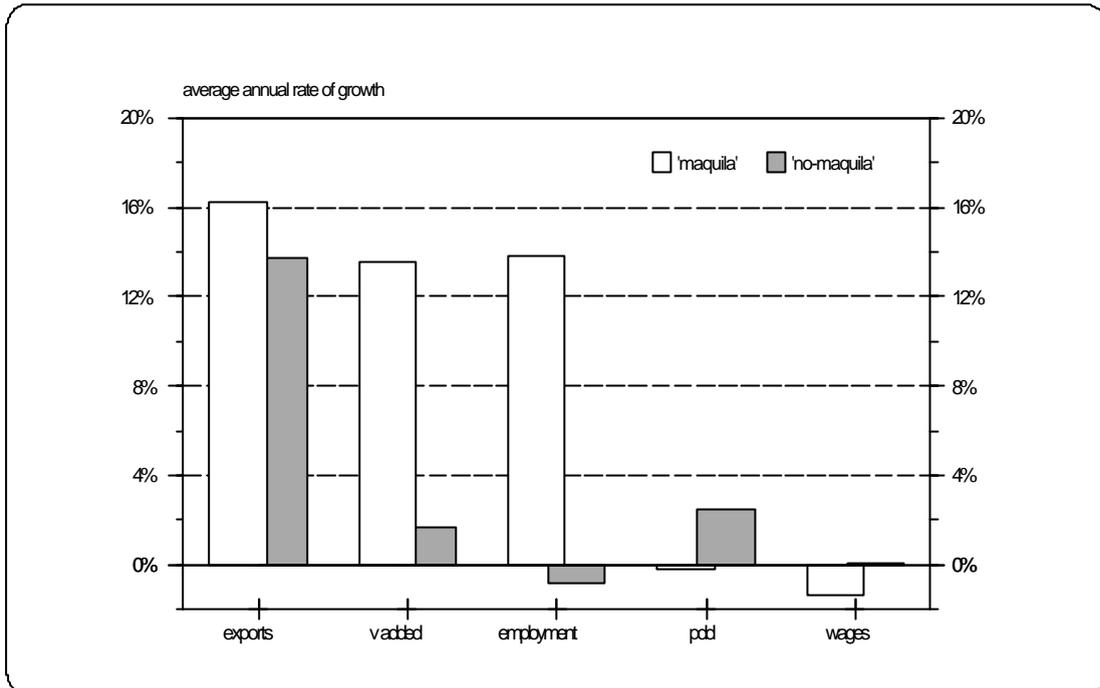
A key point throughout this paper is that these sharp changes in relative prices, including their rather unexpected return to their pre-trade-liberalisation 'base' towards the end of the 1990s, may well have had significant 'micro' effects on the economy. However, apart from the extraordinary growth of manufactured exports, there seems to have been few positive 'macro' effects, as the overall performance of the economy in the post-1982 period has been particularly disappointing.

2.4 The 'Maquila' industry

The 'maquila-manufacturing' part of the Mexican post-1981 trade liberalisation story is much more transparent than the 'non-maquila' part discussed below. Proximity to the United States and NAFTA opened up opportunities to develop highly labour-intensive, assembly-type manufacturing operations, particularly in the Mexican frontier states. This challenge provoked a dynamic 'Lewis-type' response, based on both an unlimited supply of cheap (and relatively unskilled) labour and on a large amount of 'complementary investment' (in the form of infrastructure, telecommunications, energy, other utilities, services, etc.) built mostly by the public sector during the ISI period. After twenty years, as the Lewis model predicts, even this particularly dynamic growth (14 per cent per year) can still be entirely accounted for by additional labour -- there has been neither productivity growth or wage growth associated with it.

FIGURE 9

MEXICO: main indicators of the 'maquila' and 'non-maquila' manufacturing sectors, 1981-2000



- **v added** = value added²⁰; **pdd** = productivity. Due to lack of data, wage growth in the 'non-maquila' sector refers to 1981-1999 only.

As Figure 9 indicates, 'maquila' exports grew at no less than 16 per cent per annum during this period, reaching US\$ 80 billion in 2000 -- a figure larger than for all Brazilian exports taken together.²¹ Growth of value added was also particularly high (although from a very low starting-point), as was the growth of employment.²² In turn, productivity and wage growth posted a negative figure. The contrast with the 'non-maquila' sector of the manufacturing industry could not be more marked, particularly in terms of the gap between export growth and gross value-added growth, and between this and employment growth: while in the 'maquila' sector, these three rates were fairly even at 16 per cent, 14 per cent and 14 per cent respectively, in the 'non-maquila' sector they were 13 per cent, 2 per cent and 1 per cent. The very different way in which export, value added, employment and productivity

²⁰ Unless otherwise stated, all value-added figures in this paper are 'gross', i.e., without taking into account capital depreciation.

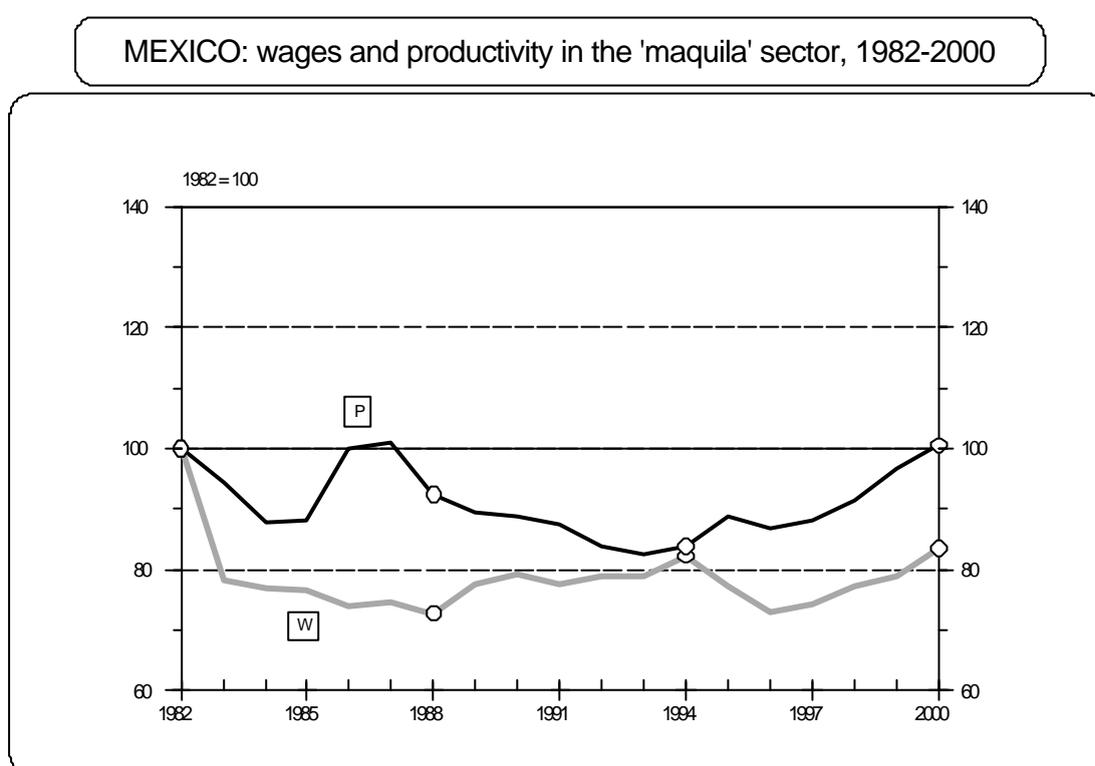
²¹ It is difficult to obtain consistent data for export growth in the 'maquila' sector during the 1980s, as INEGI has changed the way it defines 'maquila' in its accounts more than once; in their latest version, which starts in 1991, the rate for the 1991-2000 period is 17 per cent.

²² In the garment sector, for example, Mexico's share in the North American import-market has grown from 1.6 per cent in 1985 to 14 per cent in 2000; this share is even larger than that of China (11.2 per cent). Moreover, in the electronic industry, Sony, LG and Thompson export over US\$ 1 billion each from Mexico (mainly from this sector).

growth moved in the two sectors is the main reason why this paper will analyse the ‘maquila’ and ‘non-maquila’ sectors separately.²³

Figure 10 shows the (cyclical) stagnation of productivity and the fall in real wages in the ‘maquila’ sector in more detail. As in the Lewis model, the stagnation of average productivity relates to the lack of incentive to invest with this aim in mind in a sector that, by the very nature of its activities and the characteristics of the labour market, can grow simply by adding unlimited amounts of cheap labour.²⁴ The relative stagnation of wages after 1983 (the initial fall between 1982 and 1983 relating to the debt crisis) shows the extent to which labour has been freely available to this sector: between 1982 and 2000, the sector was able to absorb more than one million workers (roughly in equal proportions in terms of gender) at the same time as successfully resisting upward pressure on wages.

FIGURE 10



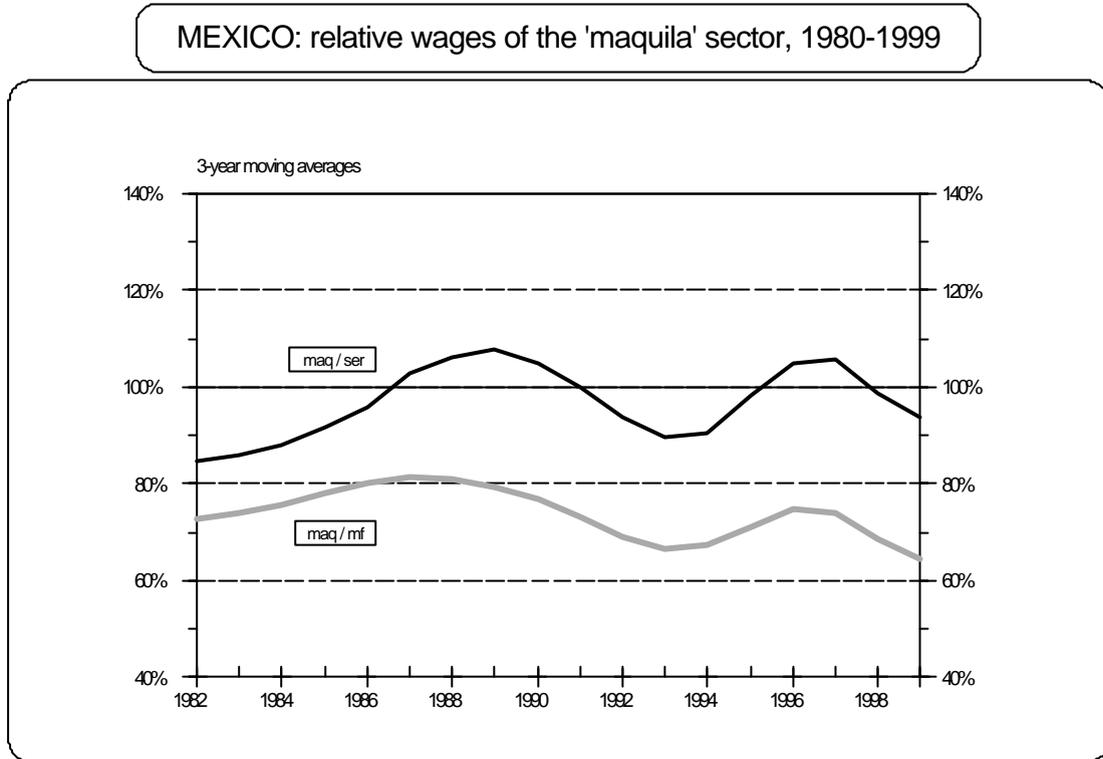
- [P] = average productivity; and [W] = average real wage (from INEGI's index of real wages in the 'maquila' industry, see INEGI, 2002).

²³ A task not helped by INEGI's decision in 1993 to stop producing separate detailed 'non-maquila' accounts for the manufacturing industry (following an age-old tradition of statistical bureaucracies to stop producing information about issues that become analytically interesting).

²⁴ There was, however, some productivity-diversity within this (cyclically stagnant) average; see for example Mortimer (1998).

Figure 11 indicates that, in terms of wages (as in most other aspects of its operation), the 'maquila' sector is closer to the average services activity than to the 'non-maquila' manufacturing sector.

FIGURE 11



- **maq/ser** = average wage in the 'maquila' industry as a share of the average wage in the services sector; and **maq/mf** = as a share of the average wage in the 'non-maquila' manufacturing sector.

Finally, Table 2 provides additional information on the 'maquila' industry for the 1990s, showing in particular the rapid catching-up process of the 'maquila' sector vis-à-vis the 'non-maquila' one.

TABLE 2: Some Indicators of the 'Maquila' Industry

(US\$ 2000)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
X maq (1991=100)	100	115	131	154	177	206	247	283	331	401
X non-maq	100	100	106	120	163	194	210	202	221	259
X maq/X non-m (%)	59	68	73	76	64	62	69	82	88	91
M maq (1991=100)	100	115	132	161	201	229	267	305	351	419
M non-maq	100	123	122	143	109	136	167	183	197	236
M maq/M non-m (%)	31	29	34	35	57	52	49	51	55	55
net X maq (billion)	5	6	6	7	6	7	10	11	14	18
net X non-maq	(14)	(25)	(22)	(28)	2	0	(9)	(19)	(20)	(26)
emp maq (1991=100)	100	108	116	125	139	161	193	217	245	275
emp non-maq	100	98	93	89	82	83	85	87	89	91
emp maq/emp non-maq (%)	19	21	23	26	31	37	43	47	52	57
number establishment maq	1,914	2,075	2,114	2,085	2,130	2,411	2,717	2,983	3,297	3,590

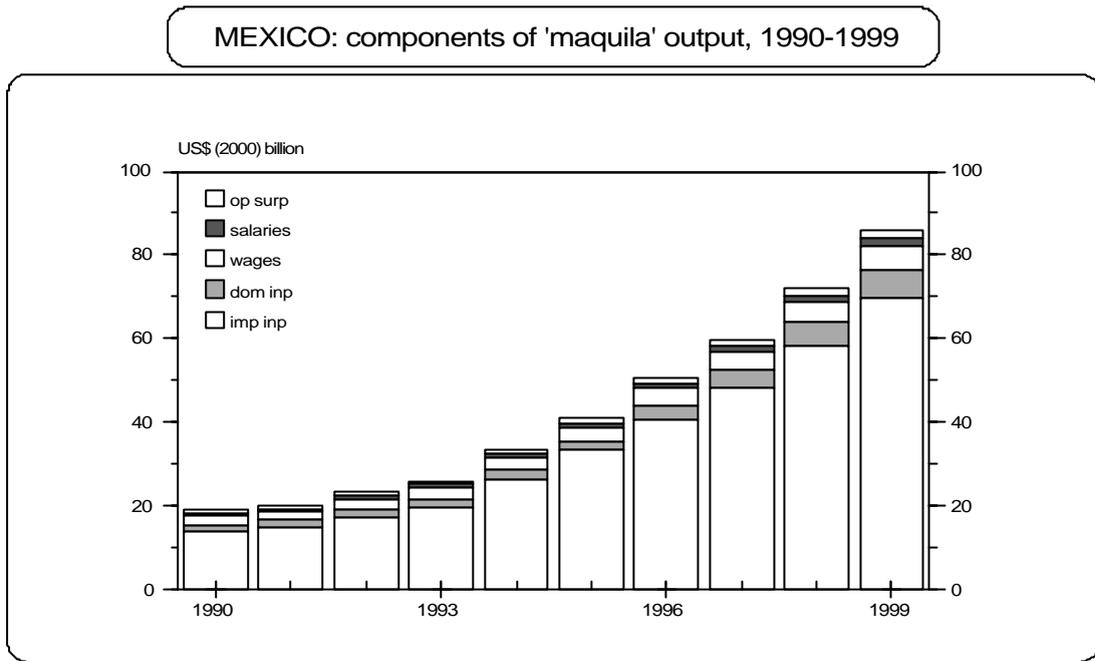
- Throughout this paper, negative figures are shown in brackets.
- **X maq** = manufacturing exports of the 'maquila' sector; **X non-maq** = those of the 'non-maquila' sector; **M maq** = manufacturing imports of the 'maquila' sector; **M non-maq** = those of the 'non-maquila' sector; **net X** = net exports; **emp** = total employment; and **number establishment maq** = number of establishment in the 'maquila' sector.
- *Source:* in INEGI's new accounts of the 'maquila' sector, data is available only from 1991.

As Table 2 indicates, the 'maquila' sector is close to reaching a level of exports similar to that of the 'non-maquila' manufacturing industry (91 per cent in 2000), but with a much more favourable level of net exports (US\$ 18 billion in 2000, as opposed to a deficit of US\$ 26 billion in 'non-maquila' manufacturing). In turn, the 'maquila' sector is also closing the employment gap with the 'non-maquila' manufacturing sector very rapidly -- from a level of employment equal to just 19 per cent of the 'non-maquila' industry in 1991, to 57 per cent in the year 2000.²⁵

However, Figure 12 also shows the main weakness of the 'maquila' industry: the relative low levels of value added and domestic inputs in its operations.

²⁵ For an analysis of the 'maquila' industry, see Feenstra and Hanson (1997), and Feenstra (1998); for the role of TNCs, see the articles in Kozul-Wright and Rowthorn (eds., 1998).

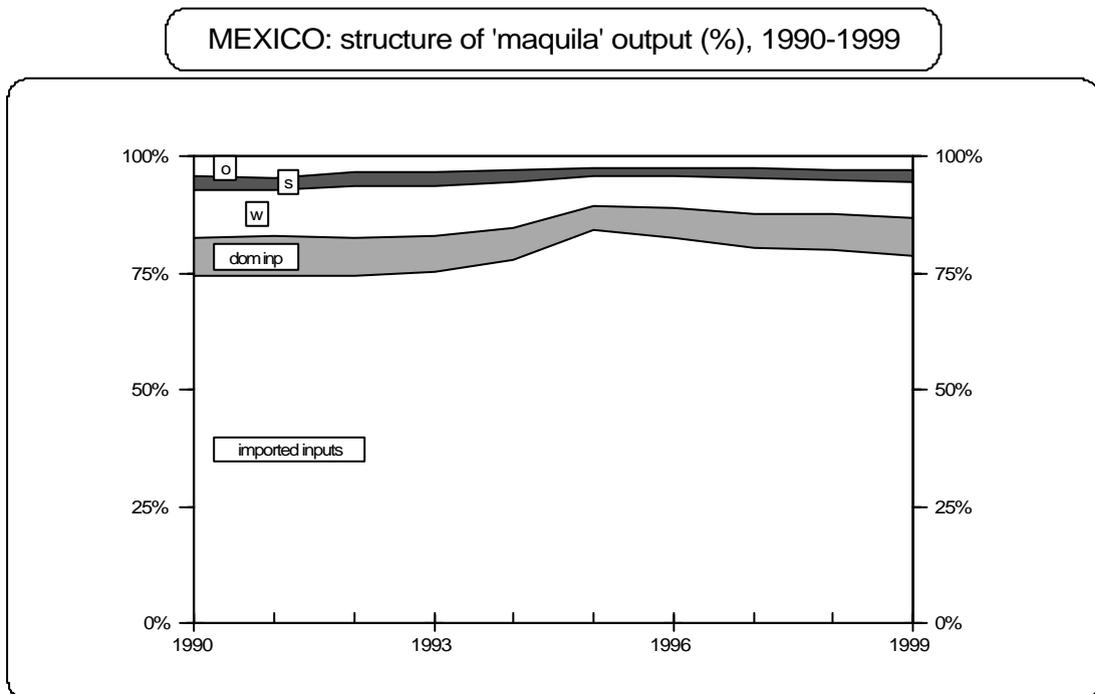
FIGURE 12



- **op surp** = operating surplus; **salaries** = remuneration to white-collar workers; **wages** = to blue-collar ones; **dom inp** = domestic inputs; and **imp inp** = imported inputs. The top three items, wages, salaries and operating surplus, add up to gross value added. INEGI's data on this aspect of the 'maquila' industry start in 1990 and are so far only available until 1999 (see INEGI, 2002).

Figure 13 shows the same information but in terms of shares in output.

FIGURE 13



- **dom inp** = domestic inputs; **w** = remuneration to blue-collar workers; **s** = remuneration to white-collar ones; **o** = operating surplus.
- As in the previous graph, the top three components (wages, salaries and operating surplus) add up to gross value-added.

It is difficult to imagine another activity with such weak production linkages (forward and backward) with the rest of the economy. If anything, the shares of both value added and domestic inputs actually fell in the 1990s from their already low levels -- with the fall in the former (from 17.4 per cent of output to 13.2 per cent) being mostly due to a reduction in the share of wages, which fell from 10.4 per cent of output to just 7.9 per cent in this period.²⁶ Furthermore, as a significant proportion of imported inputs comes from foreign affiliates of the same 'maquila' firm, it is more than likely that the remarkable low level of 'operating surplus' is the result of 'transfer pricing'. Hence, the contribution to public finances is also negligible: no profits to be taxed²⁷; practically no import taxes on inputs; and such low wages paid to workers that they are also mostly exempted from income tax.

In fact, from the point of view of the Mexican economy as a whole, what the 'value added' of this activity is really about is both service-sector-level wages (paid to a large number of workers), and service-sector activities incorporated into its products (transport, insurance, finance, telephone, water, electricity, etc.).²⁸

Finally, Figure 14 shows how the 'maquila' sector has contributed to the sharp reduction in the GDP-export elasticity of the Mexican economy since trade liberalisation and NAFTA. Obviously, both the nature and size of the 'maquila' industry (that in 2000 accounted for nearly half of manufacturing exports) are two key elements of this phenomenon. In the 'maquila' sector, gross value added is not only a small proportion of its exports, but its relative size is actually declining rapidly: from 24 per cent of exports in 1991 to just 11.6 per cent in 2000.

In sum, the contribution of this activity to the Mexican economy is remarkable both in terms of employment generation (1.3 million in mid-2001, up from just over 100 thousand in 1980), and net exports (of no less than US\$ 18 billion in 2000). However, there is little else on top of that, especially in terms of demand for domestic inputs and taxation. This is the prototype of a particularly dynamic activity with practically no 'direct' or 'indirect' linkages or (demand) multiplier effects.

