

Recent developments in Mexican employment and the impact of NAFTA

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Introduction

This paper has two goals. The first is to examine the evolution of employment in Mexico during 1982–1992, particularly since 1987, with an emphasis on the challenge of generating employment in view of the rapid expansion of the economically active population (EAP) and of an economy in transition. It analyses the structural change in the generation of employment in the ‘post-trade liberalisation’ period. Macroeconomic and microeconomic institutional changes imposed since 1985–1987, particularly general economic liberalisation, have had multiple effects, notably a growing and general exclusion in the labour market. As argued here, a profound understanding of Mexico’s macroeconomic liberalisation is necessary to analyse its labour market and the impact of the North American Free Trade Agreement (NAFTA). The second goal is to examine the impact of NAFTA on Mexico’s employment structure and potential.

The paper stresses the development of those branches of the Mexican economy—according to the National Accounting System of INEGI¹—that generate employment and associates them with other variables, such as productivity, GDP, and exports. Given the importance of the analysis at the branch level, other characteristics of employment, such as sex, age, regional and ethnic aspects, among others, are also important but are omitted here. Moreover, the employment issue will not be considered from the perspective of micro, small, and medium firms, which together account for more than 50% of employment in the manufacturing sector during 1982–1993 (Serra Puche, 1994). Similarly, the paper will only deal with formal employment, since informal employment has been explored in other studies (Roberts, 1992; STPS, 1993A). The analysis will also exclude the in-bond or *maquiladora* sector, since its evolution and dynamism requires a specific examination and goes beyond the purpose of this paper.

The first section reviews the main elements of the macroeconomic liberalisation strategy imposed since 1987, stressing the macroeconomic conditions for the

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¹ INEGI’s National Accounting System presents data for Mexico’s economy in nine subsectors (‘Divisiones’) and 73 branches (‘Ramas’). Their surveys, estimations, and extrapolations are inadequate in various aspects. Nevertheless, their data is the most disaggregated at the national level of any source and offers sufficient information (since 1970) for use in different time-series models. It is important to note that the INEGI data is not necessarily compatible with the data from Banco de México, SECOFI, IMSS, or other government institutions (Rendón and Salas, 1993).

productive sectors and the evolution of employment and labour policies. The second section emphasizes the development, structural change, and challenge that employment represents for the Mexican society and economy. The third section briefly considers some of the hypotheses formulated in the former sections and estimates several models for the evolution of Mexico's employment. The fourth section highlights the evolution of Mexico's labour market since 1993 and explores the impact of NAFTA on Mexican employment. Finally, the fifth section offers conclusions and identifies the most important issues related to employment in Mexico.

1. Macroeconomic liberalisation in Mexico since 1982

1.1. *General tendencies*¹

Crucial economic, political, and institutional changes occurred in the period after 1987. Several 'Pactos Económicos', the first established in December 1987, were imposed by official unions, the government, and the private sector. They became the centrepiece of the new liberalisation strategy. The main priorities of the government were control over inflation and financial deficit and attraction of foreign investment. The crucial elements of macroeconomic liberalisation included severe tariff reductions, privatisation of state-owned enterprises, and an overall shift toward 'flexible specialisation' in industrial relations. Flexible specialisation involved the continued prevalence of authoritarian political structures and non-democratic official unions to guarantee cheap labour power and energy. Various new policies and institutions differentiate the macroeconomic conditions of the post-1987 period since then (Aspe Armella, 1993; Córdoba, 1991). The government's understanding of 'macroeconomic' is very narrow, since it includes only the three exogenous variables—inflation, deficits, foreign investment—and excludes other classical macroeconomic issues such as employment, domestic investments and savings, and job growth.

(i) Reduction of inflation rates and financial deficits and attraction of foreign investment became the main 'exogenous' (priority) variables of liberalisation.

(ii) The government expected that a change in the macroeconomic environment, i.e., a reduction of inflation rates and financial deficits, would induce a sectorial and microeconomic structural change. Thus, sectoral policies would not be implemented because they might distort or reverse the macroeconomic strategy.

(iii) The private manufacturing sector was placed at the center of the export-oriented and modernisation strategy. Structural change was primarily understood as the process of privatisation or reduction of state activities, which would reallocate factors of production efficiently. The 'disincorporation' of state-owned enterprises, which began in 1983, has been reinforced since 1989. Privatisation was not only important to increase the role of the private sector in the economy, but proceeds from the sale of state-owned enterprises also became a strong source of revenue for the government, totalling some \$24 billion during 1989–1993.

(iv) Import liberalisation became a crucial aspect of this new strategy, since it would give an export orientation to the economy, particularly in manufacturing,

¹ See Dussel Peters (1995).

through cheap imported inputs and the adjustment of domestic relative prices and the economy in general. By the end of 1985 import licenses had been replaced by tariffs. In order to join GATT in 1986, Mexico continued its unilateral import liberalisation through the elimination of official import prices. The pace of liberalisation was accelerated in 1987, when a goal of reducing tariffs to a maximum of 20% *ad valorem* was declared officially. Five tariff levels were established in categories ranging from 0 to 20%, with the result that the weighted average tariffs declined from 28.5% in 1985 to 12.5% in 1992. Moreover, NAFTA reduced even further the tariff levels with Canada and the US in 1994. Most of these reductions have been at the product level (SECOFI, 1994).