Moreover, as mentioned above, another problem with 'maquila' establishments that is always particularly difficult to deal with for a country like Mexico is their high international mobility. In this activity, there is always the threat that factors such as an increase in wages (even a small one), changes in trade regulations, or the emergence of a more efficient competitor could produce a stampede out of the country. In fact, it seems that factors such as China's accession to the WTO, workers' resistance to downward pressures on wages led to a massive relocation of 'maquila' firms to China in 2001-2002. According to the latest

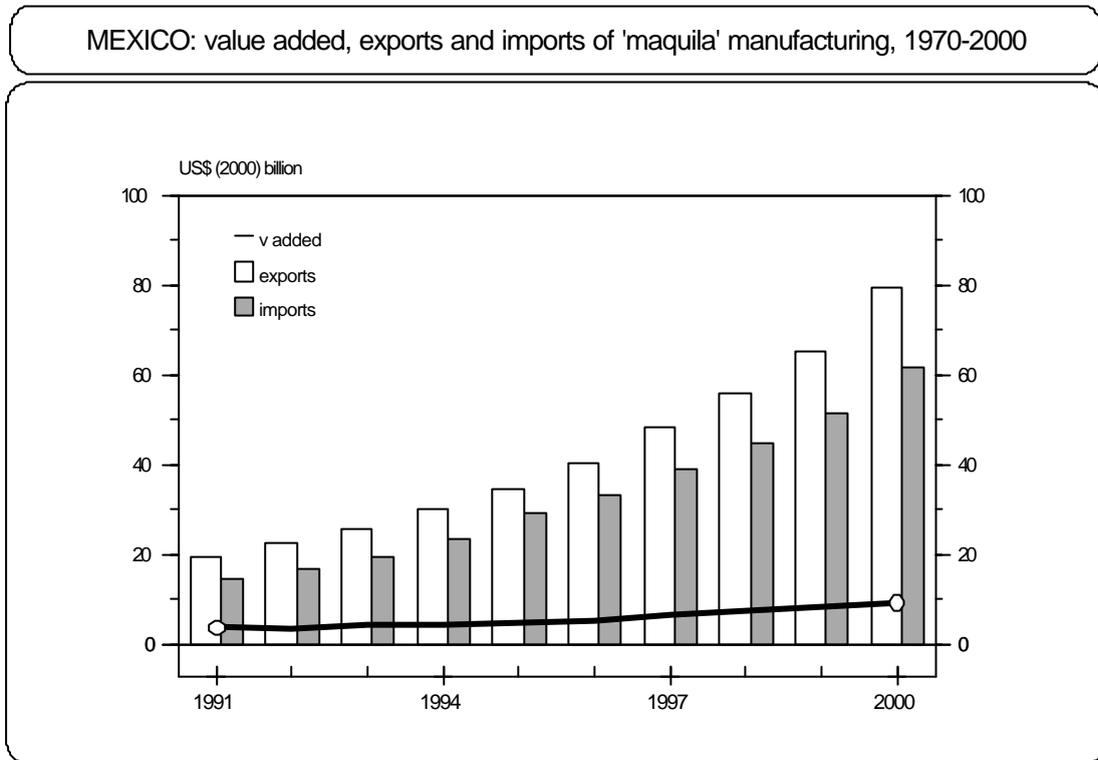
²⁶ The low share of domestic inputs is common to practically all activities within the sector; for example, even in the highly successful TV industry (see below), locally-based firms supply only 3 per cent of inputs.

²⁷ The 'maquila' industry in Mexico is not the only place in Latin America where FDI behaves as if it had the right to receive from the government public goods free of charge, but make no direct contribution to the financing of their cost of production.

²⁸ For example, in terms of research and technology, very few foreign firms in the maquila' sector have set up design and development facilities in Mexico (see WIR, 2002). In this respect, PRONAFICE's pledges proved overoptimistic, when it confidently 'promised that the new export model would significantly encourage research and technology within Mexico's manufacturing sector (see PRONAFICE, 1984; see footnote 4).

information at the time of writing, no less than 545 'maquila' establishments had left Mexico in the twelve months after June 2001 (i.e., one out of seven 'maquila' firms); this is equivalent to a rate of about two 'maquila' establishments leaving each working day.²⁹

FIGURE 14



- **v added** = value added.³⁰
- *Source:* new INEGI's accounts of the 'maquila' sector (INEGI, 2002; data are available only from 1991).

According to Central Bank data, in terms of employment 160,000 workers lost their jobs in only the 8-month period between June 2001 and February 2002 as a result of this exodus (i.e., one out of eight 'maquila' workers).³¹ What is historically quite unique, but probably the sign of things to come, is that these 160,000 workers are blamed for having 'priced themselves out of a job' by having used their bargaining power to restrict their real-wage cut to 'only' one-third in the 20-year period between April 1982 and April 2002 (see

²⁹ See INEGI, 2002; see also *La Jornada*, 17th July, 2002. Most of the establishments that left during this year were from the electric and electronics sectors, and textiles. At the time of writing, the last major corporation to have announce it was leaving Mexico for China is Phillips -- Europe's largest consumer-electronics maker will close its large Ciudad Juarez computer screen assembly plant before the end of the year.

³⁰ In INEGI's web-site (INEGI, 2002) there is an unexplained difference (about 10 per cent) between the value of 'imports of the 'maquila' sector' (used in this graph), and that of 'imported inputs for the 'maquila' industry' (used in Figure 10 and 11 above).

³¹ Of this total, 63,000 workers lost their jobs in the electric and electronic sector; 53,000 in textiles; 9,000 in electrical machinery; and 3,000 in toys and sport articles (ibid.).

INEGI, 2002). In this new ‘globalised’ world, Samuelson’s trade-related wage-equalisation theorem seems to work, but in a rather different direction from that predicted by him: the trade-related ‘market forces’ equalising Mexican wages with China’s rather than with those of the United States!³²

However, it would be misleading to assume -- as is done in much of the academic literature, the financial press and the Mexican government -- that wage differentials are the paramount ‘pull factor’ attracting Mexican ‘maquila’ firms into China. One has to remember that the share of wages in the total cost of output in Mexico is a single digit figure (see Figure 13). Therefore, even if China were able to cut this cost significantly, it would only result in savings equivalent to very few percentage points. It is difficult to imagine that this reduction alone could actually compensate for the costs involved in moving to China, for the additional transport costs (finished goods are usually bulkier than the sum of inputs), as well as the loss of some of the special NAFTA advantages of producing in Mexico.

In other words, it would seem quite obvious that the increasing reallocation of ‘maquila’ establishments to China is a more complex phenomenon than so far acknowledged and includes other ‘pull’ and ‘push’ factors as well as wage differentials. Among the former, are China’s significantly lower transaction costs and costs of non-tradables (especially utilities), as well as the already mentioned entry into the WTO; and among the latter, issues such as Mexico’s recent loss of some temporary NAFTA benefits would seem to play a significant role. Maybe, for Mexican ‘maquila’ to really become a competitive threat to China, it would have to reduce wages not just to the level of China, but even lower !

Finally, a crucial (and again usually ignored) ‘pull factor’ into China is the fact that once a Mexican ‘maquila’ establishment moves to China, it normally ceases to be a ‘maquila’ operation. This means that, as opposed to Mexican ‘maquila’, the share of domestic inputs used in China’s equivalent establishments is normally very high; i.e., in China, the ‘assembly-end’ operation tends to be integrated into a much larger production network.³³ Therefore, the real question that still needs to be properly answered is why TNCs are quite happy to produce inputs in China rather than in Mexico; i.e., why are they increasingly ‘voting with their feet’ not to start producing them in Mexico ?

2.5 The ‘non-maquila’ manufacturing industry

In ‘non-maquila’ manufacturing, a remarkable export expansion has also been followed by the equally extraordinary collapse of the export multiplier and of the production linkages between the export sector and the rest of the economy.

Figure 15 shows the growth performance of the main variables of the ‘non-maquila’ manufacturing sector as a whole, comparing the pre-trade-liberalisation period (1970-1981) with the period after 1981.³⁴

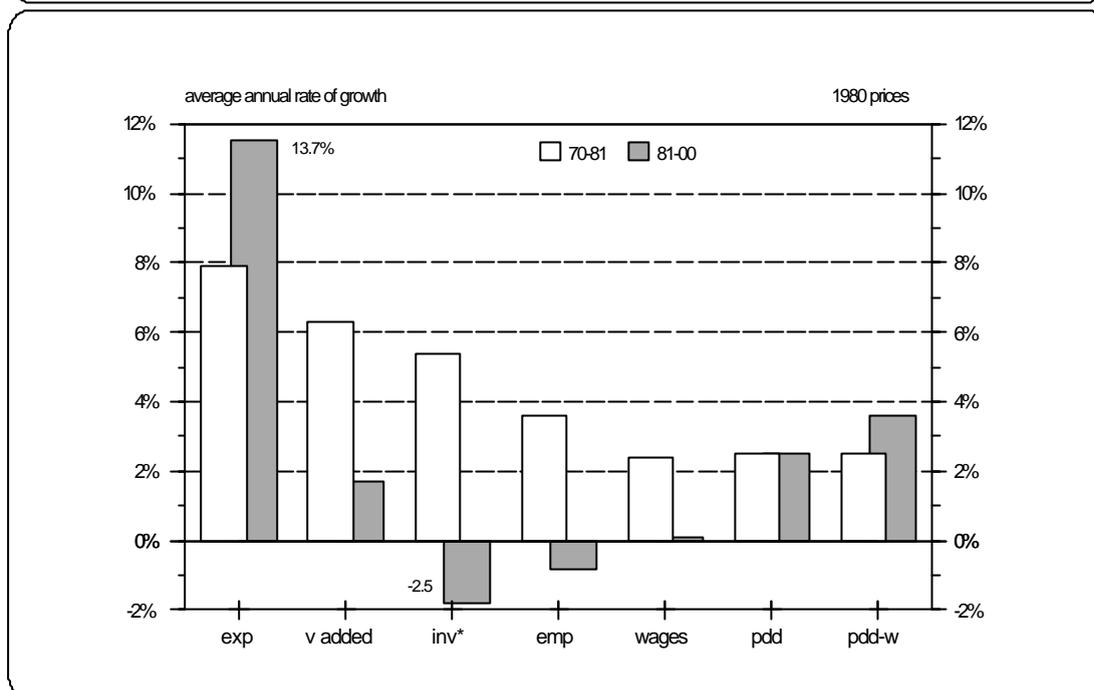
³² Moreover, this is so despite the fact that almost all assumptions of Samuelson’s hypothesis apply to the Mexican ‘maquila’ sector (see below).

³³ See Nolan (2001).

³⁴ As INEGI’s 1980 accounts only start in 1970 (except for GDP, which starts in 1960), for most variables the ‘pre-trade liberalisation’ period will have to be restricted to 1970-1981 in most tables and graphs below.

FIGURE 15

MEXICO: main indicators of the 'non-maquila' manufacturing sector, 1970-1981 and 1981-2000



- **exp** = manufacturing exports; **v added** = gross value-added; **inv*** = investment³⁵; **wages** = wages and salaries; **emp** = employment; **pdd** = productivity; and **'pdd-w'** = value-added minus wages and salaries per person employed.

It is clear that the remarkable dynamism of the 'non-maquila' manufacturing exports was not only powerless to take the rest of the economy along with it, but it also failed to deliver a dynamic rate of growth of value added in the 'non-maquila' manufacturing sector itself !

While the growth of 'non-maquila' manufacturing exports accelerated between these two periods (from 7.9 per cent to 13.7 per cent), the overall performance of the manufacturing sector collapsed (from an average rate of growth of 7 per cent per annum between 1960-1981 to just 1.8 per cent between 1981-2000). Furthermore, both investment and employment post a negative figure for the second period, while wage growth falls from 2.4 per cent to just 0.1 per cent.³⁶ In fact, only productivity growth was able to maintain its momentum, sustaining a constant growth rate of 2.5 per cent.

³⁵ As mentioned above, investment data in the second period only cover up until 1996, when the Banco de Mexico stopped producing this information (in fact, for some manufacturing activities data are only available up until 1994). INEGI has produced an alternative estimate of investment (INEGI, 2001), but this only starts in 1988, does not differentiate between 'maquila' and 'non-maquila' activities, and does not provide information for all manufacturing activities.

³⁶ The deceleration of investment in most activities of Mexican manufacturing during the trade-liberalisation period (see also Figure 23 below) is striking, particularly in sectors facing such a steep drop in tariffs. This is especially so because the fall in tariffs must have rendered a significant amount of the stock of capital in many activities economically obsolete, and left these to face the complex challenge of having to live in a much more competitive post-trade-liberalisation world -- more competitive for both export-oriented activities and those competing with new imports in the domestic markets. It is rather difficult to envisage how these activities will face the ongoing competition challenges in the long run by continuing to shift resources within the sector and 'down-sizing', but without a substantial recovery of investment.

It is important to contrast the post-trade-liberalisation performance with that predicted by PRONAFICE in 1984. In a way, it comes as no real surprise that PRONAFICE's forecasts, like most forecasts by official publications of this type, were fairly optimistic regarding the future performance of the Mexican economy. However, there are two important areas in these forecasts that should be highlighted. The first is that the discrepancies between official expectations and the reality in terms of the performance of variables such as investment, employment and wages and salaries are so great that they probably show not just misfortune but carelessness on the part of PRONAFICE's forecasters. The second, and the more important from the point of view of the assessment of the overall nature of the 'Mexican model' of export-led growth based on 'FDI-cum-market-access', are the equally amazing discrepancies between official expectations and reality in terms of the working of the export-led model itself.

From this second perspective (on the nature of the growth model itself), it is remarkable that PRONAFICE's predictions regarding the increase in the rate of growth of manufacturing exports were in fact basically accurate -- it predicted a rate of growth between 10 per cent and 13 per cent. This new 'engine of growth' was, however, supposed to have generated an overall rate of growth for the whole manufacturing sector of between 8 per cent and 9 per cent ! Instead, the 'non-maquila' manufacturing sector only managed one-fifth of that rate, i.e., a meagre 1.8 per cent between 1981-2000 (or 2.9 per cent, if only the more dynamic 1988-2000 period is taken into account).

In other words, it was not just that expectations were excessively optimistic; it was also that the economic model itself was misunderstood: as far as PRONAFICE was concerned, the 'Mexican model' was going to deliver a relatively balanced growth in the manufacturing sector between exports and sectoral GDP. The perennial low share of value added in manufacturing exports, the continuing high import leakages (that would dwarf the export multiplier), the persistent lack of 'direct' and 'indirect' linkages between these exports and the rest of the economy, the enduring slow rate of growth of non-export manufacturing -- none of these was even a remote possibility in the minds of the architects of the PRONAFICE 'manifesto'. The new engine of growth was to deliver a relatively balanced growth in the Mexican economy simply because this engine would have the power to take the rest of the economy along with it.

Finally, the combination of constant productivity growth with falling wage growth means that, despite the poor performance of the manufacturing industry overall, the value of 'output minus wages and salaries per person employed' actually increased -- from 2.5 per cent to 3.6 per cent (see also below for a detailed discussion of this issue).

For the purpose of more detailed analysis of Mexico's 'non-maquila' manufactured export drive and the role of economic reform, this paper will classify Mexico's 'non-maquila' manufacturing sector into five groups according to the export orientation of the different manufacturing activities. Due to its enormous importance, 'Group 1' will only include the car industry (Group 57 in INEGI's accounts): towards the end of the 1990s, this activity alone accounted for almost a quarter of all Mexican manufacturing exports (reaching US\$ 29 billion, a figure similar to the total exports of the Argentinian economy). 'Group 2' will comprise those manufacturing activities which export more than one-third of their gross value added (except for cars); 'Group 3', those that export between 10 per cent and one-third of it; 'Group 4', those that export less than 10 per cent of their gross value added; and 'Group 5', those activities that process agricultural products (see Table 3 below for the activities included in each group).

As Table 3 shows, the slowdown in the growth rate of manufacturing is common to all sectors, including even the most dynamic export activities.

TABLE 3:
Annual Rate of Growth of Gross Domestic Product by Activity, 1960-2000
 (1980 prices; excludes 'maquila', %)

	60-81	81-00	88-00	60-72	72-81	81-88	88-94	94-00
Group 1								
56 Cars	12.6	5.4	9.3	12.9	12.1	(0.8)	15.7	3.2
Group 2								
34 Basic petrochemicals	24.8	7.1	4.7	35.3	12.1	11.4	6.2	3.2
35 Basic inorganic chem.	10.0	3.7	3.3	11.1	8.4	4.2	3.7	3.0
37 Plastic resins and synth. fib.	15.0	3.0	1.4	18.9	10.0	5.8	0.1	2.6
47 Non-ferrous metals	7.0	2.8	3.1	7.3	6.6	2.2	0.6	5.7
55 Electric equipment	9.1	2.7	4.7	9.1	9.1	(0.6)	8.4	1.1
46 Iron and steel	7.7	2.6	4.1	8.0	7.2	0.2	4.1	4.0
36 Pesticides and fert.	12.3	2.6	0.5	17.0	6.2	6.2	(2.7)	3.8
57 Motors and autoparts	17.0	2.2	3.0	22.7	9.9	0.9	4.6	1.3
43 Glass and glassware	8.7	2.1	3.1	9.8	7.3	0.5	4.8	1.6
33 Petroleum refinery	7.8	2.1	2.9	7.1	8.6	0.6	3.0	2.9
51 Non-electrical machinery	10.0	1.2	4.2	9.9	10.3	(3.7)	7.4	1.2
48 Metal furniture	6.6	0.3	4.4	7.6	5.3	(6.3)	6.1	2.7
59 Other manufacturing ind.	3.9	(0.8)	(0.1)	2.2	6.2	(2.0)	4.1	(4.2)
58 Other transport equipment	3.5	(1.0)	(0.4)	2.1	5.4	(2.1)	(5.3)	4.7
53 Household appliances	13.8	(1.1)	3.0	14.2	13.4	(7.9)	4.2	1.9
Group 3								
20 Alcoholic beverages	6.4	3.2	4.2	5.1	8.2	1.6	4.7	3.6
21 Beer and malt	7.1	3.0	4.6	5.9	8.8	0.2	6.9	2.4
54 Electronic equipment	11.1	2.5	5.0	11.3	10.8	(1.6)	5.8	4.1
40 Other chemical products	8.8	2.4	3.5	9.3	8.0	0.6	3.6	3.4
50 Other metal products	7.6	1.4	3.4	8.7	6.2	(2.0)	4.6	2.2
52 Machinery and electric eq.	9.3	1.1	3.1	10.0	8.4	(2.3)	4.5	1.8
26 Other textile industries	8.6	0.7	1.4	7.6	9.9	(0.4)	1.8	1.0
30 Other wood products	6.8	(0.4)	0.1	6.4	7.4	(1.2)	1.5	(1.4)
28 Leather and footwear	5.6	(1.2)	0.6	5.2	6.1	(4.3)	(0.4)	1.7
24 Cotton, wool, synth. fabrics	5.7	(1.4)	(1.5)	6.8	4.4	(1.3)	(3.6)	0.6
Group 4								
39 Cleaning and cosmetic prep.	8.7	3.2	3.8	8.3	9.3	2.1	5.4	2.2
42 Plastic products	10.8	2.9	4.3	11.3	10.2	0.7	5.7	2.9
44 Cement	8.8	2.7	2.1	8.9	8.6	3.9	4.1	0.2
22 Soft drinks and flavorings	7.9	2.6	3.9	7.8	8.1	0.4	5.0	2.7
38 Medical products	8.3	1.8	2.9	9.2	7.2	(0.0)	4.4	1.4
31 Paper and pulp	8.4	1.8	1.4	8.9	7.7	2.5	0.4	2.3
41 Rubber products	8.0	1.7	1.6	7.7	8.5	1.8	2.1	1.1
49 Metal structures	7.1	1.4	5.4	8.6	5.2	(5.2)	8.8	2.2
45 Ceramics	6.9	1.2	2.4	7.8	5.7	(0.8)	4.0	0.9
32 Printing	6.2	1.0	1.6	6.2	6.2	(0.2)	1.9	1.3
27 Apparel	7.7	(0.2)	1.1	10.8	3.7	(2.4)	0.7	1.5
29 Articles of wood	4.8	(1.3)	(2.3)	4.0	6.0	0.3	(4.3)	(0.2)
Group 5								
12 Fruit and vegetables	6.3	4.0	3.9	8.1	4.0	4.2	6.8	1.1
17 Fats and oils	6.1	2.6	3.0	7.5	4.3	1.9	3.7	2.4
19 Other food products	6.7	2.6	3.1	6.3	7.2	1.7	3.4	2.7
11 Dairy and meat products	4.7	2.5	3.5	4.9	4.3	0.7	5.2	1.8
16 Sugar	3.0	2.3	1.1	4.3	1.3	4.3	1.5	0.7
14 Corn milling	4.5	2.2	1.9	3.9	5.2	2.8	1.6	2.3
13 Wheat milling	5.3	1.3	1.7	5.6	4.9	0.6	0.8	2.6
15 Coffee	5.1	0.9	0.2	5.3	4.8	2.2	(1.7)	2.1
18 Animal feed	8.1	(0.4)	2.9	7.6	8.8	(5.7)	3.4	2.3
23 Tobacco	3.4	(0.5)	0.0	4.5	1.9	(1.4)	(0.6)	0.7
25 Jute and other hard fibers	(1.3)	(9.6)	(13.1)	(0.1)	(2.8)	(3.3)	(25.6)	1.6
All Manufacturing								
	7.0	1.8	2.9	7.1	6.8	0.1	3.7	2.0

- Groups' figures are median values; 'all manufacturing' is a mean value. Activities within each group are ranked according to their 1981-2000 growth figure.

Table 4 shows the output structure of the sector between 1960 and 2000.

TABLE 4: Structure of 'non-maquila' Manufacturing GDP

(1980 prices, %)

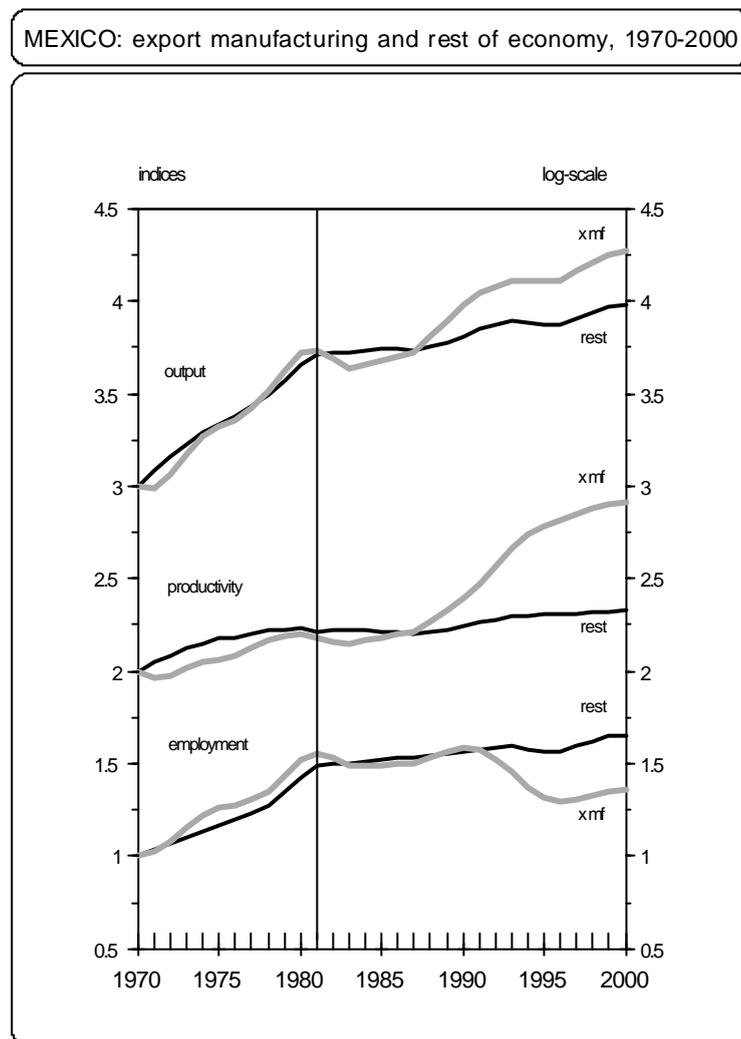
	1960	1971	1976	1981	1986	1988	1990	1994	1996	1998	2000
Group 1	1.5	2.6	3.1	4.2	2.6	4.0	5.6	7.7	7.0	7.7	8.2
Group 2	20.4	22.4	24.5	26.0	24.6	26.3	26.2	26.7	27.1	27.1	26.9
Group 3	22.7	22.6	22.7	23.3	22.2	21.2	21.1	19.9	19.4	19.8	19.9
Group 4	24.6	27.6	27.6	27.6	28.7	27.9	27.7	26.7	26.8	26.6	26.1
Group 5	30.9	24.7	22.0	18.9	22.0	20.6	19.3	19.0	19.7	18.8	18.9
All Manufacturing	100	100	100	100	100	100	100	100	100	100	100

One of the consequences of the relatively uniform reduction in the growth rate of manufacturing is that, in 2000, Groups 2, 4 and 5 ended up with an almost identical share in total manufacturing output to that in 1981. Only Group 1 (cars) increased its share at the expense of Group 3 (activities that export between 10 per cent and 33 per cent of their output). What is particularly odd about this is that the less export-oriented (and more import-competing) activities (Groups 4 and 5) have very nearly been able to maintain their share in the overall output of the sector.

Figure 16 illustrates from a different angle the 'collapse' of the export multiplier and of the production linkages between the export sector and the rest of the economy: the growing 'detachment' of the export-manufacturing sector (Groups 1 and 2) from the rest of the economy, particularly in terms of productivity growth.

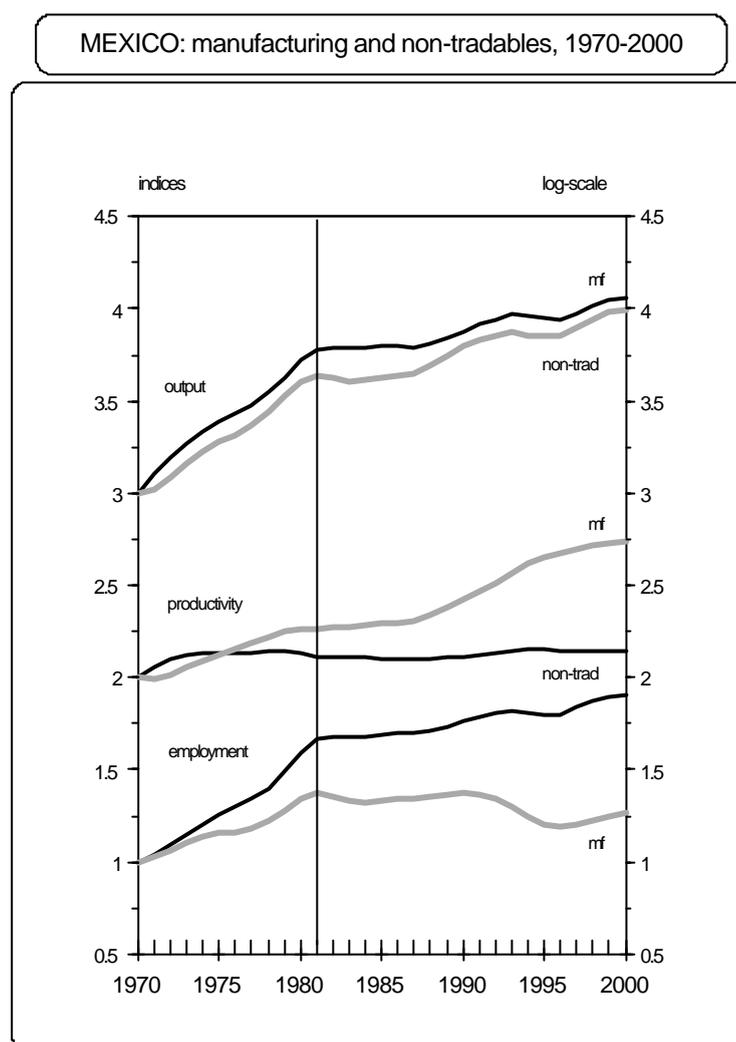
A characteristic of the Mexican economy prior to trade and financial liberalisation was that, in terms of value added, productivity and (hence) employment, those manufacturing activities that would become strongly export-oriented after 1982 grew at virtually the same pace as the rest of the economy. However, from the mid-1980s onwards, these activities raced ahead of the rest, both in terms of value added and (in particular) productivity (thus leaving employment lagging behind). There is little doubt that, in the activities that shaped the new 'engine of growth', value added, and particularly productivity, responded well to the stimulus of trade liberalisation and NAFTA, but it is equally obvious that they were totally unable to sweep along the rest of the economy with them. In fact, the non-export-manufacturing sector of the economy hardly saw any productivity growth at all! The contrast is also clear when the whole of the manufacturing sector is compared with the non-tradable activities.

FIGURE 16



- **xmf** = manufacturing activities that export more than one-third of their output (Groups 1 and 2); and **rest** = rest of the economy. **Output** refers to GDP of each group of activities.

FIGURE 17



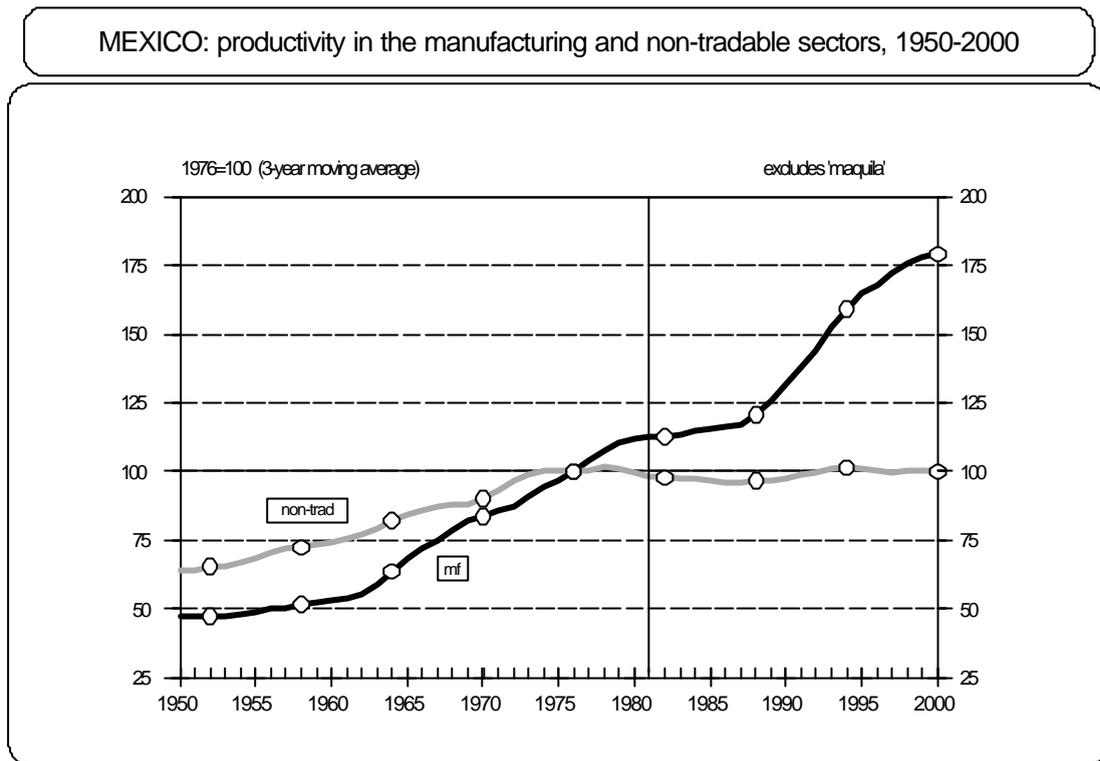
- **mf** = all manufacturing activities; and **non-trad** = non-tradables (all services and construction). **Output** refers to GDP of each group of activities.

What we really find in Mexico is a case of two economies running in parallel, and both with similar output growth. However, the first of these -- manufacturing (and particularly its more export-oriented activities) -- gathered productivity-momentum as from the mid-1980s, while the other, non-tradables (accounting for no less than two-thirds of the Mexican economy) has seen no productivity growth at all since the mid-1970s.³⁷

The problem is not just that the export multiplier has collapsed; but the 'productivity-linkages' between manufacturing and non-tradables have also completely broken down.

³⁷ See especially Dussel Peters (2000a and 2002).

FIGURE 18



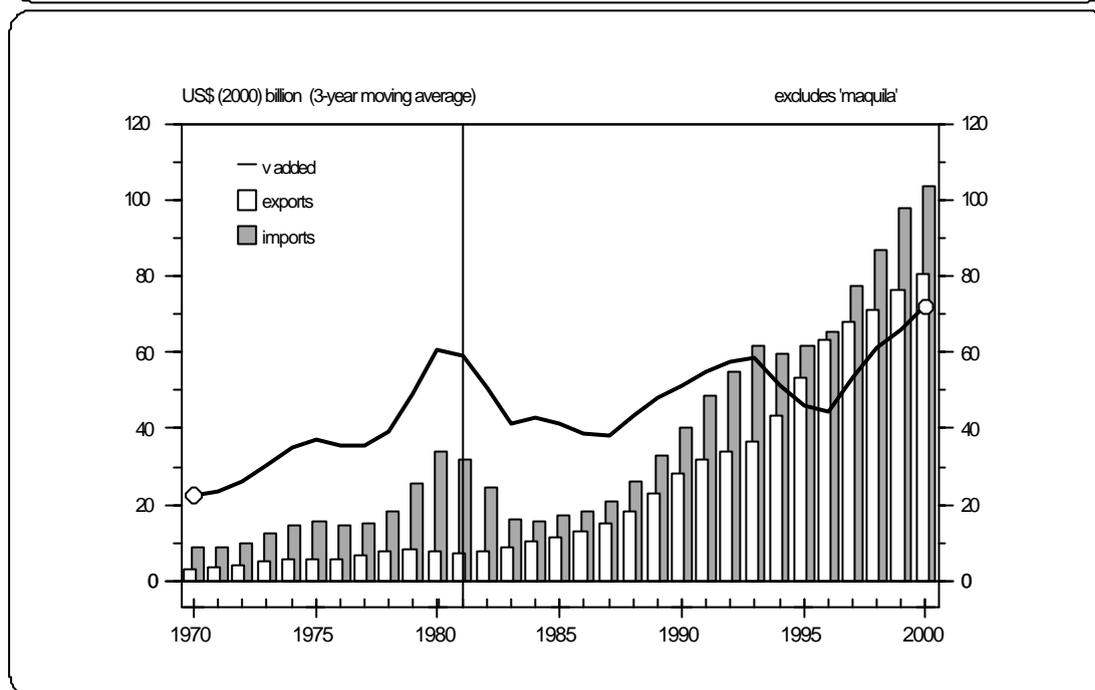
- [mf] = all manufacturing; [non-trad] = non-tradable activities.
- As in other graphs below, intervals between circles correspond to presidential periods.

As this graph shows, before the mid-1970s, productivity growth in manufacturing was at least associated with some productivity growth in non-tradables; later on, however (in fact, since the 1973 oil crisis), there has been no productivity growth at all in the non-tradable sector, while manufacturing has continued with a relatively stable productivity growth (an annual average of 2.5 per cent both for the 1960-1981 period, and for 1981-2000).

Dynamic 'non-maquila' manufactured export expansion and poor growth performance of the manufacturing sector are obviously connected through the declining share of value added in exports. However, an important statistical problem arises when studying this specific issue: Mexican official statistics do not give us any direct information on the share of value added in non-maquila manufactured export. We, therefore, have to make do with indirect evidence such as the comparison of GDP (measured in terms of value added) with exports (measured in terms of output).

FIGURE 19

MEXICO: value added, exports and imports of the manufacturing sector, 1970-2000



- **v added** = value-added; as exports and imports are measured using the SITC classification, in order to make a more appropriate comparison in this graph value-added is also measured in the SITC classification (and not in the usual ISIC one). The change in classification is done by deducting food products (311), beverages (313), tobacco (314), petroleum refinery (353), miscellaneous petroleum and coal products (354) and non-ferrous metals (372) from the value-added measured in the traditional ISIC classification (in the SITC classification, the above activities are included in the primary sector).
- *Source:* INEGI (2001); see also Trade and Development Report (2002).

Even taking into account the fact that US dollar-denominated manufacturing value added in Mexico has been affected by the sharp changes in the exchange rate during this period, it is clear that the 'non-maquila' industry has also experienced a significant decline in the relative level of value added of the industry vis-à-vis its exports and imports. Some decline in this direction was to be expected as the industry radically changed its export orientation. In 1984, PRONAFICE forecast that the ratio of exports to value added in manufacturing was going to increase from 10 per cent in 1980 to 18 per cent in 1995 (see PRONAFICE, 1984). In fact, in the 'non-maquila' manufacturing sector, this ratio increased from 10 per cent in 1980 to 150 per cent in (the crisis-year) 1995; with the later recovery of output (and the revaluation of the peso), this ratio dropped substantially, but by 2000 it was still well above 100 per cent -- i.e., it had a level that was at least six times greater than originally predicted !

Due to the peculiar characteristics of the 'maquila' sector, this ratio went through the roof, reaching 635 per cent in 1995; and by 2000, it reached a level of 864 per cent.

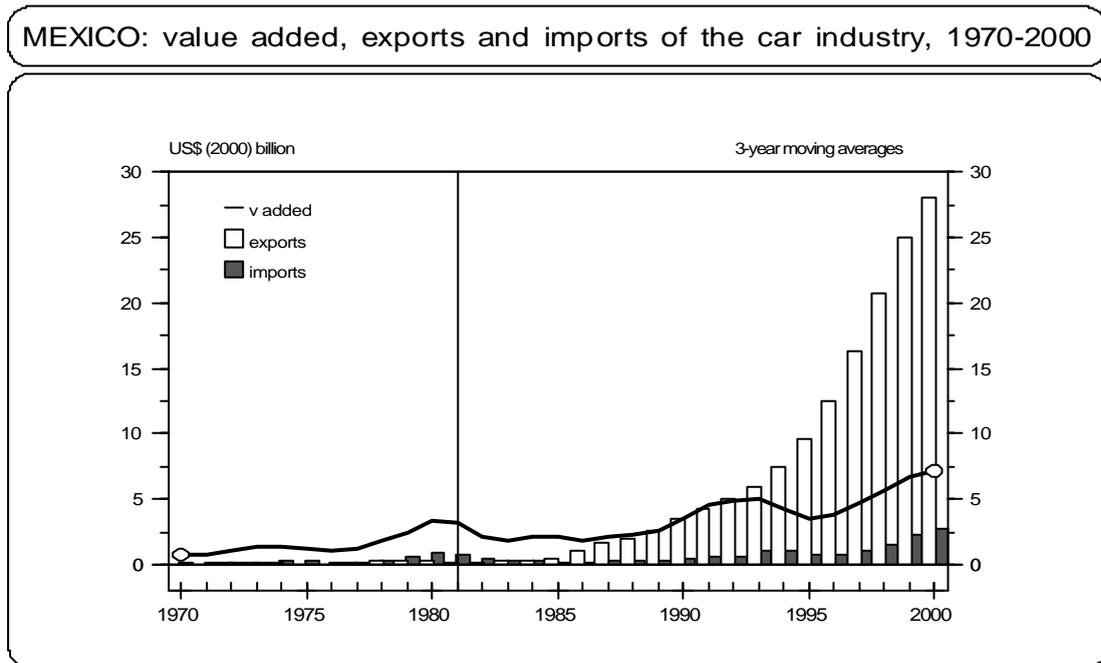
In terms of manufacturing imports, PRONAFICE's forecast did no better: it predicted that, with the economic reforms, the ratio of manufacturing imports over manufacturing supply (imports plus sectoral GDP) would decrease from 28 per cent in 1980 to about 20 per cent in 1995; as it was, in 'non-maquila' manufacturing, it not only increased but it actually

doubled to 58 per cent in both 1995 and 2000. (In the ‘maquila’ sector, this ratio increased to 84 per cent in 1995 and 87 per cent in 2000.)³⁸

Figure 20 indicates that this change took on an extreme form in the ‘star’ performer of the ‘non-maquila’ sector – the car industry. In this industry, the export/value-added ratio increased from 8 per cent in 1980 to 378 per cent in 2000; and the imports/supply ratio also increased (from 22 per cent in 1980 to 30 per cent in 2000).

The relative low level of value added -- and the speed of the drop in the share of value added vis-à-vis exports -- contrasts markedly with developments associated with manufactured-export-led growth in other countries. For example, in 2000, Korea had a manufacturing industry with, on the one hand, a level of exports similar to that of Mexico, but, on the other, twice the level of value added and half the level of manufacturing imports. Furthermore, Korea had relatively low levels of manufacturing imports despite a substantially higher level of investment in machinery and equipment, which traditionally have a high import component. Consequently, the export/value-added ratio of the Korean manufacturing sector actually dropped from 106 per cent in 1980 to 65 per cent in 1995 (90 per cent in 2000 after the sharp devaluation of its currency following the 1997 financial crisis); and the import/supply ratio also fell from 43 per cent in 1980 to 35 per cent in both 1995 and 2000. Mexico and Korea may both currently export a similar amount of manufactured exports (about US\$ 150 billion), but that is just about where their similarities end !

FIGURE 20

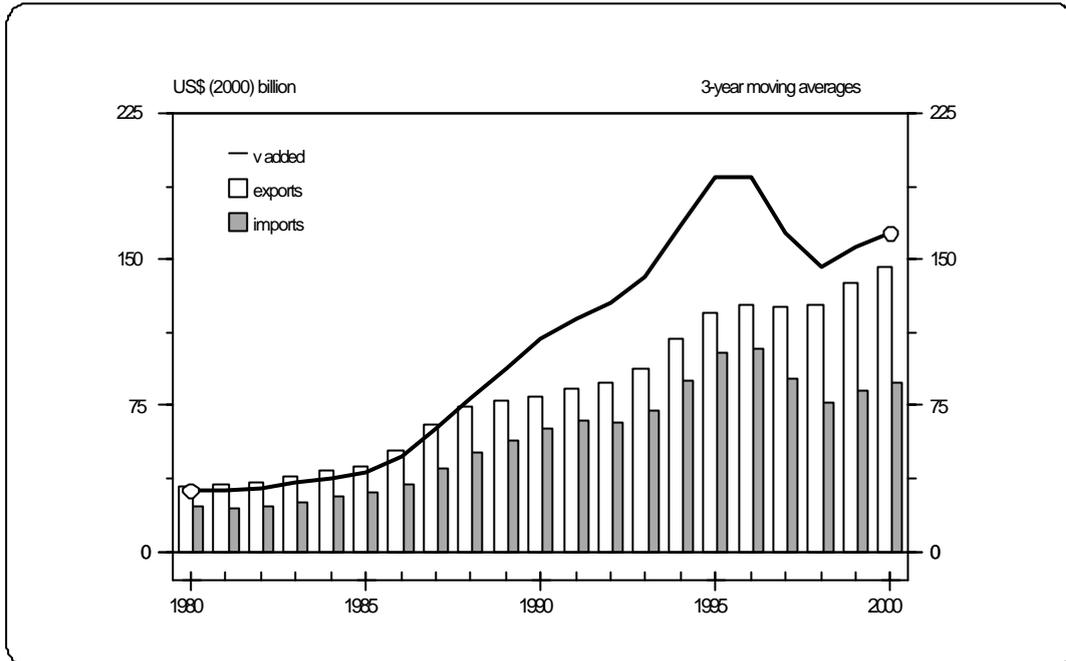


- **v added** = value-added.

³⁸ In what appears to be a ‘magical-realist’ twist, in 1999, one observer of the Mexican economy tried to put a positive ‘spin’ on the fact that these export/value-added and imports/supply ratios had ended up much higher than predicted: they were supposed to show that the post-reform Mexican economy had even ‘exceeded its targets’ (Tepepa, 1999; p. 6). Therefore, “this shows that the structural change foretold (sic) by PRONAFICE in effect occurred” (ibid.). In fact, as discussed in detail below, these targets were ‘exceeded’ not because manufacturing exports grew faster than forecasted (in fact, PRONAFICE was quite accurate in its predictions for the rate of growth of this variable), but due to three unanticipated negative factors: (i) a lower than expected share of value-added in manufacturing exports; (ii) a particularly low rate of growth of non-export manufacturing; and (iii) a rate of growth of manufacturing imports substantially higher than predicted.