(v) Besides cheap labour power and energy, foreign investment would become the main financing source of the new export-oriented model. Until 1972, the Law to Promote Mexican Investment and to Regulate Foreign Investment gave the government discretionary power to determine which activities and sectors had to have at least 51% national ownership. A change in 1989, primarily affecting small and medium-sized firms, permitted automatic 100% foreign ownership of firms that could show a positive balance in their current account for the first 3 years, guarantee employment, and abide by environmental protection laws. Finally, NAFTA significantly changed the terms of foreign investment by requiring each nation to treat foreign investors and their investments no less favourably than national investors. More importantly, new performance requirements, such as export levels and trade balancing, will have to be phased in over the next 10 years (Hufbauer and Schott, 1993; SECOFI, 1994). As shown in Table 1, foreign investment (FI) flows to Mexico were one of the outstanding successes of the Salinas administration, amounting to \$52 billion during 1988–1994 and becoming the main source of financing Mexico's current account trade deficit. However, the share of manufacturing's foreign direct investment (FDI) on FI has declined from 47% in 1988 to levels below 15% in 1993. From this perspective, and in spite of the high absolute values of FDI and FI, the high share of speculative investments in FI has become one of the most important sources of financial and macroeconomic instability in Mexico.

What are the dynamics and outcomes of the model followed since 1988? Because inflation rates and fiscal deficits, as well as the attraction of FI, are considered 'exogenous' or imposed variables by the government, the initial export-oriented industrialisation (EOI) proposal soon was substantially modified and then reversed. To sustain low inflation rates and FI attraction, the government resorted to two policy instruments. On the one hand, it allowed for a fixed exchange rate from December 1987 to January 1989, and began a pre-announced depreciation of one peso per day. Such depreciation, however, was lower than the relative difference between domestic and external prices, which eventually led to overvaluation of the peso's exchange rate. On the other hand, attracting FI was imperative to the continued servicing of Mexico's external debt and to offset the private sector's trade deficits. The latter could only be achieved with a stable macroeconomic environment.

Thus, the model shows at least six critical aspects of the macroeconomic dynamism for 1988–1994 (see Table 1):

Table 1. *Main macroeconomic indicators (1980–1994)^a*

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995 ^b
GDP	2.6	– 3.8	1.7	1.2	3.5	4.4	3.6	2.8	0.6	3.5	– 6.9
GDP per capita	0.5	– 5.5	0.0	– 0.7	1.4	2.5	1.7	0.9	– 1.2	1.7	– 8.5
Employment	2.2	– 1.4	1.1	0.9	1.3	0.9	2.6	0.4	0.1	– 0.2	– 5.1
Real wages (1980=100), formal employment	80.9	78.6	73.9	72.1	73.1	73.5	76.7	83.2	90.0	94.0	76.0
Real wages (1980=100), minimum wage	70.9	63.2	60.3	53.6	49.4	43.1	40.7	39.3	38.9	38.8	36.8
Gross fixed investment/GDP	19.1	19.4	18.4	19.3	18.2	18.6	19.5	20.8	20.7	21.7	16.4
Private	12.5	12.9	13.2	14.2	13.3	13.7	14.9	16.6	16.6	18.2	12.7
Public	6.6	6.5	5.2	5.0	4.8	4.9	4.6	4.2	3.3	3.5	3.7
Gross investments/GDP	21.2	18.5	19.3	20.4	21.4	21.9	22.4	23.3	21.6	22.0	—
Domestic	11.2	4.4	8.9	7.3	8.2	9.6	8.3	7.0	5.5	4.6	—
External	1.3	0.4	– 2.7	1.1	2.6	2.7	4.6	6.7	6.6	8.0	—
Depreciation	11.2	13.7	13.1	12.0	10.6	9.6	9.6	9.6	9.6	9.6	—
Inflation	63.7	105.7	159.2	51.7	19.7	29.9	18.8	11.9	8.0	6.4	54.5
Financial deficit/GDP	9.6	16.0	16.1	12.5	5.6	3.9	– 1.8	0.5	0.7	– 1.0	– 0.5
Exports	– 6.1	2.2	8.8	6.4	– 0.1	3.8	6.5	1.5	9.1	15.1	25.9
Imports	14.5	– 8.3	6.8	44.2	21.6	19.9	20.0	24.0	5.2	21.4	– 8.7
Trade balance ^c	7.7	3.3	5.9	– 0.9	– 4.1	– 6.3	– 13.4	– 23.0	– 18.9	– 24.3	7.8
Current account ^c	1.2	– 1.7	4.0	– 2.4	– 5.8	– 7.5	– 14.9	– 24.8	– 23.5	– 28.9	– 2.6
Capital account ^c	– 1.5	1.8	– 0.6	– 1.4	3.1	9.7	20.2	26.7	29.5	10.0	12.2
International reserves ^c	5.7	6.7	13.7	6.6	6.9	10.3	18.1	19.3	24.3	6.1	15.7