FIGURE 21

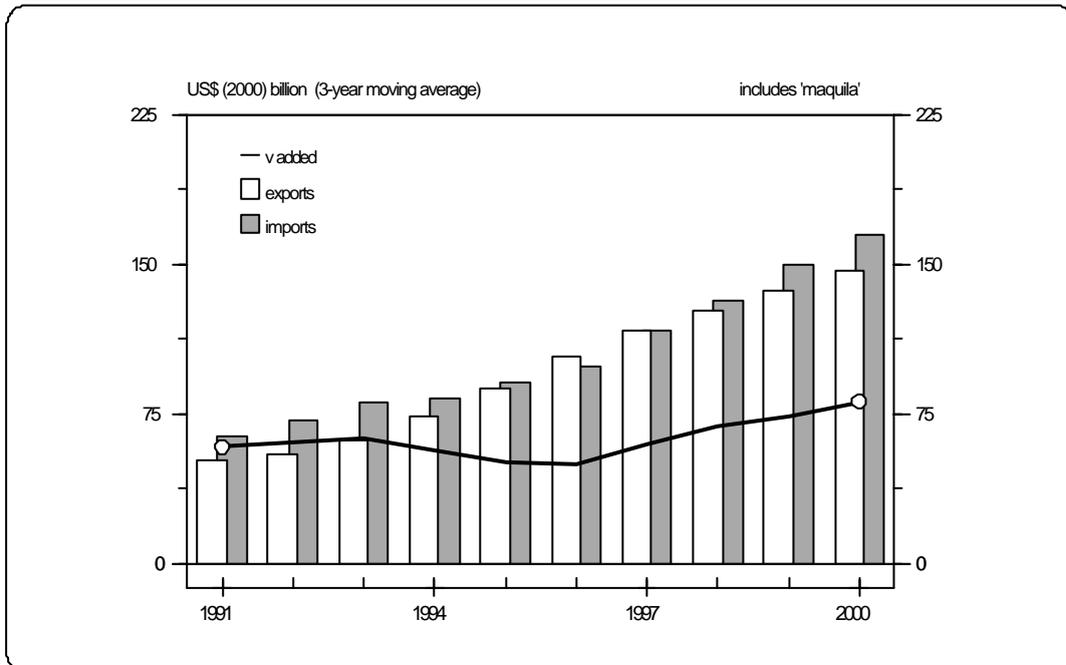
KOREA: value added, exports and imports of the manufacturing sector, 1980-2000



- **v added** = value-added (measured in the SITC classification; see Figure 19).
- *Source*: UNIDO (2002).

FIGURE 22

MEXICO: value added, exports and imports of all the manufacturing sector, 1991-2000



- The relevant data for the 'maquila' industry are available only from 1991; see INEGI (2002), and Figures 14 and 19.
- **v added** = value-added (measured in the SITC classification; see Figure 19).

Table 5 shows one of the consequences for the Mexican economy of the increase in the ratio of manufactured imports to manufacturing output mentioned above: even in highly export-oriented activities, such as Group 2 (with an export-gross value added ratio of over one-third), the net export figure remains strongly negative -- over US\$ 28 billion in 1998. Despite the high growth rate of manufacturing exports, the net export figure in Mexico's manufacturing sector has remained strongly negative during the 'up-swing' of the cycle -- US\$ 20 billion in 1998; in fact, by 1993 (the last year with detailed figures not including 'maquila'), of the 49 activities of the sector only 13 had a positive net export figure.³⁹

TABLE 5: Net Exports

(US\$ 2000, billion; manufacturing excludes 'maquila')

	1970	1976	1981	1986	1988	1990	1994	1995	1998
Manufacturing									
Group 1	(0.2)	(0.2)	(0.8)	0.7	1.7	2.8	5.1	9.3	18.8
Group 2	(5.0)	(8.9)	(25.6)	(5.2)	(8.4)	(13.5)	(23.5)	(12.0)	(28.4)
Group 3	(1.0)	(0.8)	(3.8)	(0.9)	(1.9)	(4.2)	(7.7)	(2.4)	(7.2)
Group 4	(0.7)	(0.9)	(3.1)	(0.8)	(1.1)	(3.1)	(6.0)	(3.5)	(7.2)
Group 5	1.2	1.8	(0.3)	1.7	0.4	(2.2)	(2.6)	(0.2)	(2.6)
Agriculture	0.5	0.0	(3.0)	0.2	(0.9)	(0.4)	(1.1)	1.0	0.2
Mining	0.5	2.1	25.2	9.2	8.9	12.3	7.5	8.6	13.7
Manufacturing	(5.7)	(9.0)	(33.6)	(4.4)	(9.3)	(20.2)	(28.1)	2.4	(19.5)
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Utilities	(0.0)	(0.0)	1.0	0.1	0.0	0.0	(0.0)	(0.0)	(0.1)
Services	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	n.a.	n.a.	n.a.
All economy*	(4.7)	(6.9)	(10.4)	5.0	(1.3)	(8.2)	(28.2)	0.7	(10.5)
Manufacturing	(5.7)	(9.0)	(33.6)	(4.4)	(9.3)	(20.2)	(28.1)	2.4	(19.5)
Non-manufacturing	1.0	2.1	23.2	9.5	8.1	11.9	(0.1)	(1.8)	8.9

- 'All Economy' excludes data on services from 1994 onwards. As mentioned above, INEGI stopped publishing detailed separate accounts for the 'non-maquila' sector in 1993, but still provides aggregate information for the 'non-maquila' manufactured exports (see INEGI, 2002); therefore, this INEGI information is used for the figures for the whole of the 'non-maquila' manufacturing sector ('manufacturing' in the table), while figures for individual 'non-maquila' manufacturing groups after 1993 are calculated according to the methodology described in the Appendix. The 'peak' years of 1981 and 1994 are highlighted.

³⁹ Moreover, for only seven of these activities was this figure greater than US\$ 100 million (and for only two, greater than US\$ 500 million).

An example of the high (and still unsustainable in the upswing of the cycle) import propensity of the Mexican economy is what happened between 1998 and 2000: while GDP grew by 11 per cent during this period, the dollar value of imports grew by 42 per cent (a 3.8 'gross imports-GDP elasticity').⁴⁰ As a result of the rapid growth of imports, the deficit in the current account increased to US\$ 20 billion -- and this deficit occurred despite high oil prices, which may well not continue in the future. In the meantime, the real exchange rate, instead of moving in a direction that would have helped reduce this deficit, continued its path in the opposite direction -- during the second half of the 1990s it was revalued by no less than 30 per cent. Not surprisingly, the slowdown in the United States economy caught Mexico completely wrong-footed.

There is little doubt that both this extraordinary necessity to absorb imports as economic growth accelerates (even at a very slow rate), and the insistence of the Mexican policy makers to allow the capital account of the balance of payments to determine the exchange rate, will restrict Mexican economic growth to a stop-go cycle for many years to come. Inevitably, there is a sense of *déjà vu*...⁴¹

2.6. The unexpected comparative-advantage pattern that emerged in the 'non-maquila' manufacturing sector

2.6.1 The initial conditions: wages and salaries, capital intensity, productivity and investment

Tables 6, 7 and 8 below show that in the 'non-maquila' manufacturing sectors, those activities that ended up with the highest export/output ratio had some 'unexpected' characteristics before trade liberalisation. Groups 1 and 2 (manufacturing activities that managed to export more than one-third of their output towards the end of the 1990s, including cars) had the highest level of average wages and salaries within the manufacturing sector at the beginning of the period of trade liberalisation. Table 6 shows that, in 1981 (and 1984), Group 1 had over twice the average level of wages and salaries of Groups 3, 4 and 5, and that the corresponding figure in Group 2 was about 60 per cent higher than the average remuneration of the other three groups. The large amounts of FDI flow into Groups 1 and 2 after 1981 do not seem to have been attracted, à la Heckscher-Ohlin-Samuelson, by advantages in terms of cheap labour (as in the 'maquila' sector). Furthermore, according to the data and methodology of the sources of Table 7, in 1981, Groups 1 and 2 also had the highest 'capital intensity' (ratios of capital stock per worker) of all groups.⁴² In 1981, the 'stock of capital' per worker in Group 1 was four times greater than the average figure for Groups 3, 4 and 5, while that of Group 2 was three times greater.⁴³ Again, FDI flows into Groups 1 and 2 after

⁴⁰ For convenience -- but with all the due caveats -- throughout the paper the ratio of the rate of growth of two variables will be called 'gross elasticity'.

⁴¹ This again was not part of PRONAFICE's original plan; this document emphasised that the new economic model was going to deliver both an economy that would not be 'externally vulnerable', and one capable of generating 'self-sustained' rapid rates of growth (see PRONAFICE, 1984). Furthermore, a crucial policy aim of successive governments was always going to be to keep the exchange rate at a 'realistic level'.

⁴² Capital stocks are calculated using the 'perpetual inventory system'.

⁴³ Of course, as is well known, figures on capital stocks are controversial at best (particularly for a Cambridge economist!); however, the methodology used is the least controversial, and the differences in magnitude between Groups 1 and 2 and the rest of the 'non-maquila' manufacturing industry are so great that it is hard to believe they are just the results of statistical distortions.

1981 cannot be accounted for by reference to the possibility of exploiting, in a Heckscher-Ohlin-Samuelson-style, labour-intensive-techniques-activities (again, as it was the case in the 'maquila' sector).

TABLE 6: Wages and Salaries per Worker

(US\$ 1980, thousand; excludes 'maquila')

	1970	1976	1981	1984	1988	1992	1994	1996	1998
<u>Manufacturing</u>									
Group 1	9.2	11.6	12.0	8.9	9.7	12.7	11.7	9.7	12.1
Group 2	6.7	7.8	8.3	6.4	6.6	7.3	8.5	6.7	8.3
Group 3	4.8	6.4	5.8	4.8	4.7	5.8	6.3	4.5	5.3
Group 4	4.8	6.1	5.7	4.8	4.5	5.2	5.4	4.0	4.9
Group 5	3.6	5.0	4.1	3.4	3.0	3.7	3.9	2.9	3.5
<hr/>									
Agriculture	0.7	0.9	0.8	0.6	0.5	0.4	0.4	0.3	0.3
Mining	6.3	6.8	6.6	4.8	4.5	4.3	4.0	3.0	3.6
Manufacturing	4.7	6.1	6.1	4.9	4.7	5.6	5.9	4.5	5.6
Construction	3.7	4.8	4.3	3.3	2.6	2.5	2.6	2.1	2.4
Utilities	11.7	19.6	13.6	10.1	8.1	8.8	9.6	6.2	7.2
Services	3.6	5.0	4.5	3.6	3.0	3.4	4.4	3.2	3.8
<hr/>									
All Economy	2.6	3.6	3.7	2.9	2.5	2.8	3.0	2.2	2.7
Manufacturing	4.7	6.1	6.1	4.9	4.7	5.6	5.9	4.5	5.6
Non-manufacturing	2.2	3.2	3.4	2.7	2.2	2.5	2.7	2.0	2.4

- Figures are mean values. Nominal wages of each year were first transformed into US\$, and then changed into US\$ of 1980 value using the United States GDP deflator.

TABLE 7: 'Capital Intensity'

(capital 'stock' per worker; 1980 prices; figures in US\$ 1980, thousand)

	1970	1976	1981	1986	1988	1990	1992	1993	1994	1996
Manufacturing										
Group 1	17	18	22	47	42	27	29	36	50	64
Group 2	13	15	16	19	16	12	12	14	n.a.	n.a.
Group 3	5	5	6	8	7	6	7	7	7	8
Group 4	3	5	6	6	6	4	5	5	6	6
Group 5	8	6	5	4	4	5	5	5	4	6
Mining	6	9	11	11	13	13	14	14	12	13
Manufacturing	9	10	11	13	11	10	10	12	n.a.	n.a.
Construction	1	1	0	0	0	0	0	0	0	0
Services	2	1	1	1	1	1	1	1	n.a.	n.a.
All Economy *	4	3	3	3	3	3	3	3	n.a.	n.a.

- Group figures are median values; those for the whole sector are mean values. In the original source there is no information on agriculture and utilities; so 'all economy' is the average of mining, manufacturing, construction and services. As data is just a rough approximation, it is shown without a decimal point. Original data for each year was expressed in 1980 pesos; it was then changed into US\$ using the exchange rate of that year.
- *Source:* Banco Central de Mexico (2002; see Appendix).

TABLE 8: Labour Productivity

(output per worker; 1980 prices, pesos)

	1970	1976	1981	1984	1988	1992	1994	1996	1998	2000
Manufacturing										
Group 1	524	612	804	692	948	1527	1725	1737	1957	2084
Group 2	393	414	463	462	494	602	754	809	855	870
Group 3	260	318	368	386	396	470	525	550	582	592
Group 4	287	343	397	407	418	471	515	533	555	558
Group 5	327	369	388	399	397	453	475	479	488	504
Agriculture	59	69	67	68	64	70	72	73	74	75
Mining	399	444	739	734	666	723	727	738	767	781
Manufacturing	312	362	412	417	435	523	589	609	641	654
Construction	180	177	146	138	129	112	114	114	125	125
Utilities	493	627	572	612	667	753	834	848	842	846
Services	232	269	276	271	269	289	297	284	286	288
TOTAL	182	220	228	226	225	246	253	251	257	261
Manufacturing	312	362	412	417	435	523	589	609	641	654
Non-manufacturing	162	199	203	202	198	213	218	214	219	221

- Group and sector figures are weighted averages. Output is GDP of the sector or group.

As if these two characteristics of Groups 1 and 2 were not intriguing enough, there is the further issue of (an unexpected) lack of productivity differentials. Table 8 shows that, in 1981, at least Group 2 did not show the high level of productivity one would have expected from a sector with high levels of capital per worker and (relatively) high levels of remuneration. As can be seen in the table although Group 1 (which had the highest level of remuneration and capital per worker) did have the highest level of productivity in 1981 (in fact, more than twice the average level of Groups 3, 4 and 5), productivity in Group 2 was not substantially higher than in these three groups (only 20 per cent higher, despite its much higher level of remuneration and capital per worker). As will be discussed below, the relatively low level of productivity in Group 2 in 1981 stems from the fact that the rates of productivity growth of activities in this group (together with those of activities in Group 5) were the lowest of any group between 1970 and 1981 -- 1.5 per cent per annum as opposed to about 4 per cent in Groups 1, 3 and 4.

Hence, Group 2, which by 1993 (the last year in which the national accounts properly separated 'maquila' from 'non-maquila' manufacturing exports) was providing more than half of all 'non-maquila' manufacturing exports, comprised manufacturing activities that, in 1981, were characterised by a high level of remuneration, a high stock of capital per worker and low productivity growth: hardly the obvious product choice for an export drive in a middle-income DC. Apparently, there was no cheap labour, labour-intensive technologies, nor already established productivity dynamism to take advantage of !

Why then did FDI in particular choose these activities as a new 'non-maquila' export platform to the United States ? The most common answer is twofold. Firstly, it is often argued that, in the 'non-maquila' manufacturing sector, FDI first chose the type of product it wanted to export to the United States, and then came to Mexico to produce it, rather than looking within Mexico from the outset to see which activities it would be logical to export to the United States given Mexico's resource endowment. Secondly, many activities under Group 2 that were re-allocated to Mexico from the United States were labour-intensive in the United States, given their resource endowment.⁴⁴ Therefore, as both arguments would have it, FDI moved into Mexico for reasons more to do with the real economy of the United States than that of Mexico. Nevertheless, this being Mexico, nothing is as straightforward as it sounds. As will be discussed in the remainder of this section, there is much more to Mexico's 'non-maquila' comparative advantage story, particularly that of Group 2.

To begin with, if FDI moved into Mexico only as a result of the characteristics of the United States rather than the Mexican economy, one would have expected high levels of investment to have followed close on the heels of the decision to export these (initially relatively uncompetitive) Mexican products to the United States. Figure 23 shows that for most of the 'non-maquila' manufacturing industry the opposite was in fact the case -- especially for Group 2 !

The investment story of Group 1 (cars) is a clear-cut case of an 'export-investment' nexus.⁴⁵ Although, in 1981, it was characterised by relatively high levels of remuneration and capital per worker, it also had a corresponding high productivity level. With NAFTA and trade liberalisation, FDI decided to use Mexico as an export platform to the United States, and there was a massive inflow of investment to back up this decision. Towards the end of the

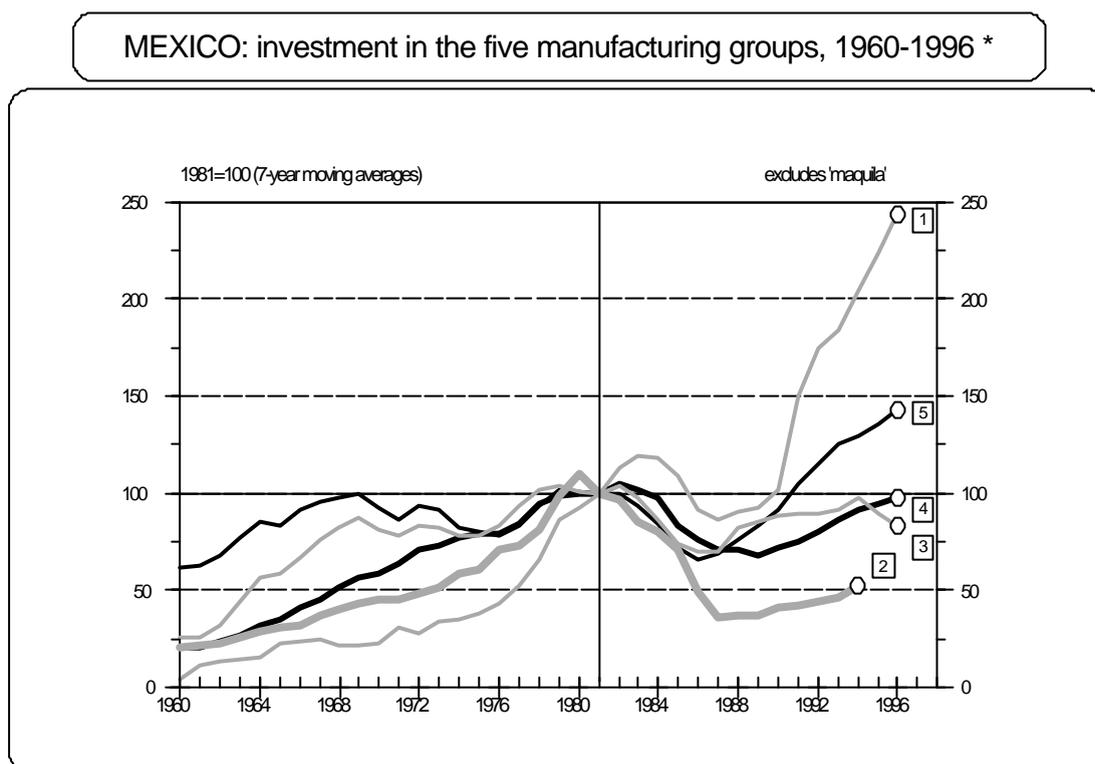
⁴⁴ Examples of activities of Group 2 reallocated from the United States into Mexico are 'motors and auto parts', 'non-electrical machinery', 'electric equipment', 'iron and steel', 'plastic resins and synthetic fabrics' and 'inorganic chemicals'; by 1993 these seven activities alone accounted for more than one-third of Mexican 'non-maquila' manufacturing exports.

⁴⁵ For an analysis of the 'export-investment' nexus, see the UNCTAD (1996).

1990s, the car industry in Mexico was exporting nearly US\$ 30 billion and had net exports reaching US\$ 20 billion.

However, the overall story of Group 2 does not fit into this neat picture but instead appears to defy reason. As mentioned above, activities in this group were also characterised by relatively high levels of wages and salaries and capital per worker to start with. However, not only were productivity levels much lower in 1981, but levels of investment in this group of activities after 1981 were also particularly low -- in the peak year of 1994, investment in Group 2 was at only half the level of the previous peak (1981-82).

FIGURE 23



- numbers indicate group of manufacturing activities. For a detailed listing of manufacturing activities of each group, see Table 3. For some activities in Group 2 investment data are only available until 1994. As investment often fluctuates sharply from year to year, this graph uses a 7-year moving average to show a more long-term trend.
- *Source:* Banco Central de Mexico (2002; see Appendix).

Even if one were to accept the two standard justifications for the weak investment performance of practically the whole of post-reform Latin America, the decline of investment in Group 2 seems rather extreme. These two justifications are: (i) that investment figures at constant prices (particularly for 1980) do not take into account changes in relative prices of capital goods (rendering a comparison of investment levels difficult, because investment figures at 1980 prices do not capture the fall in the relative prices of these goods); and (ii) that in a liberalised economy, investment may be so much more productive that the 'accelerator' could perfectly well decline.

There is, therefore, little doubt that, to understand the investment enigma we find in Group 2, one has to look beyond these two generally (and too easily) accepted explanations for the poor performance of investment in Latin America. The sections on employment and

wages below will provide some suggestions in this context, indicating that 'down-sizing' and wage-cuts (the usual suspects) are crucial elements of this successful export story.

However, according to Central Bank investment statistics, the most important 'missing link' in the explanation of the peculiar behaviour of Group 2 activities is provided by a truly massive (public-sector-led) investment drive in several activities of this group at the tail end of the ISI period (towards the end of the 1970s, and lasting up to 1982/83). In particular, investment in three activities of this group -- iron and steel, petroleum refinery and basic petrochemicals -- increased fourfold in real terms between the two seven-year periods of 1970-1976 and 1977-1983. However, the huge increase in investment in these activities was short-lived, as in the next seven-year period, 1984-1990, investment returned to its 1970-1976 ('pre-boom') level.

Thus, in the case of Group 2 activities, the 'swan song' of ISI was a massive investment drive (mainly financed by oil revenues), from which these activities (and the new owners after privatisation) have been benefiting ever since.⁴⁶ In this way, the 'economic capabilities' built during ISI, the exceptional ease of access to the United States' market, and the institutional changes in the labour market (allowing for drastic cuts in employment and wage stagnation), made it possible to increase exports in many manufacturing activities (such as those in Groups 2 and 3 in particular) without requiring an increase in investment comparable to that occurring in the case of the car industry.