Foreign investments ^c	1.9	2.4	3.9	3.2	2.9	5.0	9.9	8.3	15.6	16.2	- 6.5
Total foreign debt including 'internal' debt hold by foreigners ^c	96.9	100.9	109.5	99.2	93.8	106.0	121.7	131.1	142.9	150.0	157.3
Total foreign debt ^c	96.9	100.9	109.5	99.2	93.8	106.0	115.3	113.4	120.8	135.5	157.0
Public foreign debt ^c	72.7	75.8	84.3	80.6	76.1	77.5	79.0	72.2	78.7	85.4	95.0
Including 'internal' debt hold by foreigners ^c	72.7	75.8	84.3	80.6	76.1	77.5	85.5	90.0	100.8	107.1	99.0
Private foreign debt ^c	15.7	15.1	14.1	5.9	4.0	5.8	7.6	10.7	15.0	25.0	—
External debt service ^c	15.3	12.9	12.1	15.5	15.6	11.5	13.7	20.7	30.5	29.2	44.0
Interest payments ^c	10.2	8.4	8.3	8.7	9.3	7.4	8.4	7.6	10.5	12.7	13.0
Principal repayments ^c	5.1	4.6	3.8	6.8	6.3	4.0	5.3	13.1	20.0	16.5	31.0
Real exchange rate (March 1988=100)	107.1	122.0	121.6	96.2	90.7	86.4	78.0	71.3	68.4	69.0	—

Key: ^aAll data refers to growth rates, unless otherwise specified. Does not include maquiladoras. ^bPreliminary estimations. ^cBillion \$US.

Sources: Own estimations based on INEGI and Banco de México.

(i) Given the structure of Mexico's economy, particularly the high trade deficit of its manufacturing sector—exacerbated by import liberalisation—appreciation of the exchange rate became an unavoidable outcome of the strategy being pursued. The exchange rate for 1994 was estimated to be overvalued by 30%.

(ii) High absolute and real interest rates have been able to attract FI,¹ but they also reflect the inefficiency of the financial system. They have exacerbated the declining domestic propensity to invest since 1982. Table 1 shows that the ratio of investments to GDP has remained relatively stable since 1988, and well below the levels of the early 1980s. However, domestic investments have declined significantly, while external capital flows into Mexico have maintained a relatively stable level.

(iii) The structure of manufacturing and the stagnant investment coefficient led to a reversal of the initial intent of the strategy. Macroeconomic liberalisation resulted in an increase in manufacturing imports, overvaluation of the exchange rate, and a fall in manufacturing's dynamism, thus producing a widening trade deficit. This runs contrary to the initial strategy, in which macroeconomic changes were supposed to induce efficiency and microeconomic structural change. Liberalisation produced one of the most significant structural changes in Mexico's economy since 1988, and has resulted in a shift from export- to import-oriented industrialisation. The ratio of negative trade balance to GDP deteriorated from 0.5% in 1988 to 7.0% in 1992.

Two important developments stand out for Mexico. On the one hand, exports continued to increase during 1988–1992 at an average annual growth rate (AAGR) of 2.9%. However, this was well below the 4.7% performance of 1982–1987.² On the other hand, the AAGR of imports was 21.3% for 1988–1992, one of the most significant negative features of liberalisation, with important effects on domestic value-added and employment, among other things. The import structure reveals an increasing share of consumption and capital, in contrast to intermediate goods. The former accounted for 9.5 and 20% of total imports respectively in 1988 and 15.7 and 22.5% in 1994. Hence, it is incorrect to argue that capital goods caused most of the increase in imports. In fact, the AAGR in imports of capital goods for 1988–1994 was 22%, while that for consumption goods was 29%.

(iv) Trade and productive specialisation patterns of manufacturing are strongly affected by the nature of macroeconomic adjustment. Rapid liberalisation and the overvaluation of the exchange rate will cause a fall in domestic inputs, value-added, and backward production linkages, while high real and absolute interest rates limit investments, technological upgrading, and forward linkages.

(v) The liberalisation model not only reversed the initial conditions of EOI but also produced an overkill of the economy in terms of GDP growth and, subsequently, of employment. As a result, cheap labour is now the main domestic variable in which Mexico has an absolute but declining comparative advantage. However,

¹ Since the beginning of 1994, CETES—government bond issues in pesos, which were the main form of government borrowing—were almost completely replaced by *tesobonos*, which are issued in US dollars. The CETES interest rate included a high risk premium for devaluation; the *tesobonos* rate does not. Therefore *tesobonos* constitute a new form of 'internal' debt held by foreigners (see Table 1).

² As already emphasised, data used in this chapter does not include *maquiladora* activities.

whether specialisation will occur in labour-intensive or in capital-intensive production is not yet clear, since relatively cheap imported inputs would call for specialisation in more capital-intensive production, but the absolute advantages of Mexico's cheap labour power and energy would call for specialisation in labour-intensive activities.

From a macroeconomic perspective, what are the conditions for sustainability of the liberalisation strategy? A 'double-squeeze' has occurred since 1988: declining backward production linkages (given massive imports) at one end and declining forward linkages (given overall disincentives to invest) on the other. Continuation of liberalisation could result in a de-industrialisation process with a sharp negative impact on investments, the trade balance, value-added, and backward and forward linkages, while other variables such as employment and growth would also be directly and negatively affected. Finally, the liberalisation model assumes that FI has a high elasticity and will enter Mexico under any circumstances, something that is by no means guaranteed.

Interestingly, since the late 1980s this strategy has relied increasingly on external debt and FI to finance Mexico's current-account deficit. This surge of foreign debt is primarily due to private borrowing and the new government bonds, *tesobonos*. Total foreign debt, including 'internal' debt held by foreigners, increased from \$99 billion in 1988 to \$143 billion in 1993. Although the need to finance these current-account deficits has been a structural condition of Mexico's economy since the 1940s, it has been greatly exacerbated since liberalisation—particularly in manufacturing.

(vi) Finally, from the government's perspective, NAFTA appears as both a possibility and a necessity, after the unilateral trade liberalisation of 1985–1987. Mexico's capacity to respond to increasing competition in domestic markets and its export potential can be realized only if it has guaranteed access to foreign markets, in this case to those of Canada and the US.

1.2. *The labour market*

Given the restructuring of international industrial patterns, there is an increasing tendency to change the Fordist structures of industrial organisation within the OECD nations. As a result of the crisis of Fordism, the welfare state, and US hegemony, the implementation of new technologies and technological processes, particularly by transnational corporations of the OECD nations, and the increasing internationalisation of financial and monetary markets, firms wait to adopt more flexible specialisation of industrial organisation and have greater control over the production process. Furthermore, flexible specialisation of production and labour power is characterised by decentralisation of production sites and a greater regard for proximity to markets, participatory and skilled labour power, and benefits from the recipient nation/region. Craft production and product quality, where labour skill is of crucial importance, also play an important role (Lipietz, 1987; Piore and Sabel, 1984).

Within this international framework, and in terms of its own domestic conditions, Mexico's industrial organisation and employment structures experienced important transitions beginning in 1982. First, increasing segmentation of the manufacturing

labour market and a high degree of state intervention have kept real wages low (Casar, 1989; Márquez and Ros, 1990). These mechanisms have been somewhat institutionalised since 1987 by several *Pactos Económicos* that establish nominal wage growth ceilings in order to maintain low inflation rates. Second, the huge growth in output and employment in the informal sector and *maquiladora* strengthen the segmentation and heterogenisation of industrial organisation and employment structure in the manufacturing sector (Carrillo, 1990; Rendón and Salas, 1993). Third, recent industrial restructuring in Mexico implies a radical transformation of traditional corporatism. The increasing informalisation of labour in *maquiladoras* and key sectors of Mexican industry (TELMEX, PEMEX, Ford/Volkswagen) sometimes encourages employers to break collective bargaining contracts violently and dissolve regional and national labour unions in favor of unions at the firm level, thus giving more control to industry and government (Middlebrook, 1989).

Several programmes have been initiated since the late 1980s regarding labour issues, such as the National Employment System (SNE), the Project on Modernisation of the Labour Market (PMMT), the Programme for Capacitating Small and Medium Firms (PCMO), and the Programme of Integral Quality and Modernisation (CIMO) (STPS, 1993B). Most are part of the National Agreement for Increasing Productivity and Quality (ANEPC) signed in May of 1992, and the already-mentioned *Pactos Económicos*. Since they are so recent, it is not possible to measure or observe their impact.

After the crisis of December 1994, the government unveiled its Action Programme to Reinforce the Unity Agreement to Overcome the Economic Emergency (PAAUSEE). This programme emphasises the need to cut Mexico's current account trade deficit and to control inflation. Survival of the Mexican financial sector by whatever means is at the centre of this programme. However, the costs of the resultant crisis are to be financed by decreases in real wages; the government imposed a 17% increase in wages during January–April of 1995, while expecting an inflation rate of at least 50% for 1995, i.e., a real wage loss of about 30%. These are said to be measures to 'secure employment' and avoid inflationary pressures. So far (1995) the government has shown little interest in a clear, long-term labour policy.

Thus, the recent flexibilisation and apparent modernisation of Mexico's industrial organisation has several dimensions. On the one hand, firms adopt flexible specialisation at the point of production in response to increasing international integration and penetration by transnational corporations, intrafirm trade, and economies of scale. This process has taken place in some industry branches, particularly those linked to transnational corporations, although it is not necessary to elaborate on this question here. On the other hand, flexible specialisation and government macroeconomic liberalisation have imposed, since the beginning of the 1980s, a restructuring of and radical change in the relationship between workers, entrepreneurs, and government that is aimed at controlling industrial trade unions through new structures designed to enhance productivity and modernise the economy. Moreover, and contrary to other Latin American cases, 'labor flexibilisation' in Mexico has been achieved with declines in real wages, modifications in collective bargaining contracts, and agreements on productivity gains.

Moreover, the employment problem is now one of the most serious challenges facing the government, due in part to the crisis during 1982–1986 but also to the economic restructuring since 1987. But it has been virtually neglected and instead left to economic recovery in the private sector and market forces, contrary to the experiences of other nations.¹

2. Development, structural change, and employment potential in Mexico

As in other nations, employment growth presents a crucial challenge for Mexican society and the economy. Mexico, like other regions in Latin America (Wells, 1987), is characterised by an exceptionally high growth rate in its labour force. This is due particularly to high population growth, a drop in mortality rates, and growing female participation in the EAP. But because there is no unemployment insurance or other institutional mechanisms to support the unemployed population, employment growth becomes a much more formidable task in Mexico than in other nations.