However, according to the new INEGI national accounts (1993 SNA, which include 'maquila'⁴⁷), at least part of this long-delayed recovery in investment finally seems to have taken place at the end of the 1990s. Thus, investment Groups 2 and 3, after a sharp drop following the 1994 crisis, made a recovery in 1997-1999. As a result, in 1999, the level of investment in the activities of Group 2 for which information is available is about one-third higher than in 1994, while that for Group 3 is about 50 per cent higher in 1999 than in 1994. Nevertheless, in all probability, in both groups this recovery only just brings investment back in the 'non-maquila' manufacturing sector to roughly the levels of the late 1970s and early 1980s. Furthermore, this recovery of investment is also highly concentrated -- with only one activity accounting for more than half the overall investment in each group (non-electrical machinery in Group 2 and electronic equipment in Group 3); and as these two activities have a high 'maquila' segment, it is not possible with the new national accounts to know what is really happening to investment in the 'non-maquila' sector of these two groups after 1996.

2.6.2 Productivity growth and diversity in 'non-maquila' manufacturing

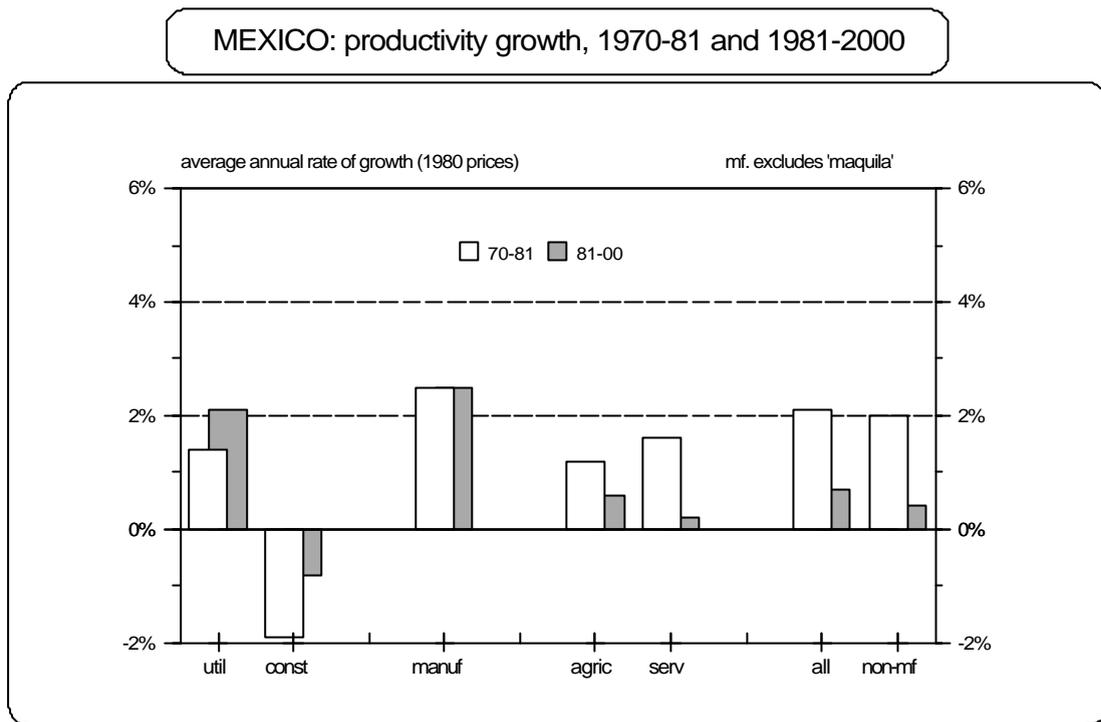
Figure 24 compares the average productivity performance of the 'non-maquila' manufacturing industry with that in other sectors of the economy. After 1981, only utilities and construction improved their productivity performance; productivity growth remained unchanged in manufacturing, and declined in agriculture and services. However, since the latter sectors account for two-thirds of Mexican GDP, the overall productivity performance of the economy is particularly disappointing: its growth fell from an average of 2.1 per cent per year before 1981 to just 0.7 per cent afterwards. In fact, the non-manufacturing sector of the economy saw its productivity growth reduced from 2 per cent before 1981 to just 0.4 per cent in the 'liberalised' period.

Figure 25 shows that the relatively stable average productivity growth of the 'non-maquila' manufacturing sector, however, hides a growing divergence among the five groups.

⁴⁶ This also explains why the capital stock figures for Group 2 were so high in 1981, without productivity having had the time to follow suit.

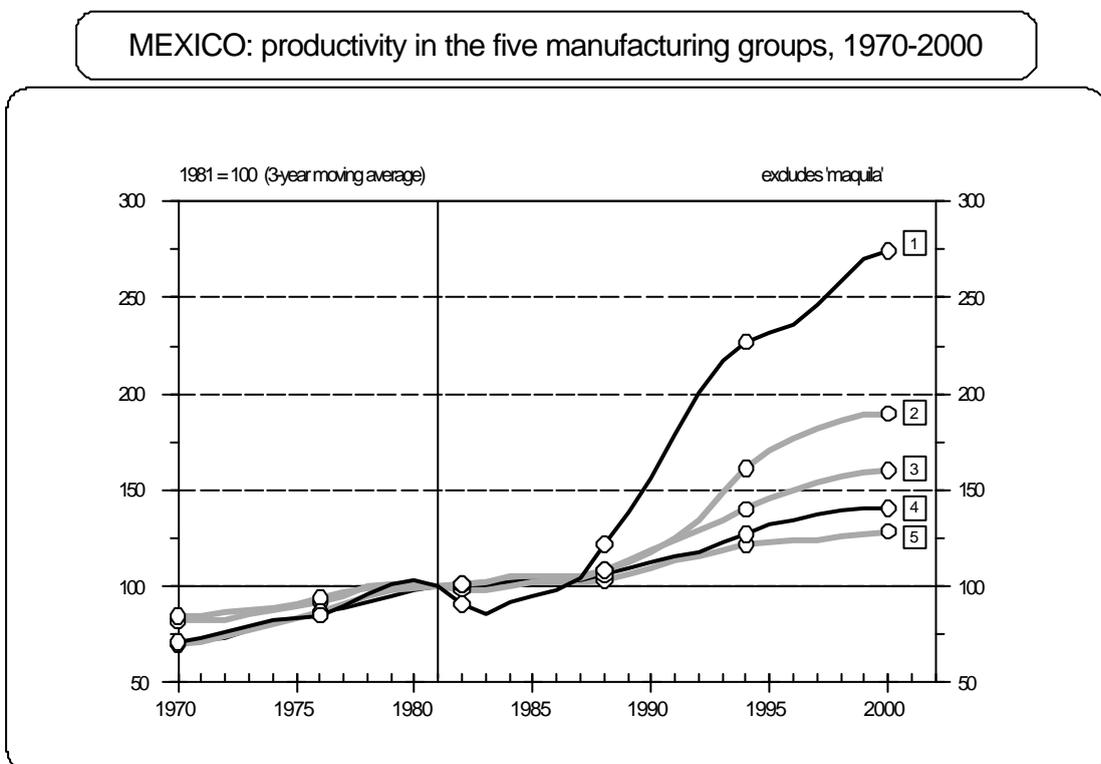
⁴⁷ Unfortunately, in the new 1993 SNA there are also no data for petroleum refinery and basic petrochemicals in Group 2, and beer and malt in Group 3 for the whole period of the accounts (1988-1999).

FIGURE 24



- **util** = utilities; **const** = construction; **mf** and **manuf** = manufacturing; **agric** = agriculture; **serv** = services; **all** = all economy; and **non-mf** = non-manufacturing sector.

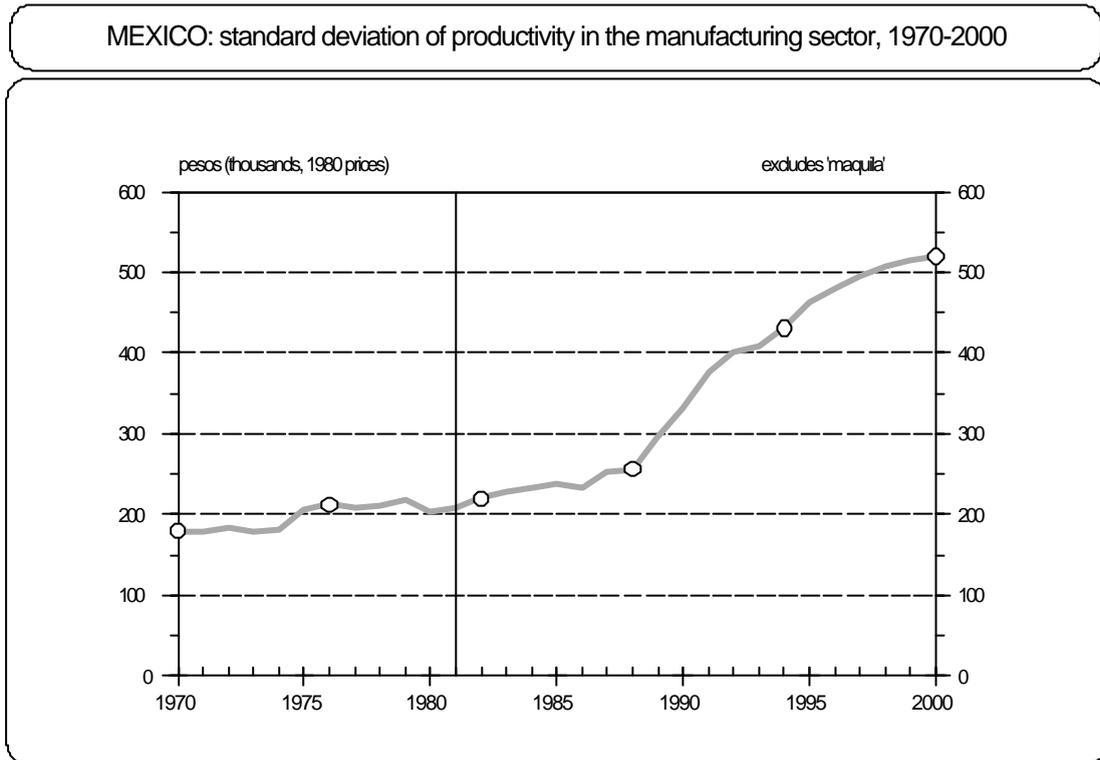
FIGURE 25



- numbers indicate group of manufacturing activities. As mentioned above, intervals between circles correspond to presidential periods (Echeverria, Lopez Portillo, De la Madrid, Salinas y Cedillo, respectively).

As is to be expected, the higher the export orientation of the sector after 1981, the higher the productivity growth required to achieve increased competitiveness. This growing differential in productivity growth across groups in the industry -- considerably up from the pre-1981 period -- significantly increased the divergence of productivity performance across the 49 activities that make up the sector.

FIGURE 26



- This graph shows the standard deviation of the productivity levels of the 49 activities that INEGI differentiates within the manufacturing sector.

The overall productivity performance of the 'non-maquila' manufacturing industry may have been stable in both periods (at 2.5 per cent per year), but there was a relatively important and growing diversity underlying the average performance -- something that should be expected in an increasingly open economy.

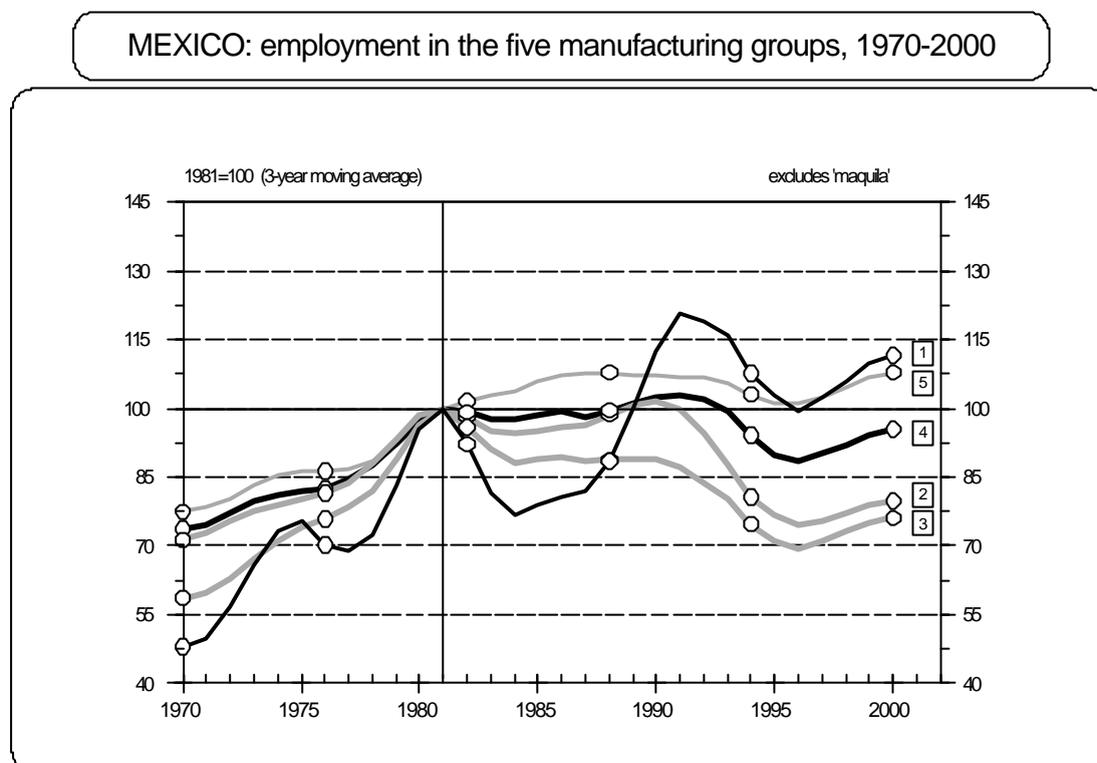
2.6.3. Changes in employment in 'non-maquila' manufacturing

Figure 27 shows the employment performance of the 5 manufacturing groups, and reveals a rather unexpected similarity between employment and investment behaviour. The fact that the overall level of employment in 'non-maquila' manufacturing had declined during the 1980s and the first half of the 1990s (by half a million in total between 1981 and 1996) should come as no surprise, given the employment trends throughout the developing world⁴⁸,

⁴⁸ For an analysis of employment trends in manufacturing in both industrial economies and DCs, see Palma (2000d).

and Mexico's two recessions during this period.⁴⁹ What is more remarkable is that the employment performance of the five manufacturing sectors follows so closely the performance of investment within the sector (see Figure 23 above). Groups 1 and 5 show positive trends for both investment and employment growth, while the trends are marginally negative for Group 4, and significantly negative for Groups 2 and 3.

FIGURE 27

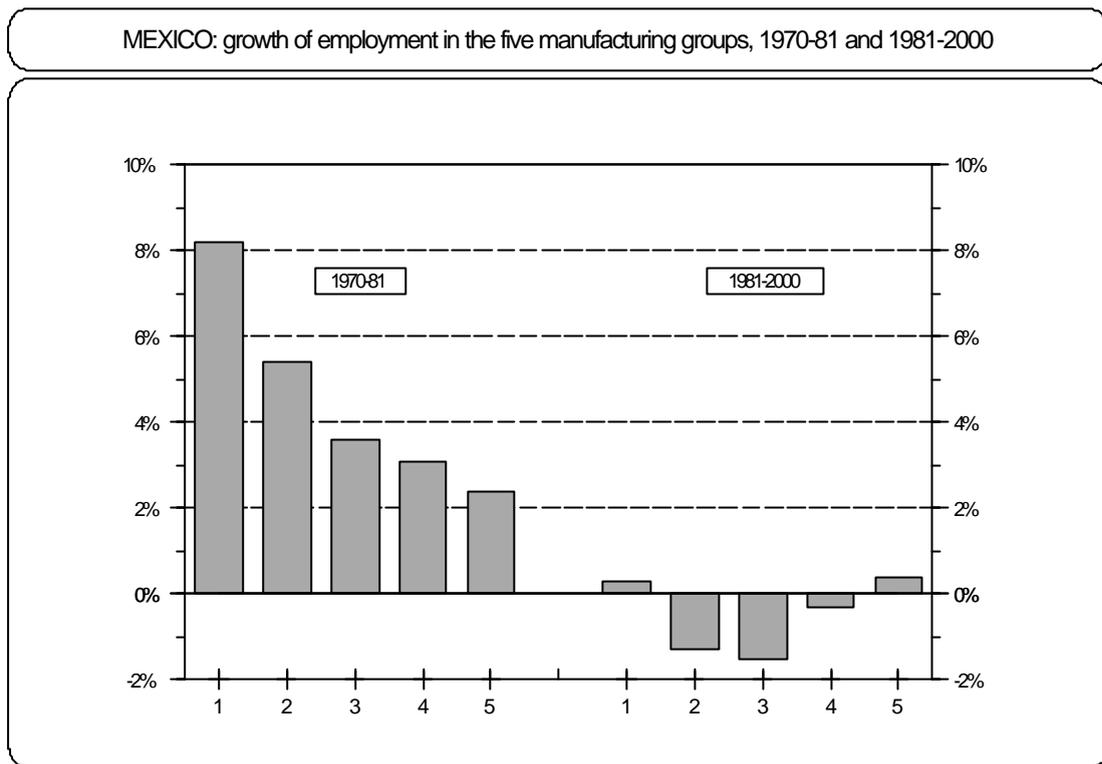


- numbers indicate group of manufacturing activities.

Figure 28 reveals another (apparently) curious characteristic of the Mexican economy: the activities that were to become more export-oriented after 1981 were absorbing labour more rapidly in the period before trade liberalisation. Moreover, the shedding of labour after 1981 is not related to the previous degree of absorption during ISI.

⁴⁹ Besides, it has often been argued that trade liberalisation in Mexico (and other Latin American economies) had a negative effect on employment (contrary to what had been predicted by the advocates of the reforms), because tariffs had previously been higher in labour-intensive activities and lower in capital-intensive ones. If this had been the case (according to the Samuelson-Stolper theorem), labour (in these labour-intensive activities) would have been the hardest hit by trade liberalisation. One simple test of this hypothesis is provided by the correlation coefficient between the level of tariffs and the 'intensity of capital' across the 49 manufacturing activities in 1981 (see Tables 1 and 7). If the hypothesis were correct, one would expect a highly significant negative coefficient. The actual coefficient is -0.29 ; i.e., it is negative (and significant at the 5 per cent level), but probably not high enough to provide strong support for this hypothesis.

FIGURE 28

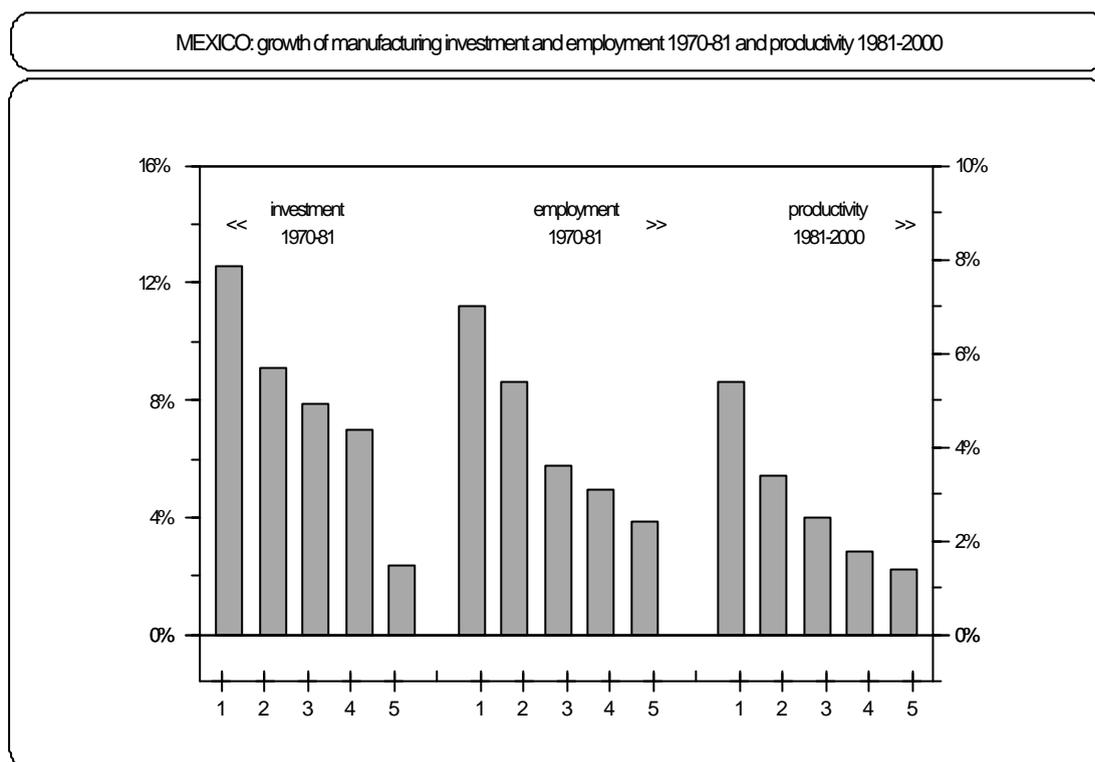


- numbers indicate group of manufacturing activities.

2.6.4 The (missing) link between ISI and increased 'non-maquila' competitiveness after trade liberalisation

The pattern of comparative advantage of the 'non-maquila' manufacturing industry after trade liberalisation finally becomes clear if one looks simultaneously at both the employment generation capacity and the investment growth of the five manufacturing groups before trade liberalisation, and their productivity growth afterwards. It seems that post-1981 'non-maquila' export orientation emerged in activities with previously high levels of both investment and employment growth. (This is in sharp contrast with the 'maquila' sector discussed above.) FDI may have moved into Mexico primarily for reasons to do with the United States' economy, but the choice of specific Mexican 'non-maquila' manufacturing activities as production platforms for the United States market also seems to have had a lot to do with the 'capabilities' built during ISI. Perhaps ISI was not all that irrational after all !

FIGURE 29



- numbers indicate groups of manufacturing activities. Investment is shown in the left-hand axis; employment and productivity in the right-hand one. As investment figures have some sharp yearly fluctuations, the initial and end year are 3-year averages (1968-70 and 1979-81, respectively).