2.1. Mexico's employment challenge²

The annual growth rate of paid employment in Mexico has been significantly lower than the growth rate of the EAP during 1970–1990, with an annual difference of 385,000 jobs. This gap has even widened recently. Given the disproportionate weight of youths in Mexico's population structure, it has been estimated in recent years that 1.2 million persons enter the EAP annually.³ This amounts to 5% of total formal employment, that is to say, the economy has to increase paid employment by at least 5% annually in order to satisfy the minimum employment requirements of Mexican society. From this perspective, the evolution of Mexican employment has posed severe problems since 1987 and will be even more problematic for the society in the future.

Thus, it is estimated that the EAP increased by 1.2 million a year during 1990–1992, while the economy generated just 339,974 jobs. Therefore, only 28% of the population entering the EAP was absorbed by the formal labour market. Taking this 5% level as the turning point for the generation of net employment during 1987–1992, the post-trade liberalisation period, only one area, construction,⁴ generated employment above the minimum required. None of the others generated net employment growth, i.e., above the 5% annually required (see Table 1).

¹ This study does not analyse the quality of employment. However, it is important to keep in mind that 60–80% of the employed Mexican labour force has no social security or other social services.

² The basis of Mexico's official unemployment statistics is the 'open unemployment rate', which refers to persons older than 12 years who have not worked for even 1 hour a week, although they have searched for a job. Given the Mexican labour market conditions—particularly the absence of institutions that support the unemployed population—the open unemployment rate in Mexico is analytically useless; it is surprising that there is any open unemployed population at all. Given these difficulties, this study attempts to highlight the levels of employment required according to Mexico's population and EAP structure.

³ Data provided by INEGI and estimated in the National Employment Survey (ENE) for 1991–1993.

⁴ As mentioned earlier, the National Accounting System presents data for the economy in 9 subsectors and 73 branches.

It is nevertheless important to discuss differences in employment growth at the subsectorial level. Table 2 underlines the impressive differences between the periods 1970–1981 and 1982–1992. In the first period, Mexico's economy generated employment by a factor of at least five times that in the period 1982–1992; the difference is also observable in the average annual growth rates for the total economy: 4.9% in 1971–1981 compared with 0.7% in 1982–1992. This drastic structural change is general throughout the economy and its subsectors, particularly for manufacturing, which dislocated 58,148 workers during 1982–1992. Thus, the structural change imposed since 1982, and particularly since 1987, has been extremely exclusionary with respect to the labour market.

The composition of employment also shows significant structural changes at the level of subsectors. There has been a growing and continuous spreading out of the economy since 1970, particularly since 1982. Hence, the shares for Agriculture and Mining and Manufacturing fell significantly, while employment increased in the service sector, from 60% of the total in 1970 to 61% in 1982 and 63% in 1992. Thus, subsectors IX (Communal, Social and Personal Services), VI (Trade, Restaurants and Hotels), and IV (Construction) are very important due to their growing share in total employment. By contrast, the share fell for subsectors I (Agriculture, Forestry and Fishing) and III (Manufacturing Industry) (see Table 2).

2.2. A typology of Mexico's economy in terms of generating employment for 1987–1992

Based on the prior analysis and in order to disaggregate employment growth at the branch level, all 73 branches of Mexico's economy were classified according to their respective average annual growth rate (AAGR) of remunerated employment for the period 1987–1992. This 'post-liberalisation period' is important because it includes a resurgence of GDP growth. Analysis of this period explains many of the difficulties that Mexico's economy faced after 1993, particularly in employment.

Three groups are considered. Branches in Group I account for an AAGR of employment higher than 5%, branches in Group II an AAGR of employment lower than 5% but higher than the average for the whole economy (1.18%), and branches in Group III with an AAGR lower than the average (see Table 3). Moreover, subgroups are established within each group. Hence, the branches with an AAGR of GDP higher than the overall average during 1987–1992 (2.9%) are in the respective subgroups A, and branches with an AAGR of GDP lower than the economy's are in subgroups B. Only group I does not include subgroups, since all of its branches grew more than the average.

This typology of Mexico's economy stresses the development of the post-trade liberalisation period in terms of generating employment. It also associates the dynamics of this with the growth of GDP through the respective subgroups. Thus, it is expected that the branches in subgroups A, with a higher AAGR of GDP, would have had the greatest potential for generating employment during 1987–1992. The next section examines the performance of the established groups for 1987–1992, that is, for the period of post-liberalisation and relative growth in Mexico's economy.