2.6.5 The two types of comparative advantage logic underlying Mexico's manufacturing exports

In essence, the 'capabilities' built during ISI, abundance of cheap labour, institutional changes in the labour market, shift in bargaining power towards capital, proximity to the United States, and the establishment of NAFTA allowed Mexico to exploit simultaneously two very different types of comparative advantage vis-à-vis the United States in the same activity (manufacturing) -- and, in so doing, beat other DCs that also desperately wanted to become manufacturing-production-platforms for the United States.

The first -- more static and transparent, à la Heckscher-Ohlin-Samuelson, mainly resulting from Mexico's NAFTA-market-access privileges -- is based on FDI choosing Mexico as a production platform for the United States, following the possibility of exploiting both one of Mexico's main resource endowments (cheap 'maquila' labour), and labour intensive techniques (at the assembly-end in a complex 'value chain' of multi-product Transnational Corporations).

The second -- more dynamic and complex -- is based on foundations laid during ISI. It includes activities that, by Mexican standards, and given the country's resource endowments, are characterised by high wages and salaries, high 'capital-intensity' and

advanced technology -- but which by United States standards, are relatively labour-intensive and medium-technology activities (such as car assembly, auto parts, steel and relatively simple non-electrical machinery).⁵⁰ The crucial connection here is between the latter part of the ISI period and the beginning of trade liberalisation: during the former, both capital and labour had already been allocated to activities that were to become highly competitive and export-oriented after trade liberalisation.

The case of Mexico is special in that the two types of logic underlying Mexico's post-trade liberalisation comparative advantages in manufacturing are generally considered mutually exclusive alternatives in trade theory. Some trade theorists postulate that the only rational and efficient way for a DC to develop its comparative advantage is to do so à la Hecksher-Ohlin-Samuelson; while other trade theorists postulate that the only rational and efficient way for DCs to improve their chances of 'catching up' with developed countries is by purposely developing their comparative advantage in export products that have high productivity growth potentials, and move them up the technology 'ladder'.

For the former, the most relevant assumptions are: countries have different resource endowments; resources are not mobile and are of a relatively similar quality across countries; products have different resource requirements; technologies are well known and available; and they are 'flexible' (in the sense that within them there is a possibility to adapt to the resource endowment of the country). Within this framework, in labour-intensive, low-wage DCs, capital should produce both labour-intensive products as well as use the available technology in the appropriate labour-intensive mode.

Mexico's 'maquila' industry fits this pattern very neatly, except that capital is mobile (FDI) and the final products are not necessarily of the labour-intensive variety; rather, the Mexican 'maquila' industry occupies a specific -- assembly-style, labour-intensive -- place in a more complex 'value chain' of multi-product Transnational Corporations (TNCs). With this value chain being broken up into a number of different individual operations across countries and regions, the Mexican 'maquila' industry can take on a particular job in the most effective, i.e. labour-intensive manner. Hence, what we have in 'maquila' Mexico is a labour-intensive, low-wage country, producing labour-intensive parts of products, using technologies that are widely known, available and flexible, and which are applied in their 'appropriate' labour-intensive mode -- something that the Mexican labour force can do just as efficiently as any other in the world. In this sense, other than capital is FDI, 'Maquila' Mexico is an impeccable member of a Hecksher-Ohlin-Samuelson world.⁵¹

From the point of view of the other trade theorists (the 'catching up' perspective), it is the 'non-maquila' manufacturing industry in Mexico that seems to fit the case almost perfectly: about one-quarter of Mexican manufacturing exports are 'high-technology' products and at least half of the rest are medium-technology products, whose production requires high capital intensity and (relatively) high wages and salaries. The result is high productivity growth in Groups 1 and 2, based on both a substantial investment effort (made either before trade liberalisation [Group 2] or after its onset [Group 1]), and the use of production techniques that are basically the same as those used in developed countries. It is true that some (but not all) activities in the 'non-maquila' sector, such as the car industry, also form part of a larger TNC 'value chain' and are generally situated at the upper -- assembly-type -- end of this 'value chain' as are those in the 'maquila' sector. Nevertheless, even here,

⁵⁰ By 1993, when INEGI stopped producing separate accounts for the 'maquila' and 'non-maquila' sectors, these four activities alone accounted for half of Mexico's 'non-maquila' manufactured exports.

⁵¹ Moreover, capital is FDI not because Mexico is unable to generate it but because: (i) the engine of this process is TNCs' activity, and (ii) the Mexican capitalist elite seems to prefer to do other, more pleasurable things with their huge resources.

FDI brings substantial capital investment and the technologies used are the same as in the FDI countries of origin.

In this case, what attracts FDI is the opportunity to make ‘extra’ profits by applying modern technology in its standard form, but combining it with much cheaper labour. Thus, what we have in ‘non-maquila’ Mexico is a capital-scarce and relatively low-technology country that has begun to develop capital-intensive, relatively high-wage, ‘technology-challenging’, high-productivity-growth-potential products, with considerable possibilities (not yet realised) for rapid movement up steep ‘technology ladders’. In this way, ‘non-maquila’-Mexico appears to be a perfect (potential) member of the alternative world of the ‘catching up’/dynamic comparative advantage school of trade theory.

Either someone forgot to tell Mexicans that these two types of logic underlying Mexico’s new comparative advantages in manufacturing are considered to be mutually exclusive alternatives in trade theory or, following the age-old PRI tradition, Mexicans wanted to please everyone ! Different as these two apparently opposite ‘Ricardian’ routes to exploiting comparative advantages may be, Mexico has not only followed both paths, but by doing so has faced the same limitation: the country has so far failed to effectively harness the power generated by either of the two engines of growth.

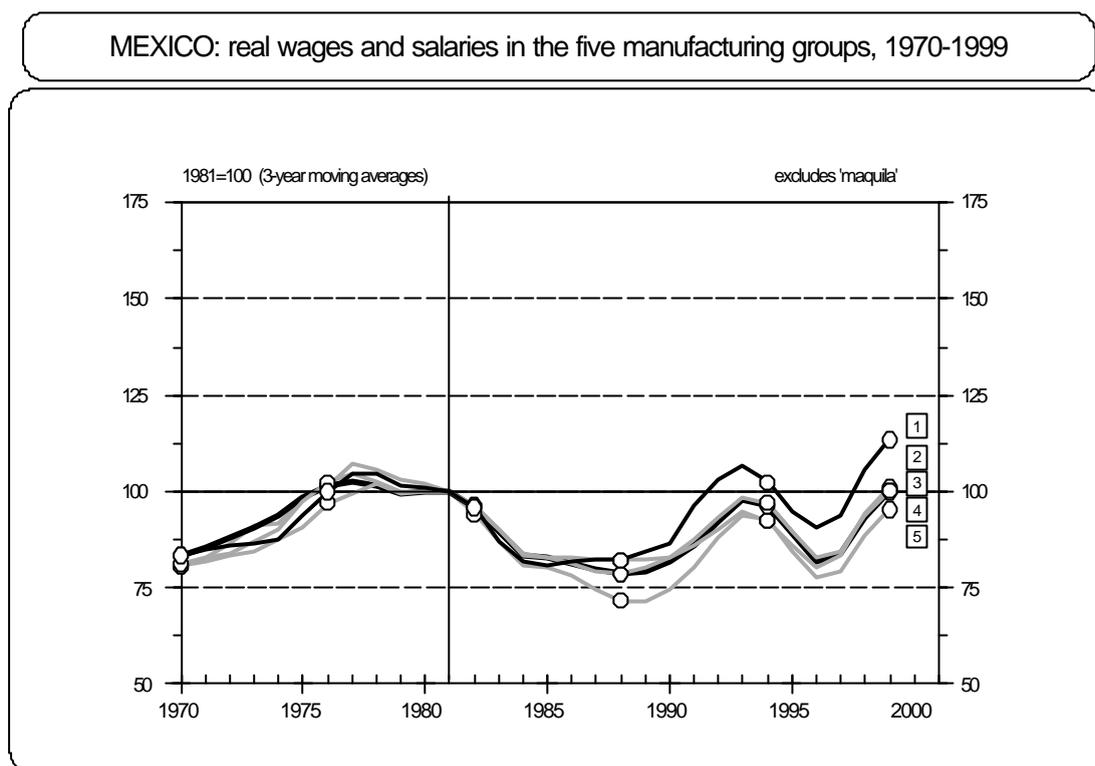
In part, Mexico’s inability to ‘deepen’ its export-led industrialisation process has to do with unwillingness to implement much needed appropriate trade and industrial policies; these policies are limited by its membership of the WTO, the general world economic environment, the partial dismantling of important components of its public sector, and by the constraints imposed by NAFTA.⁵² But undoubtedly, the most limiting factor is of an ideological nature, i.e. the predominance of a ‘neo-liberal’ outlook, reinforced and made more relevant by the rigid way in which this particular ideology has been absorbed (and consumed) throughout Latin America -- particularly, its obsession with being in every possible aspect the complete opposite of the previous corporatist-populist collective ideology.

2.6.6 Wages and salaries in ‘non-maquila’ manufacturing

Figure 30 fills in the last remaining piece of the puzzle as regards the comparative advantage pattern followed by the ‘non-maquila’ manufacturing. In contrast to the behaviour of the other macro-variables studied, both before and after trade liberalisation, wages and salaries in the five manufacturing groups move very closely together (except for those in the car industry that started to move just marginally ahead of the rest from the early 1990s). Three main features of this behaviour stand out. First, the long-term stagnation of real wages after 1981 -- in 1997 wages and salaries in all five groups still remained below their 1981 level; in 1998 only Group 1 had just recovered that level, and then only barely.

⁵² In the car industry, for example, before 1981, Mexico required that 70 per cent of inputs had to be of domestic origin, but with trade liberalisation, this target was reduced to 30 per cent. However, with NAFTA’s new ‘rules of origin’ requirements, by the year 2008, this share will have to increase again to about 60 per cent; yet, this new target will now have to be of NAFTA (not necessarily of Mexican) origin. Recent evidence suggests that these ‘rules of origin’ are more specifically benefiting Mexico in textiles, and in those parts of the car industry that are not linked to United States’ TNCs. For example, as Nissan and Volkswagen did not have a previously developed supplier-network in the United States and Canada (unlike Ford, Chrysler and GM), they are increasing their purchases of auto-parts in Mexico in order to comply with NAFTA’s ‘rules of origin’ requirements.

FIGURE 30



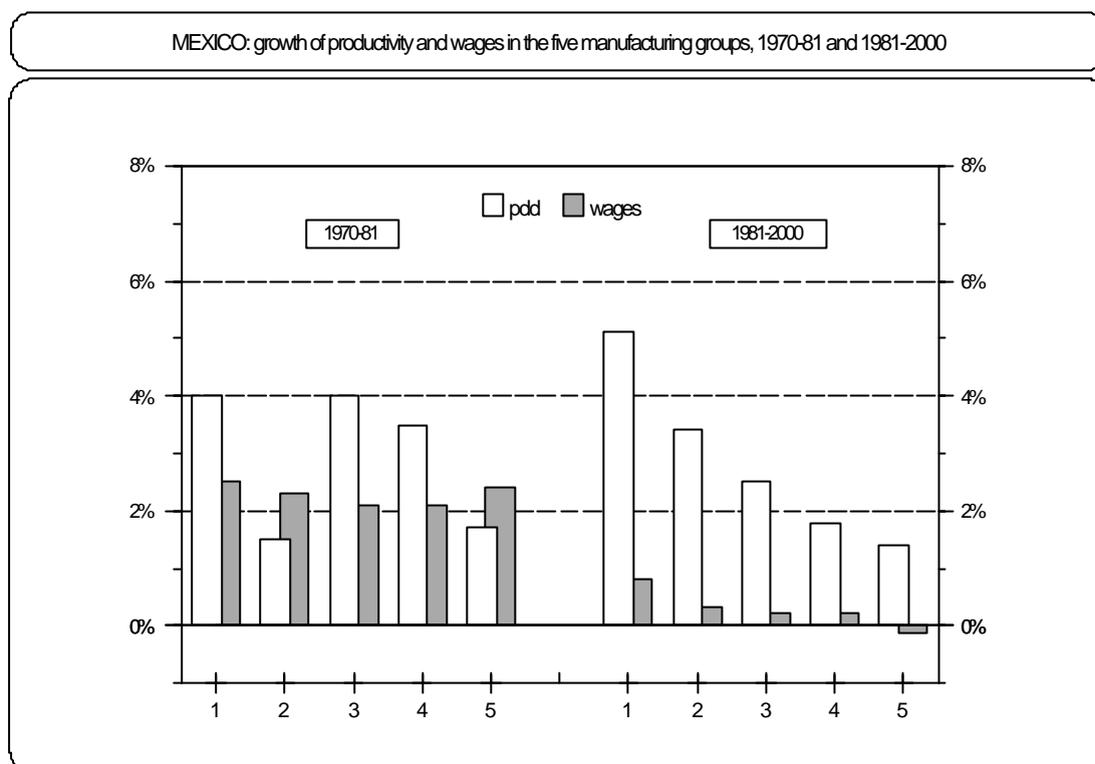
- numbers indicate groups of manufacturing activities.
- As in other graphs and tables of this paper, 'wages and salaries' stands for remuneration paid to both blue- and white-collar workers.

In fact, if one only looks at the behaviour of real average wage per blue-collar worker employed in the manufacturing industry, according to INEGI's aggregate index for the whole industry, the situation in 1999 is very different: if the index in June 1981 is set at 100, by June 1999, the index had fallen by nearly half (to 55.3); in the next two years there was some recovery, but by June 2002 it was still only at 63.1. Moreover, if the index in June 1982 (instead of June 1981) is set at 100, the respective figures for June 1999 and June 2002 are even lower (50 and 57.1, respectively).⁵³

Figure 30 also shows that, towards the end of the 1990s, a very weak trend started to emerge where the level of wages and salaries began to follow the same pattern as export orientation -- if the level of wages in all five groups in 1981 is set at 100, by 1999, wages had reached levels of 115, 106, 104, 104 and 98, respectively (with an overall industry average of 102). Hence, from a situation before trade liberalisation in which there was no connection between productivity-growth and wages- and salaries-growth within the industry, there is a move to a new pattern in which a fragile connection between the two begins to emerge.

⁵³ Unfortunately, INEGI only constructs a blue-collar-worker wage index for the whole of the manufacturing sector, so it is not possible to construct an index for each non-maquila manufacturing group. Therefore, in the rest of the paper we have to revert to the study of the behaviour of both wages and salaries together.

FIGURE 31



- **pdd** = productivity. **Wages** refer to wages and salaries. Numbers indicate groups of manufacturing activities. Due to lack of data, in the second period wage-growth refers to 1981-99 only.

Although wages grew at a very similar pace in the five manufacturing groups before 1981 (between 2.1 per cent and 2.5 per cent), irrespective of the productivity growth in each group, the relationship did nonetheless begin to change after this date. However, the emerging relationship is still very weak and characterised by particularly low 'gross wage - productivity elasticities' (i.e. the ratio of the rate of growth of both variables). For the whole of the period 1981-1999, these so-called 'gross-elasticities' are just 0.16, 0.1, 0.1, 0.1 and -0.1, respectively.⁵⁴ Another important characteristic of the behaviour of wages that emerges from Figure 30 above is that wages in most manufacturing activities had begun to fall long before the 1982 debt crisis and the onset of trade liberalisation. In fact, in 1981, in 35 out of the 49 manufacturing activities, wages were already below their 1976 levels -- 1976 being the year of the election of Lopez Portillo and the beginning of the political changes that led to the economic reforms of the 1980s and, in particular, to concomitant politico-institutional reforms such as changes in political coalitions and in the structure of property rights and incentives. The next section of this paper will discuss this issue in more detail. However, before moving on, an obligatory reference should be made to the most popular issue in recent literature on Mexican (and other Latin American countries') post-reform wages (in particular in the publications of the Washington institutions): the issue of trade liberalisation and increased wage dispersion.

⁵⁴ Following the figures mentioned above, by 1997, all these ratios were still negative, and in 1998, the ratio had still only turned positive for Group 1.

As discussed in detail elsewhere (Palma, 2002a), those working within the 'Washington Consensus' have often used two related theories of wage determination to explain the high (and growing) degree of income inequality in Latin America. The first, the so-called 'labour aristocracy' hypothesis, most popular in circles close to the World Bank during the 1960s and 1970s, argued that one of the main causes of inequality in Latin America at the time were the price distortions created by ISI; these distorted the value of sectoral marginal productivities, allowing for artificially high wages in manufacturing (i.e., artificially producing a group of 'aristocratic' workers, and therefore higher wage differentials in the economy than would otherwise have existed).⁵⁵ However, then as now, there was little to differentiate Latin America from the rest of the world -- developing and developed, ISI and non-ISI -- in terms of income shares of groups including so-called 'aristocratic' and non-'aristocratic' labour (see Palma, 2002a).

The second theory -- essentially a recycled version of the old 'labour aristocracy' hypothesis -- is used extensively today to explain the increase in inequality in many of those Latin American countries that implemented policies of trade and financial liberalisation. As this increase in inequality runs counter to predictions by the proponents of the 'Washington Consensus' before the implementation of these reforms⁵⁶, it is now argued that this development is the result of the (previously unforeseen) fact that trade liberalisation has been responsible for introducing new techniques of production with a high requirement of skilled workers. Therefore, it is unwittingly to blame for higher wage differentials in reformed countries.⁵⁷

However, the point at which Latin American income inequality differs from that in the rest of the world (long after trade liberalisation) concerns the income-share of the top 10 per cent of the population (see Palma, 2002a). Nevertheless, workers -- no matter how skilled they are -- will hardly be found at the very top end of the distribution of income. Therefore, even if trade liberalisation can be held responsible for the introduction of new techniques of production with 'asymmetrical labour demand' -- something that is by no means as clear-cut as could be assumed -- data discussed in the above reference suggests that this factor alone is very unlikely to account for a significant amount of the region's huge (and growing) income inequality.⁵⁸

The above data on Mexican wages show two different trends in terms of wage dispersion. The first, apparently giving some support to the 'asymmetrical labour demand' theory, is an increased wage dispersion across the 49 activities of the manufacturing sector since the beginning of trade liberalisation. Since different activities in the manufacturing sector are characterised by different degrees of absorption of new techniques of production, higher wage dispersion across the sector could be regarded as evidence of 'asymmetrical labour demand'. As is clear from the graph, there has been a significant increase of wage dispersion across the manufacturing sector following trade liberalisation. However, the graph

⁵⁵ See, for example, Krueger (1983), and World Bank (1987).

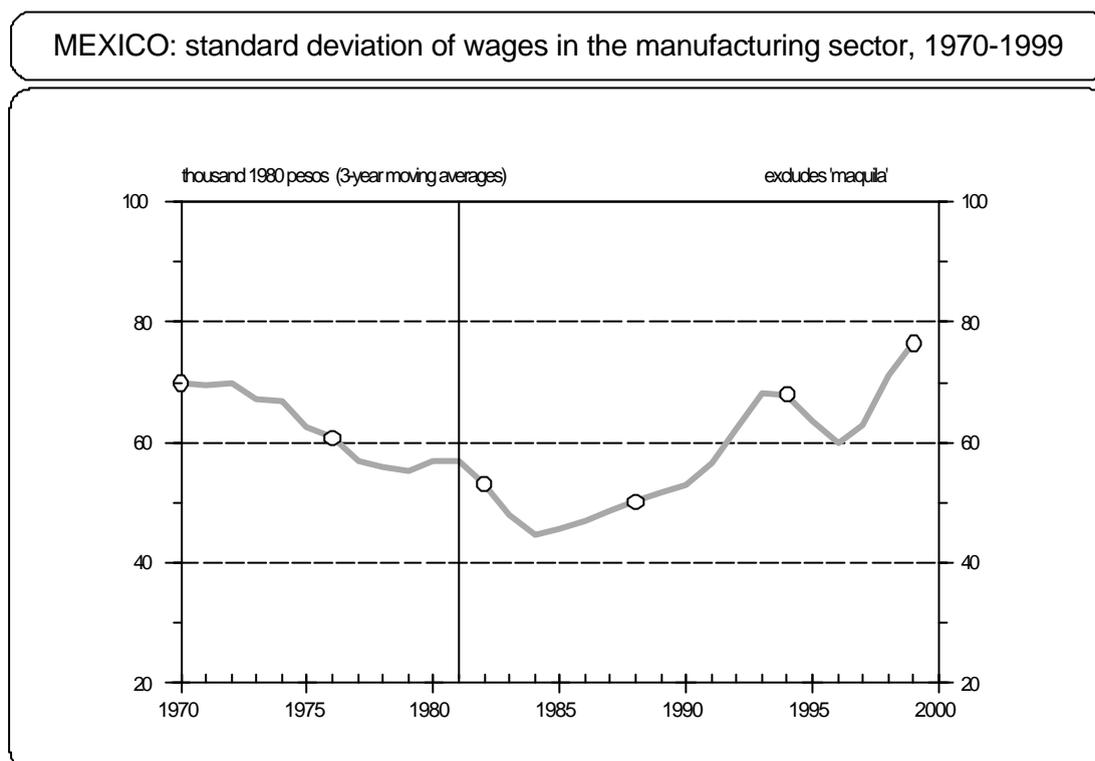
⁵⁶ See, for example, Lall (1983), and PRONAFICE (1984).

⁵⁷ See, for example, Juhn and Pierce (1993); Haskel (1999); Cline (1997; this book has a very useful survey of the literature); Revenga (1995); and Melendez (2001). For critiques of this literature, see Krugman and Lawrence (1993); Robinson (1996); and Atkinson (2001).

⁵⁸ See also Paraje (2002) for the case of Argentina.

also shows that this movement essentially entails a return to the levels of wage dispersion of 30 years earlier, when the new (post-trade liberalisation) techniques of production were certainly not around. Thus, it is more likely that the recent increase in wage dispersion is the result of both radical institutional changes in the Mexican labour market that have basically reversed many of the ('pro-labour') changes that took place before 1981 (see below), and a drastic reduction in the bargaining power of the Mexican labour movement.

FIGURE 32



- Standard deviation of wages in the 49 activities of the manufacturing sector.