Table 2. General data on employment (1982–1992) by subsectors

		Generation of employment				Share in employment				Average annual growth rate of employment			
		1970– 1981	1982– 1986	1987– 1992	1982– 1992	1970– 1981	1982– 1986	1987– 1992	1982– 1992	1971– 1981	1982– 1986	1987– 1992	1982– 1992
GD1	Agriculture, forestry and fishing	1,362,783	309,585	– 170,372	229,133	30.54	27.42	26.79	27.11	2.7	0.4	– 0.2	0.1
GD2	Mining	69,045	20,189	– 3,083	29,609	1.19	1.15	1.23	1.19	3.5	2.9	0.6	1.7
GD3	Manufacturing industry	831,775	– 101,214	17,354	– 58,148	12.95	11.21	11.05	11.13	3.7	– 1.2	0.3	– 0.4
DI	Food products, beverages and tobacco	173,504	23,400	27,803	49,200	3.30	3.01	3.00	3.01	3.0	1.3	0.6	1.0
DII	Textiles, apparel and leather	115,285	– 32,617	– 43,732	– 82,327	2.51	1.98	1.79	1.89	2.7	– 2.0	– 2.1	– 2.0
DIII	Wood and its products	50,118	– 20,250	– 8,217	– 22,143	0.70	0.56	0.52	0.54	4.0	– 4.2	– 0.2	– 2.0
DIV	Printing and publishing	33,041	– 2,175	1,874	– 141	0.66	0.55	0.55	0.55	2.8	– 0.7	0.3	– 0.1
DV	Basic petrochemicals, rubber and plastic	105,579	9,373	– 4,902	15,015	1.49	1.44	1.50	1.47	4.1	1.3	0.3	0.8
DVI	Non-ferrous metals	41,583	1,631	– 3,932	9,071	0.85	0.73	0.77	0.75	2.8	– 0.5	0.9	0.3
DVII	Structural metal products	44,738	– 10,941	– 18,952	– 35,500	0.51	0.47	0.38	0.43	5.0	– 2.7	– 4.9	– 3.9
DVIII	Metal products, machinery and equipment	252,581	– 74,278	41,376	– 26,531	2.66	2.22	2.22	2.22	5.4	– 4.3	1.7	– 1.0
DIX	Other manufacturing industries	15,346	4,643	26,036	35,208	0.27	0.23	0.31	0.27	3.3	1.2	7.7	4.8
GD4	Construction	1,441,871	– 301,200	732,158	437,370	7.64	9.02	9.66	9.34	10.1	– 3.0	5.8	1.8
GD5	Electricity, gas and water	48,718	11,690	6,548	21,071	0.33	0.44	0.49	0.46	8.3	3.2	1.5	2.3
GD6	Commerce, restaurants and hotels	1,118,081	– 49,830	372,030	366,307	14.82	14.52	14.74	14.63	4.2	– 0.1	2.1	1.1
GD7	Transportation, storage and communications	528,525	– 1,771	72,291	95,314	4.01	4.74	4.74	4.74	7.4	1.3	1.5	1.4
GD8	Financial insurances, real estate	157,721	44,586	28,157	80,583	1.84	2.11	2.19	2.15	4.9	4.1	1.2	2.5
GD9	Communal services, social and personnel	3,127,539	225,223	293,853	532,233	26.67	29.39	29.11	29.25	6.7	1.0	0.8	0.9
Agriculture and mining		1,431,828	329,774	– 173,455	258,742	31.26	28.57	27.75	28.13	2.7	0.5	– 0.1	0.2
Manufacturing		831,775	– 101,214	17,354	– 58,148	13.13	11.21	10.96	11.08	3.7	– 1.2	0.3	– 0.4
Services		6,422,455	– 71,302	1,505,037	1,532,878	55.62	60.21	61.28	60.80	6.5	0.2	2.0	1.1
Total		8,686,058	157,258	1,348,936	1,733,472	100.00	100.00	100.00	100.00	4.9	0.1	1.2	0.7

Source: Own calculations based on INEGI data.

Table 3. *Typology of Mexico's economic branches according to their growth in employment and GDP average annual growth rate (1987-1992)*

	Employment	GDP
Group I	5.9	6.6
56 Automobiles	7.9	24.9
59 Other manufacturing industries	7.7	4.5
60 Construction	5.8	3.6
Group II	2.0	3.1
Subgroup II.A	3.1	4.7
55 Electrical equipment	4.4	5.4
57 Motors and autoparts	4.3	8.7
68 Professional services	4.2	3.9
12 Fruits and vegetables	4.1	8.2
63 Restaurants and hotels	3.7	6.0
67 Rent of real estate	3.6	3.5
07 Ferrous mining	3.4	5.4
22 Soft drinks and flavorings	2.9	4.7
34 Basic petrochemicals	2.7	10.5
09 Stone, sand, gravel, clay	2.2	5.8
52 Machinery and electric equipment	2.2	6.4
54 Electronic equipment	2.1	7.6
39 Cleaning and toilet prep.	1.9	6.0
43 Glass and products	1.7	7.2
42 Plastic products	1.7	3.8
48 Metal furniture	1.6	6.3
21 Beer and malt	1.6	6.8
38 Medicinal products	1.6	4.0
61 Electricity, gas and water	1.5	4.3
19 Other food products	1.2	5.1
Group II.B	1.8	2.3
04 Fishing and hunting	4.1	2.8
70 Medical services	3.6	1.5
30 Other wood products	2.1	0.4
08 Non-ferrous mining	1.9	1.9
64 Transportation	1.6	2.9
62 Trade	1.8	2.6
27 Apparel	1.4	2.4
69 Educational services	1.3	1.1
14 Corn milling	1.2	1.5
Group III	-0.4	1.9
Subgroup III.A	-0.3	5.6
45 Ceramics	1.1	3.6
40 Other chemicals	1.0	3.5
65 Communication	0.9	14.6
41 Rubber products	0.8	3.9

(Continued)

Table 3. *Continued*

	Employment	GDP
20 Alcoholic beverages	0.5	8.1
32 Printing	0.5	3.9
53 Household appliances	0.4	5.3
11 Meat and milk products	0.4	4.1
26 Other textile industries	0.3	2.9
50 Other metal products	0.0	3.6
51 Non-electrical machinery	- 0.3	6.7
35 Basic inorganic chemicals	- 0.3	4.7
49 Structural metal products	- 0.9	4
47 Non-ferrous metals	- 1.1	4.8
37 Plastic resins, syn. fiber	- 1.6	5.2
44 Cement	- 1.7	5.3
46 Steel and iron	- 6.1	3.7
17 Fats and oils	- 2.6	4.5
Group III.B	- 0.4	0.5
13 Wheat milling	0.9	0.9
71 Amusements	0.4	- 0.5
15 Coffee	0.3	0.5
31 Paper and paperboard	0.0	2.1
03 Forestry	0.0	0.1
73 Public administration and defense	- 0.1	0.0
01 Agriculture	- 0.1	0.5
06 Crude oil and gas	- 0.2	1.6
72 Other services	- 0.2	1.9
16 Sugar	- 0.4	- 0.5
66 Financial services	- 0.9	2.7
02 Livestock	- 1.1	- 0.6
18 Food for animals	- 1.7	- 0.4
05 Coal and products	- 2.3	- 1.7
29 Lumber, plywood	- 2.4	- 1.1
33 Petroleum refining	- 2.8	2.4
24 Cotton, wool, syn. textiles	- 3.0	- 2.5
28 Leather and footwear	- 4.2	- 3.5
58 Other transportation equipment	- 4.9	- 2.6
36 Pesticides and fertilizers	- 5.0	- 2.0
10 Other non-metal minerals	- 5.3	- 7.7
23 Tobacco	- 7.7	0.7
25 Jute, rough textiles	- 18.9	- 20.2
Agriculture and mining	- 0.1	0.7
Manufacturing	0.3	4.3
Services	2.0	2.9
Total	1.2	2.9

Source: own calculations based on INEGI data.

Group I: Growth rate of employment >5%.

Group II: Growth rate of employment <5% AND >1.18%.

Group III: Growth rate of employment <1.18%.

Subgroups: Growth rate of GDP higher or lower than 2.89%.

Characteristics and evolution of the groups. Table 4 shows that only three branches—Automobiles, Other Manufacturing Industries, and Construction—had an AAGR of employment above 5% during 1987–1992, the turning point for net employment growth for Mexican society. Branches in Group I also had a low but increasing share in total employment: 9% in 1987 and 11% in 1992. Without doubt, construction, with an 11% share in 1992, is the most important branch in this group. Group II, with 29 branches, had an AAGR of employment of 2% for 1987–1992 and a share of 40% of total employment for 1992. Trade (a 12.6% share in 1992), educational services (9.7%) and transportation (4.4%) are the most important branches. Group III, with 41 branches and an AAGR of employment of –0.4% for 1987–1992 and a share of 48% of total employment for 1992, respectively, includes branches that displace labour. Agriculture (a 21.4% employment share for 1992), other services (10.4%), and public administration and defense (4.6%) are the most important branches in Group III. Groups II and III together thus accounted for 88% of total employment in 1992 but did not generate enough new jobs to meet Mexican society's increasing demand for employment during 1987–1992.

The subgroups established according to the typology display several tendencies and show the significant positive relationship between GDP growth and employment growth. The three branches of Group I have the three highest rates of AAGR in both employment and GDP. These findings reinforce the hypothesis that the growth of GDP is a necessary condition for employment generation.

(i) Employment. Due to the structure of the typology, Group I had the highest average annual growth rate in employment during 1987–1992, but this rate declines as we move to Groups II and III. Nevertheless, it shows that the typology has been valid since 1970, during the period of import substitution. Thus, Group I displays the highest AAGR in employment during 1971–1981 (9.8%), compared with Group II (6%) and Group III (3.5%).

Given the relative coherence of the established groups, the shares increased for Groups I and II after 1970 and fell for Group III from 62% in 1970 to 53% in 1982 and 48% in 1992. It is important to stress that Group I, the most dynamic in employment growth during 1987–1992, represented only 12% of total employment in 1992. Branches from Groups II and III generated employment below the requirements of society but they accounted for 88% of total employment.

(ii) GDP. As with employment, the typology also presents an interesting continuity of GDP growth after 1970. Group I was the most dynamic in terms of GDP growth but AAGR fell for Group II, and even more so for Group III. Despite this continuity, a significant structural change occurred because the AAGR for GDP during the import substitution period (1971–1981) was much higher for the economy and its various sectors and groups than it was during 1982–1992. Thus, in the period 1971–1981 ten branches show an AAGR of GDP above 10% but during 1987–1992 only three do. The Automobiles branch displays the strongest dynamism in both periods, with AAGRs of 13 and 25%, respectively, while the branch, Hard Textiles, shows a continuous decline since 1971 (see Table 4).