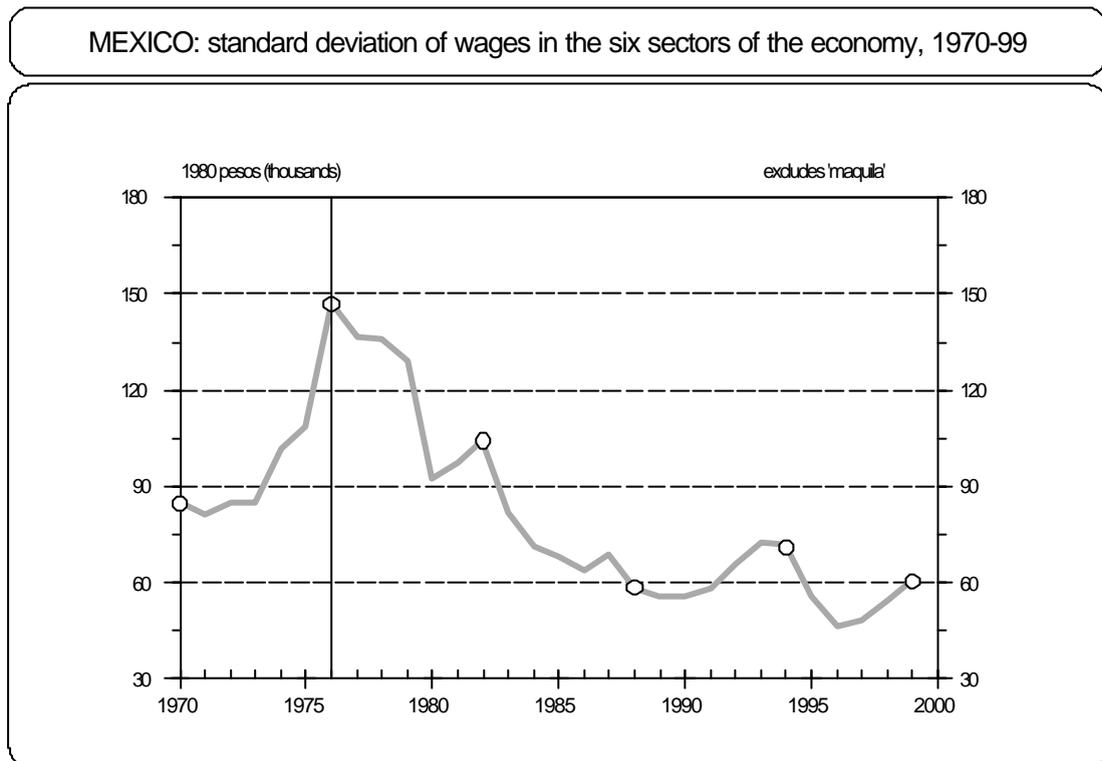
The second trend in terms of wage dispersion shown by the data on Mexico is a clear movement in the opposite direction, towards higher average-wage homogeneity across the different sectors of the economy. Here the story is one of a new trend, starting in 1976, towards the equalisation of average-wages and salaries across the different sectors of the economy (see also Table 6 above). This trend towards higher average-remuneration equalisation across sectors of the economy should probably come as no surprise in a more 'flexible' labour market. However, what is peculiar about it is that the sectors with the highest productivity growth were those that lost most in this process, and vice-versa. For example, sectors such as utilities (including telecommunications and electricity production and distribution), where technological change has been the most pronounced -- and productivity growth the second fastest (see Figure 24 above) -- are the main losers in this process⁵⁹, while sectors such as services, where technological change has not exactly been extravagant (and productivity growth literally non-existent since the mid-1970s) have lost the least⁶⁰

⁵⁹ In real terms, the average wage in utilities in 1999 was at just 40 per cent of its 1976 level; the greatest fall of all sectors.

⁶⁰ In real terms, in 1999 the average wage in services (not including utilities) was at 86 per cent of its 1976 level.

Therefore, again, institutional changes in the economy as a whole (including, of course, the privatisation of utilities -- and in particular, the way in which it has been carried out⁶¹) and in the labour market, appear to be the more likely sources of change in average-remuneration behaviour than a post-trade-liberalisation, technologically determined 'asymmetrical demand for labour'.

FIGURE 33



- Standard deviation of average wage and salaries in agriculture, mining, manufacturing, construction, utilities and services.

⁶¹ Especially the extraordinary amount of legal and institutional concessions given to the new private owners.

2.7 The rapid decline in the share of wages in GDP since 1976

Figure 34 shows the trademark of the 'liberalisation-package' in Mexico (and in the rest of Latin America): the fall in the share of wages and salaries in GDP. As mentioned above, although the relinquishing of ISI and the beginning of economic reform started properly in Mexico in 1982 with the De la Madrid government, politico-ideological reform -- and in particular the gradual scrapping of the PRI's traditional redistribution policies -- had already been set up under the previous government of Lopez Portillo. Consequently, in the space of just two presidential terms (1976-1982 and 1982-88) and one economic crisis, the share of wages in GDP fell by no less than 14 percentage points. Despite being the sector with the highest productivity growth (see Figure 24 above), this fall was actually sharper in 'non-maquila' manufacturing than in the average of the non-manufacturing sector of the economy, with a drop of 19 percentage points in this period. During the last presidential period of the 1990s (including yet another economic crisis), the overall share of wages in GDP fell again by a further 8 percentage points. In all, the share of wages fell by more than half -- from 40 per cent of GDP in 1976 to just 18.9 in 1999⁶²; and in manufacturing from 39 per cent to 19 per cent, respectively.⁶³ As great as the fall in manufacturing was, utilities certainly deserve a mention in the Guinness Book of Records: here the wage share fell by nearly four-fifths -- from 73 per cent of sectoral GDP in 1976 to just 16 per cent in 1999.

Figure 35 reveals the root cause of the fall in the share of wages in GDP: the emergence of a new 'scissor' effect between wages and productivity. Over the five decades from 1950 to 2000, three distinct periods can be identified. First, up to and including the Echeverria government (1970-1976), the essential characteristic of the traditional PRI distributive policy is clearly visible: wages grew at a pace similar to productivity -- i.e., through increased bargaining power and gradual institutional change, labour had gained the right to share in the benefits of growth. In the second period, during Lopez Portillo's term of office (1976-1982), marking the beginning of politico-ideological and institutional change in Mexico (and in most of Latin America) during the second half of the 1970s, there was a progressive stagnation of wages (both in the manufacturing and non-manufacturing sectors), despite the vast new oil-riches of the country.⁶⁴ Then, when economic crisis struck Mexico with the 1982 recession, and with the coming to power of President De la Madrid and his economic reform team, a rapidly growing gap emerged between productivity and wages. By 2000, two presidents and another economic crisis later, this gap had become substantial -- while wages and salaries stood at a level still 10 per cent below that of 1976, productivity had increased by nearly 20 per cent -- and this reduction in the average wage and salary took place in an economy that its GDP grew in the meantime by 88 per cent, and its income per capita by one-quarter.⁶⁵

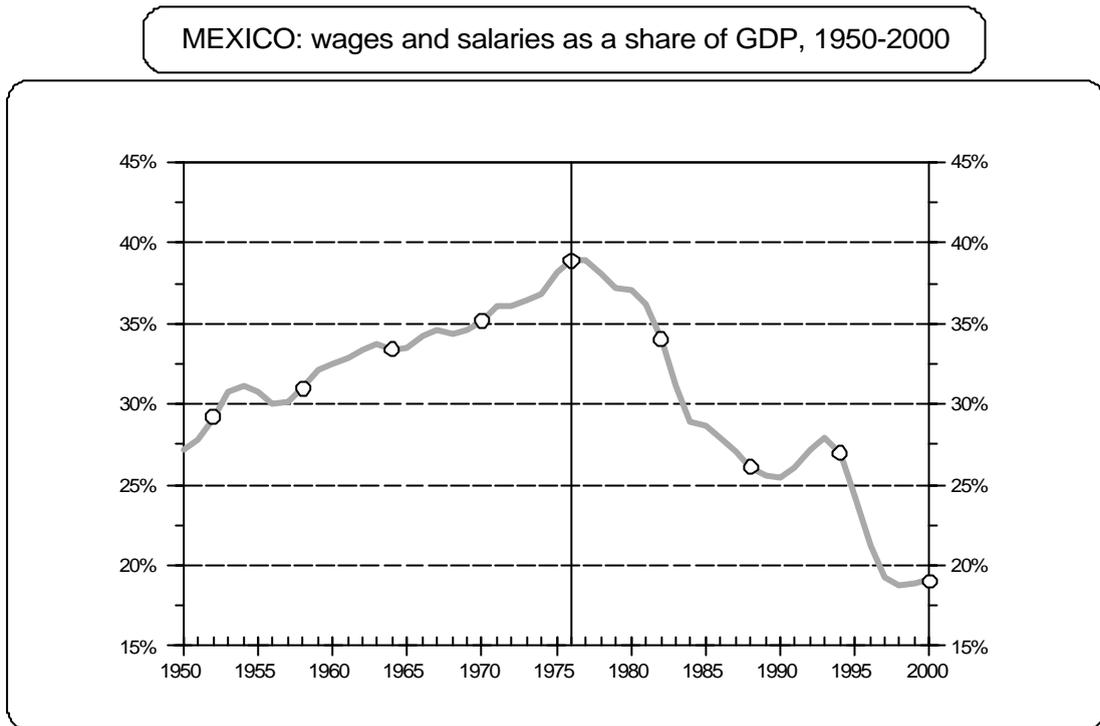
⁶² The provisional figure for 2000 is 19.4 per cent. In the face of this incredible drop in the share of wages and salaries in GDP, in early 2002 a Mexican senior civil servant still insisted that trade liberalisation, economic reform and globalisation had been 'beneficial' for workers (see Ibarra, 2002).

⁶³ Even after its financial crisis, the corresponding figure for Korea, for example, is still well over 40 per cent (see Korean Development Bank, 2002).

⁶⁴ It is worthwhile recalling in this context that wages stagnated at a time of economic euphoria in Mexico, with the new oil industry coming on-stream at a time of particularly high oil prices. This mania reached such heights that the previous President declared at the end of his term of office that from then on Mexico's economic policy was no longer an issue of 'allocation of scarce resources among multiple needs', but one of the 'distribution of abundance'. Well, this 'abundance' clearly did not reach wages !

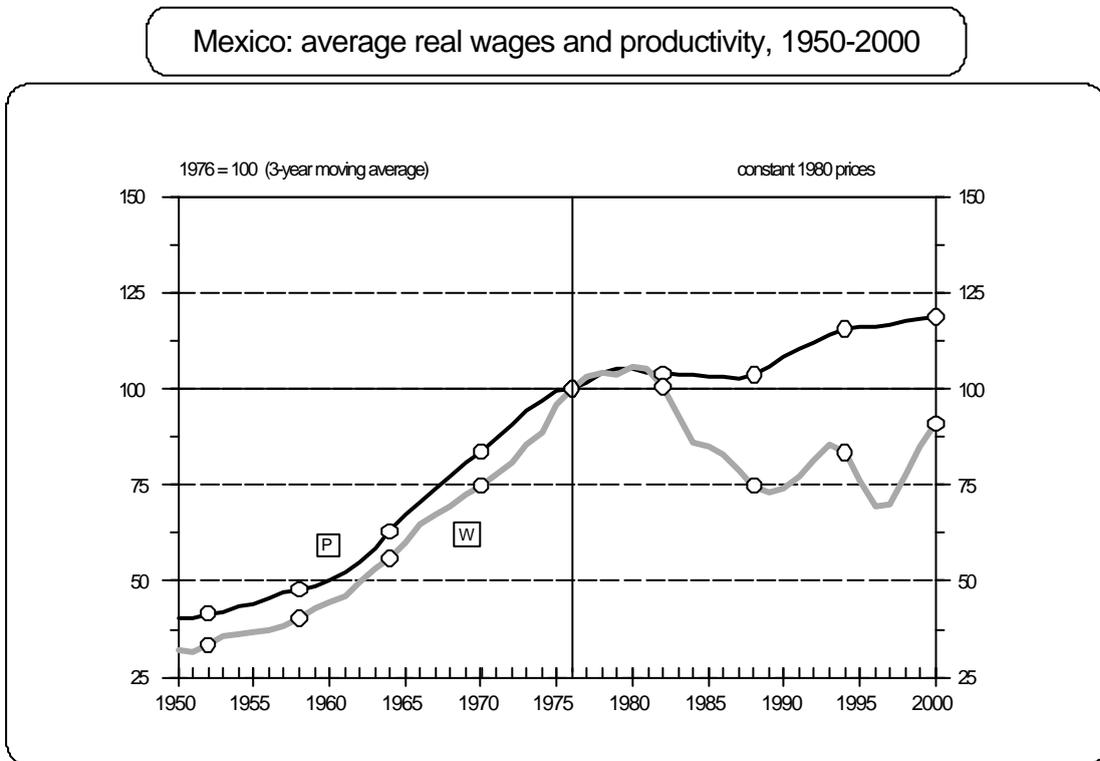
⁶⁵ For a more detailed study of this phenomenon that I have described as a new 'winner takes all' distributive policy, characteristic of all post-economic reform in Latin America, see Palma (2000a and c). For an analysis of the stagnation of wages, see Dussel Peters (2000a and 2002).

FIGURE 34



- As in other graphs above, intervals between circles correspond to presidential periods. The figure for 2000 is provisional; and as in the rest of the paper, 'wages and salaries' includes social security contributions and other similar payments done by employers.

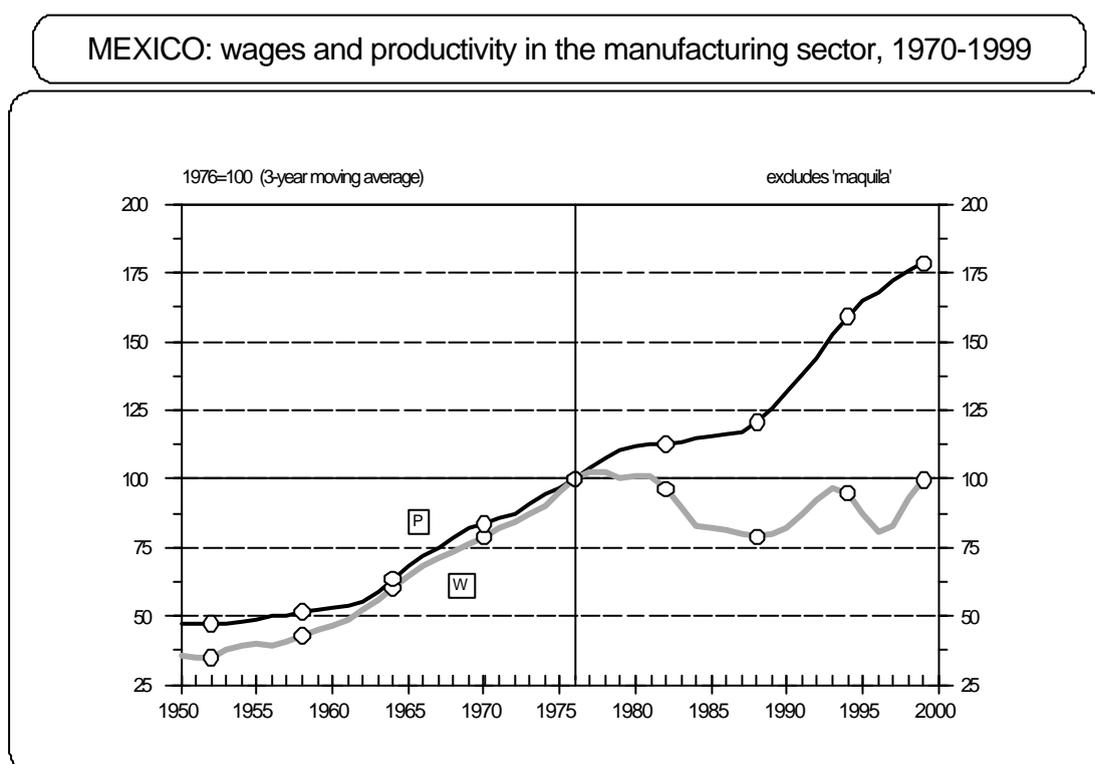
FIGURE 35



- [P] = average productivity; and [W] = average real wages and salaries. Wage figure for 2000 is provisional.

Figures 36 to 38 show that the gap between productivity and wages and salaries followed a different path in manufacturing and in non-tradables. In manufacturing, one finds again a relatively stable relationship between productivity growth and wage and salaries growth before 1976; from this point onwards, the pattern changes due to a sharp break in the trend of the latter. In fact, as mentioned above, by the end of the 1990s, the average wage had only just recovered its 1976 level.⁶⁶ In the meantime, productivity had increased by about 80 per cent -- a clear case of a 'winner (capital) takes all' new pattern of distribution. As Kalecki would have predicted, the two recessions (1982 and 1994) did play a role in delivering this new distributional world, by 'disciplining labour'; i.e., by drastically reducing its bargaining power. Furthermore, as Prebisch and Singer would have predicted too, as soon as manufacturing became export-oriented -- particularly in a world with rapidly increasing capital mobility -- it began to behave as a traditional primary commodity sector: wages immediately stagnated and all productivity growth was either captured by capital or transferred to consumers in the North (in this case to the United States) through lower prices.

FIGURE 36

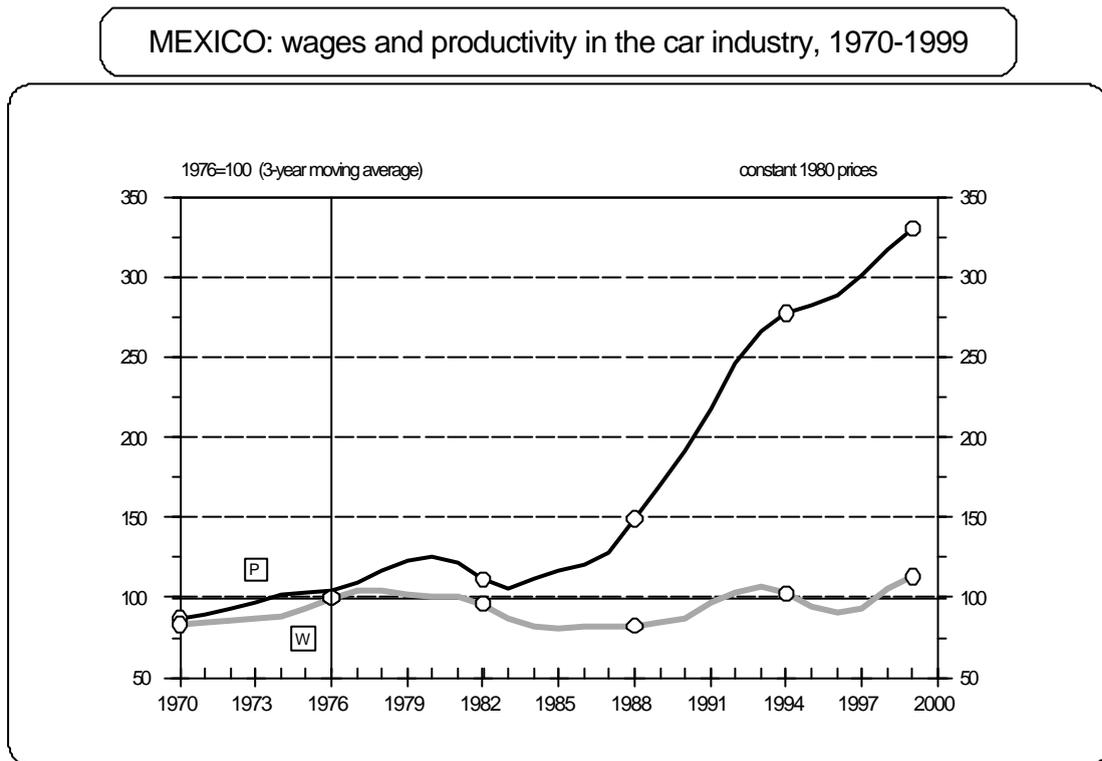


- [P] = average productivity; and [W] = average real wage.

⁶⁶ Here again, the predictions of PRONAFICE did not prove to be very accurate: the change towards export-orientation in manufacturing was going to generate a significant amount of 'much better remunerated' jobs in the manufacturing industry (see PRONAFICE, 1984).

Figure 37 shows how the most successful activity within manufacturing develops an extreme form of this new 'export-oriented' distributional pattern. Not even in an industry that saw a 330 per cent productivity growth during this 'liberalised' period were wages able to grow to any significant extent; in fact, the increase in wages in this activity in the second half of the 1990s (mentioned above) has now been totally dwarfed by the growth of productivity in this industry.⁶⁷

FIGURE 37



- [P] = average productivity; and [W] = average real wages and salaries.

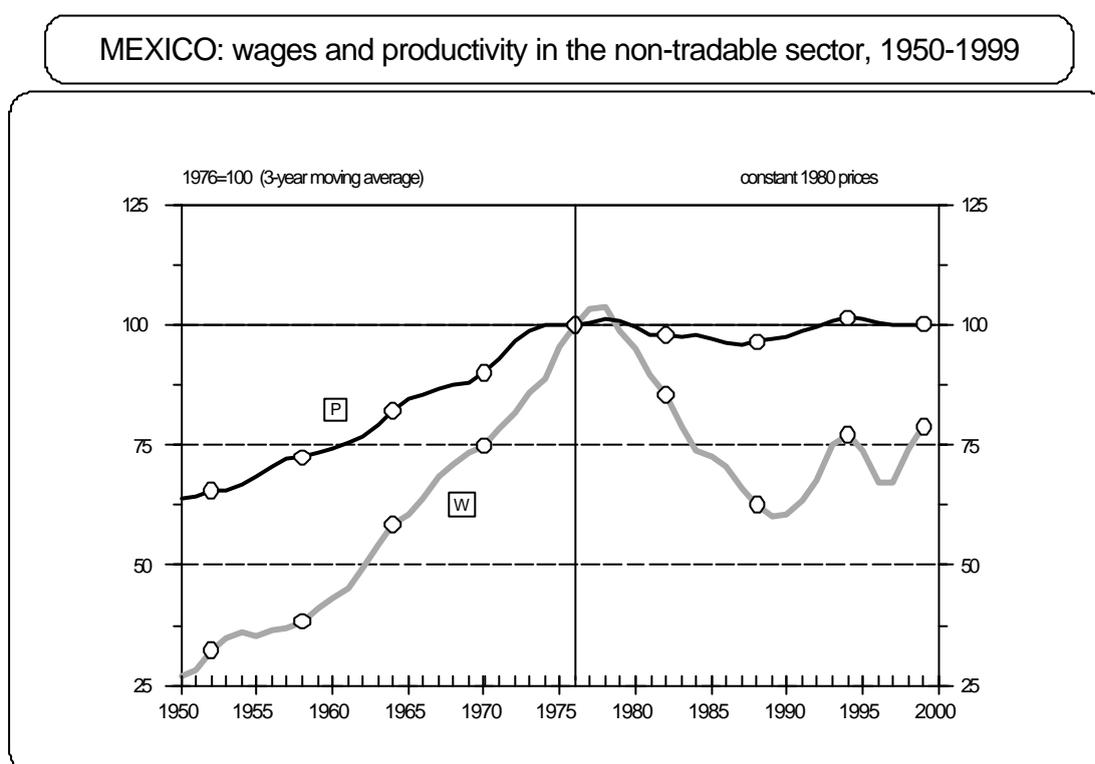
Thus, the emerging new pattern of the 'non-maquila' comparative advantage of Mexico rests on two pillars: one, a rapid increase in competitiveness in sectors that during ISI benefited from high levels of investment and labour absorption; the other, 'wage-free' productivity growth based on both a shift in bargaining power towards capital, and labour reforms that generated a new structure of property rights and incentives in the labour market. The experience of Mexico in this respect is very close to the predictions of Prebisch and

⁶⁷ This massive productivity growth is associated with a large inflow of FDI into Mexico during this period, transforming the country into a major production platform for the United States market. As a result, between 1985 and 2000, Mexico's share in the North American automobile import market increased from just 0.4 per cent to 12.2 per cent. (This share, for example, is more than four times larger than that of Korea.) First, it was the restructuring of the United States auto industry that led to increased exports from Mexico by General Motors, Ford and Chrysler. Soon afterwards Volkswagen and Nissan also began to use Mexico as a bridge to the United States market. In 2000, exports of these five firms alone amounted to US\$ 27 billion (an amount similar to that of all Argentinian exports). The export orientation of FDI in the car industry is evident in the case of Ford: in 2000, this company produced 193,000 cars, of which 181,000 were exported; and in the case of Volkswagen, in 2001, the company produced 380,000 cars, of which 300,000 were exported. On this subject, see the World Investment Report (2002), ECLAC (2000), Dussel Peters (2000b) and Mortimer (1998).

Singer; on the other hand, Samuelson's theorem of trade-related wage-equalisation across countries (leading to an upward adjustment in the low-wage DC) probably refers to another planet.

Moreover, what about the relationship between wages and productivity in the sectors that have failed to deliver productivity growth? In non-tradables, a new gap can also be found between productivity-growth and wage-growth, but in a different direction. More specifically, the same 'scissor' pattern can be observed (from well before 1981), but it has a different 'angle' in the sense that the gap emerges through a sharp break in the trend of both variables leading, in one case, to an stagnant level of productivity and, in the other, to a substantial fall in wages and salaries.

FIGURE 38



- [P] = average productivity; and [W] = average real wages and salaries.

Consequently, in Mexico a Washington-Consensus-type of 'flexible' labour market has resulted in a paradigmatic case of an institution where the wage-setting mechanism follows the economics of 'Alice in Wonderland'.⁶⁸ In manufacturing, labour has 'to run and run to be able to stand still' -- i.e., it has to keep increasing productivity just to be able to have their average remuneration stagnating (rather than falling). Meanwhile in non-tradables, as labour

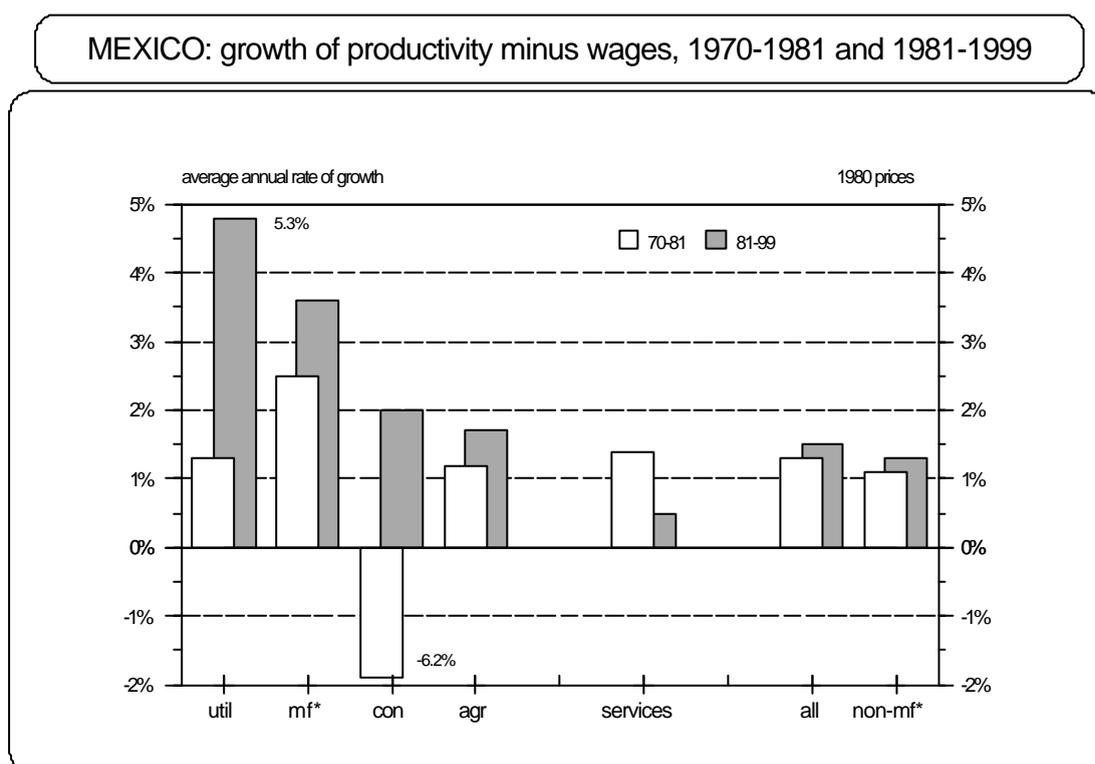
⁶⁸ See Alice in Wonderland, by Lewis Carrolls.

has not been able to 'run and run' but just to 'walk and walk', instead of standing still, labour has been moving 'backwards and backwards' -- i.e., as productivity has stagnated, wages and salaries have suffered a rapid decline.⁶⁹

In this way, a new 'Alice in Wonderland' pattern of accumulation has emerged in Mexico (as it has in the rest of Latin America) with economic reforms. The new rule is that of 'winner takes all', where there is productivity-growth; and where there is none, it is again capital that benefits, this time through the contraction of wages -- contraction in the Lewis sense, since institutional changes in the labour market and shifts in bargaining power against labour allow capital to force wages back towards their subsistence level. In this way, even if productivity-growth is disappointing (mainly due to a poor investment effort), the stagnation of wages in some activities and their decline in others has proved to be an effective compensatory mechanism for capital.

Consequently, the picture that emerges from the growth of 'productivity minus wages and salaries' (Figure 39) contrasts markedly with that of productivity growth alone (Figure 24). By using this indicator (productivity minus wages), not only do utilities and construction improve their 'performance' (as they did with productivity growth alone), but so do now the manufacturing and the agricultural sectors. In fact, only services still show a deterioration compared to the previous period.

FIGURE 39



- **util** =utilities; **mf*** = manufacturing (excluding 'maquila'); **con** = construction; **agr** = agriculture; **all** = all economy; and **non-mf*** = non-manufacturing (including 'maquila').

⁶⁹ The decline in wages in non-tradables contrasts sharply with the situation before 1976, when there was a gap (in favour of labour), with wages growing faster than productivity. This was one of the characteristics of the previous structure of property rights in the labour market (not only in Mexico but also in many other Latin American countries), with wages in manufacturing (which grew at a rate roughly similar to productivity growth) setting the pace for wage-growth in the non-manufacturing sector of the economy, including those sectors in which productivity-growth was slower than in manufacturing.

Table 9 provides further information on this 'productivity minus wages' indicator in 'non-maquila' manufacturing. The most striking feature is the contrast between the periods before and after 1976 -- the beginning of the politico-institutional change that started during Lopez Portillo's period of office -- in the two most export-oriented Groups (1 and 2). While Group 1 improved its 'performance' in this variable by more than four times between 1970-1976 and 1976-1999, Group 2 -- with all its peculiar characteristics -- did so by more than 5 times !

TABLE 9:

Annual Rate of Growth of Productivity minus Wages and Salaries per Worker
(1980 classification; excludes 'maquila'; %)

	70-81	81-99	70-76	76-99	76-82	82-88	88-94	94-99
Manufacturing								
Group 1	4.9	6.7	1.7	7.2	3.7	9.2	12.3	3.2
Group 2	4.5	5.9	1.2	6.5	7.2	4.9	8.8	4.1
Group 3	4.9	2.8	4.3	3.8	5.0	2.6	4.2	2.5
Group 4	3.1	2.8	5.1	3.7	5.0	2.0	3.7	2.0
Group 5	1.8	2.2	1.7	2.1	2.9	0.6	3.8	1.1
Agriculture	1.2	1.7	2.3	1.3	0.7	0.1	3.5	0.9
Mining	7.9	0.8	2.1	3.8	13.5	(1.5)	2.0	1.3
Manufacturing	2.6	3.5	1.5	3.6	3.2	3.4	5.5	2.1
Construction	(6.2)	2.0	(5.6)	(0.0)	(5.0)	5.8	(4.0)	4.2
Utilities	1.3	5.3	(3.9)	5.9	7.8	9.5	4.1	1.6
Services	1.4	0.4	0.6	0.9	1.8	2.6	(0.4)	(0.8)
All economy	1.3	1.6	1.9	1.4	0.8	2.5	1.7	0.5
Manufacturing	2.6	3.5	1.5	3.6	3.2	3.4	5.5	2.1
Non-manufacturing	1.1	1.3	2.0	1.0	0.4	2.4	1.0	0.2

- Group figures are median values; those for the whole sector are mean values.

In this context, the case of Mexico clearly highlights one of the main ironies of 'neo-liberal' economics: one of its main weaknesses as an ideology is precisely that which it has always boasted to be one of its strongest points; i.e., because it only looks at the world from the perspective of capital -- and even then, from a very narrow point of view -- it is therefore unable to understand the wider issue of incentives. In fact, if the neo-liberal package is applied in its 'Anglo-Saxon' version (particularly in its Latin American remake), in the resulting institutional framework even capital can easily end up having little incentive to invest. In this new institutional framework, as capital (domestic or foreign) can accumulate (at least for a long period of time) either via stagnant wages (in sectors with productivity growth), or shrinking ones (where there is none), why should it make a significant investment effort ? After all, those that own it can devote most of its profits to more pleasant occupations -- such as consumption and speculation -- and still keep accumulating via 'rent-seeking' on labour's share in national income.

Furthermore, labour also has little incentive to accumulate human capital because all the benefits that might accrue from this investment go to capital as, in the new 'designer-made' flexible labour market it loses its property rights over the benefits that derive from the use of this additional human capital (increased productivity).

It is difficult to imagine how this perverse system of incentives -- both for capital and for labour -- can be good for growth in the long run.

3. Conclusions

Any comparison of Mexico's economic performance between the two periods (pre- and post- trade liberalisation and economic reforms) is, of course, difficult due to rapidly changing technological and institutional paradigms and the world economic environment.⁷⁰ Even so, and despite the truly remarkable growth of exports -- who could have imagined just twenty years ago that Mexico would 'catch up' with Korea in terms of manufactured exports ! -- the overall performance of the post-1981 economic reform period so far can only be regarded as poor, in terms of the growth, investment and productivity performances of the economy as a whole. In fact, the most essential characteristic of the post-trade liberalisation period has been a combination of fast export expansion and slow GDP growth (the former measured in output terms and the latter in terms of value added). Mexico may have been particularly successful in switching its 'engine of growth' towards the export sector, but to date it seems totally at a loss as to how best to harness the power of this new engine.

The remarkable increase in the growth of manufacturing exports has clearly not even led to an improved macro-performance of the manufacturing sector as a whole. The main characteristic of export-oriented activities (in both the 'maquila' and the non-'maquila' sectors) is the focus on assembly-type operations with little use of domestic inputs; this is obviously an important part of the problem. In particular, very high import 'leakages' have collapsed the export multiplier and, because multi-product TNCs have been interested in Mexico only occupying a specific place in a more complex 'value chain' (as opposed to China), the assembly-type operations that dominate export production minimise forward and backward linkages with the rest of the economy. The resulting 'asymmetric' or 'unbalanced' growth between exports and GDP has been somewhat at variance with that promised explicitly by certain (internal and external) 'peddlers of dreams' along the lines of the 'Washington Consensus'.

The 'maquila' industry has exhibited a remarkable export and output dynamism as well as the capacity to absorb labour, but with no productivity growth, nor any interest in using domestic inputs. Moreover, recent events have also shown that Mexico's comparative advantages in this area are much more vulnerable than had been previously supposed.

The more export-oriented 'non-maquila' manufacturing activities are characterised by being both 'capital intensive' and having (relatively) high (but stagnant) wages. In this segment of the manufacturing industry, neither the abundance of cheap labour nor the possibility of transforming those capital-intensive technologies from north of the border into more labour-intensive methods seems to have served as the main magnet in attracting FDI. Instead, two other elements of the Mexican package on offer appear crucial: (i) the 'capabilities' developed in the previous ISI period, and (ii) the emergence of a new institutional framework that could deliver 'wage-free' productivity growth.

⁷⁰ For the same reason, it cannot automatically be assumed that policies (industrial, commercial, etc.) which may have been appropriate for one period (ISI) would necessarily have been equally effective for another (trade liberalisation); see especially Perez (2002).

With respect to the first element, the analysis of investment and employment behaviour revealed an important link between ISI and export-orientation after 1981. During the 1970s, both capital and labour were already being allocated to precisely those activities that were to achieve the highest degree of competitiveness after 1981. However, the low levels of manufacturing investment in the 'non-maquila' industry after trade liberalisation are particularly difficult to understand, especially at a time when Mexico was experiencing unprecedented inflows of FDI (in terms of gross inflows, no less than US\$ 167 billion since 1982), and when Mexican entrepreneurs had unprecedented access to finance (foreign and domestic) for their operations. With the exception of the car industry (where there is a clear 'export-investment' nexus), the growing competition challenge brought about by trade liberalisation and the huge increase in the share of capital in national income, seems so far to have had little long-lasting effect on investment, particularly on its domestic component.

Even though the aggregate 'macro' performance has been rather disappointing, at a more 'micro' level there has been an important degree of diversity of performance in almost all variables studied; and this diversity tends to be associated with the degree of export-orientation.

With respect to the second element of the package on offer, political, institutional and economic reforms have completely changed the relationship between productivity and wages; from an institutional setting in which labour had clear property rights over its share of productivity growth, the system has moved to a political settlement characterised by a new institutional arena in which labour has practically no rights at all over productivity growth. This change has produced a framework in which neither capital nor labour has much incentive to invest. While capital can 'rent-seek' on labour by squeezing labour's share in national income, it has little incentive to make a serious investment effort; and for as long as this rent-seeking continues, labour is unlikely to put much effort into investing in human capital when returns go directly and exclusively towards increasing this type of capitalist rent.

The 'capabilities' built during ISI, the abundance of cheap labour, the institutional changes in the labour market, the shift in bargaining power towards capital, the proximity to the United States, and the establishment of NAFTA, all allowed Mexico simultaneously to exploit two very different types of comparative advantage vis-à-vis the United States in the same activity (manufacturing) -- just as if two different countries were exporting the same types of product. The first, 'maquila' manufacturing, very closely follows a Heckscher-Ohlin-Samuelson logic, the other, 'non-maquila' manufacturing, follows a path that brings Mexico closer to a potential 'catching-up'-type of comparative advantage logic.

In the short term, and for things just to continue in the post-1981 vein, Mexico now faces two major challenges. First, there is the uncertain future of its existing 'maquila' industry that has been involved in a growing process of relocation into China since early-2001. So far, policy makers still insist that the only reasons for Mexico losing its comparative advantage in this industry are China's tendency to grant unfair subsidies to FDI (something that, of course, would never happen in Mexico) and China's lower level of wages. In particular, Mexican 'maquila' workers are blamed for having 'priced themselves out of their jobs' by using (what was left of) their bargaining power to refuse further cuts in real wages -- over and above the one-third reduction in real wages since 1982. Little attention is paid to issues such as policy mistakes that led to the over-valuation of the Mexican currency, to ways of stimulating productivity growth in the industry and reducing Mexico's high transaction costs and the high costs of many non-tradable services (particularly those of privatised utilities), and to understanding why TNCs are increasingly 'voting with their feet' not to produce inputs in Mexico (while being quite happy to do so in China).

Mexican policy-makers do not even seem to be aware of the fact that when a Mexican 'maquila' firm moves to China, it really ceases to be 'maquila'.

Despite spending a great deal of time complaining about China's low level of wages, policy-makers in Latin America are probably quietly grateful to China for providing them with such an easy-to-sell excuse for most of their domestic ills ! It would appear that at a time of high economic uncertainty, simplistic discourses -- like blaming everything on China's wages -- tend to strike a chord with many segments of society.

The second challenge is how to increase the level of investment in 'non-maquila' manufacturing. On the one hand, as the 'maquila' industry shows, the danger in assembly-type operations with very little use of domestic inputs is that comparative advantages are rather vulnerable in a world with such high capital-mobility, 'foot-loose' end-of-value-chain activities, and with such cut-throat competition to attract FDI among DCs.⁷¹ Mexico therefore needs a higher level of investment in order to increase productivity growth and domestic production of inputs -- not just to improve linkage-effects and lift the export multiplier, but also to help 'anchor' these activities within Mexico. On the other hand, the country also requires levels of investment higher than those achieved so far in order to sustain the present increase in competitiveness in non-assembly-type, capital-intensive activities, such as those of Group 2.

Moreover, from a longer-term perspective, the challenges facing Mexico become ever more daunting. After deciding to abandon ISI, it became blatantly clear that the new development strategy of the government and the capitalist élite was simply to hope and pray that FDI would take over where the state had left off at the end of state-led-ISI. For all its problems, and on its own terms (warts and all), this strategy has so far been relatively effective. But how long can the government and the capitalist élite hope to continue their 'rent-seeking hat-trick' -- counting on Mexico's special geographical location, on its unique NAFTA-relationship with the United States, and on the share of labour in national income ? As recent events in the 'maquila' industry show, comparative advantages in end-of-value-chain assembly operations based on geographical location are rather thin on the ground. At the same time, there is already a long queue of Latin American countries (led by Chile) getting closer to joining NAFTA. Finally, how much lower can the share of labour in national income fall ?

From this perspective, it seems quite obvious that Mexico really needs both a 'new generation' package of policy reforms by the government, as well as new investment-savings-risk-propensity behaviour among its capitalist élite. In terms of the former, Mexico needs new imaginative trade and industrial policies designed to 'deepen' its export-led industrialisation so as to improve significantly the ability of the economy to harness the power of its export-engine -- 'imaginative' not only in terms of devising policies compatible with the new technological paradigm and rapidly changing world economic environment, but also for dealing with implementation issues arising from new constraints due to Mexico's membership of NAFTA and the WTO.⁷²

At the same time, it seems obvious that Mexico should take another look at its institutions, and the structure of property rights and incentives; the Mexican government may have tried hard to 'get its prices right', but so far it has certainly not tried quite as enthusiastically to 'get its institutions right', or to 'get its social capital right'. In particular, a new institutional framework is urgently required in the labour market to deliver a more effective incentive scheme for both labour and capital.

⁷¹ One example of this, among many others, is the Brazilian government's recent billion-dollar subsidy to Ford to build a car assembly-plant in the north-east of the country. In a highly competitive, globalised world, and at a time of falling levels of FDI (see ECLAC, 2002), in which DCs are rather short of ideas in terms of new development strategies, there is little to stop FDI from 'auctioning' itself among DCs; in fact, at the margin it could charge the full amount of its (perceived) benefits -- and due to corruption, probably more than that.

⁷² See especially Stiglitz (2002).

In the context of the second longer-term need, especially because of the limitations of the FDI-export-led growth model and of the already falling inflows of FDI, there seems to be little doubt that if Mexico really wants to improve its chances of 'catching-up', its domestic élite will have to improve upon its investment-savings-risk-propensity, and at least attempt to share the reins of the economy with FDI. Probably nothing short of an 'East Asian' investment-savings-risk-propensity will suffice -- hopefully, without the suicidal debt-propensities of some of the East Asian conglomerates ! In terms of Latin American analogies, Mexico should also draw upon what the Chilean capitalist élite did for a number of years from the mid-1980s until it ran out of steam, and ran out of ideas, at the end of the 1990s. Whether this new behavioural attitude will ever really be compatible with the legendary 'discreet charm' of the Latin American bourgeoisies is another issue altogether.

APPENDIX

Unless otherwise stated, all data used for the Mexican economy are sourced from official INEGI statistics (Instituto de Estadística, Geografía e Informática, see INEGI, 2001). This Institute has two different series of national accounts (Systems of National Accounts). The first is based on 1980-prices (hereinafter called '1980 SNA') and the other on 1993 prices (hereinafter '1993 SNA'); the former covers the period from 1970 until 1993 (except for GDP figures that start in 1960), while the latter spans from 1988 until 2001. From the perspective of this paper, the two series have two crucial differences: (i) the period of coverage, and (ii) the 1993-prices accounts do not differentiate between 'maquila' and 'non-maquila' sectors in the manufacturing industry. Consequently, in order to embark on a longer historical analysis, and to separate these two manufacturing sectors, I had no option but to use the 1980-prices series throughout this paper. As these national accounts come to an end in 1993, the figures for 1994 until 2000 are calculated by multiplying the 1993 figure by the rate of growth of the respective variables from the 1993-prices accounts. Therefore, the latter figures are not fully comparable with those of 1970-1993.

Moreover, in the graphs containing information from 1950, the data between that year and 1970 (1960 in the case of GDP) were obtained from NAFISA (1977); in this case, the rate of growth of the NAFISA series was applied to the respective INEGI's 1980-prices series.

Data for Investment and 'stock of capital' are from the series calculated by the Central Bank of Mexico. Data for the 'maquila' industry were obtained from INEGI's Databank of Statistical Information (see INEGI, 2002).

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