Finally, it is important to note that Group I has little weight in total GDP, only 7.6% in 1992.

(iii) Real wages per worker.¹ Real wages per worker show a sharply declining tendency since 1982, with slight recovery after 1989. What stands out is that, as with the variables examined above, the period 1971–1981 shows a much more favourable trend than the period 1982–1992, with an AAGR of real wages per worker of 2.4 and –2.0%, respectively, for the whole economy.

During 1982–1992 all sectors show significant structural changes with respect to real wages, although in different degrees. They also show declines in real wages during 1982–1986, although only Manufacturing experiences a significant recovery during 1987–1992, with an AAGR of 3.6%. On the other hand, agriculture and mining continues to show a marked decline throughout 1987–1992 (–5.2%). Therefore, Mexico's economy and its sectors were still far from achieving the real wage levels of 1980; by 1992 real wages for the total economy were only 83% of the 1980 level; in agriculture and mining 65% and in manufacturing 98%.

At the group level, it is significant that the most dynamic branches in terms of employment and GDP, i.e., those in Group I, display the lowest recovery in real wages. Hence, in 1992 real wages of Group I were only 64% of the 1980 level, 77% of Group II and 91% of Group III. The cases of Automobiles (with 117% of real 1980 wages) and pharmaceutical products (132.5%) stand out due to their high performance in terms of real wages.²

(iv) Labour and capital productivity.³ Labour productivity for the whole economy and its individual sectors, particularly manufacturing, displays a significant structural change during 1982–1992. In the first period, 1982–1986, there is a general falling tendency, followed by recovery in 1987–1992 and an AAGR of 0.2 and 4.0%, respectively, for manufacturing. Thus, as the government has emphasised, increasing labour productivity has been one of the major successes of the liberalisation strategy.

At the group level it can be seen that labour productivity recovers significantly during 1987–1992 in Groups II and III, which include the least dynamic branches in employment and GDP growth. However, the increase in labour productivity is caused by a slight increase (or fall) in GDP and an AAGR of employment lower than that of GDP. From this perspective, the increase in the AAGR of labour productivity for Group I—0.8% during 1987–1992—along with increasing employment and a high growth in GDP, are of utmost importance for the economy and opposite to the 'perverse' increase in labour productivity in the other groups. Again, the automotive branch stands out with an AAGR of labour productivity of 16% during 1987–1992, one of the highest AAGRs shown by any branch since 1970 (see Table 4).

Capital productivity also shows an important structural change during 1982–1992 owing to its general recovery in 1987–1992. Importantly, most of the increase

¹ Real wages per worker are calculated $S_t = S_0 \cdot D_t$, where S_t is remuneration per worker in millions of pesos of 1980 and D_t is the implicit deflator of GDP (GDP in millions of pesos/GDP in 1980).

² It is necessary to recall that in several cases the increase in real wages per worker is due to massive layoffs of workers, which increases average real wages per worker, as in tobacco.

³ Labour productivity is calculated as the change in the ratio of GDP and remunerated employment, and capital productivity as that in the ratio of GDP and net capital stock. The data on net capital stock present serious problems. Nevertheless, changes in capital and labour productivity display similar tendencies for the periods analysed and are considered appropriate for the analysis.

Table 4. Basic data of the groups (does not include maquiladoras)

	Group I	Group II	Subgroup II.A	Subgroup II.B	Group III	Subgroup III.A	Subgroup III.B	Agriculture	Manufac- turing	Services	Total
GDP^a											
1970-1981	8.1	7.1	6.5	7.4	5.7	7.7	5.1	5.1	6.7	7.0	6.7
1982-1986	-5.7	-0.2	1.0	-0.7	0.4	-0.7	0.8	0.8	-0.9	-0.5	-0.5
1987-1992	6.6	3.1	4.7	2.3	1.9	5.6	0.5	0.7	4.3	2.9	2.9
GDP^b											
1982	7.60	59.11	18.29	40.82	34.47	8.75	25.72	11.64	21.19	68.36	100.00
1987	6.27	59.59	19.51	40.07	35.51	8.94	26.56	12.33	21.30	67.74	100.00
1992	7.55	60.52	21.28	39.24	33.45	10.17	23.28	10.71	22.80	68.00	100.00
Employment^a											
1970-1981	9.8	6.0	5.2	6.2	3.5	4.1	3.5	2.7	3.7	6.5	4.9
1982-1986	-3.0	1.5	0.8	1.6	-0.2	-1.1	-0.1	0.5	-1.2	0.2	0.1
1987-1992	5.9	2.0	3.1	1.8	-0.4	-0.3	-0.4	-0.1	0.3	0.3	1.2
Employment^b											
1982	10.67	36.73	7.61	29.12	52.60	4.19	48.41	27.34	11.66	61.00	100.00
1987	9.14	38.33	7.81	30.52	52.53	4.01	48.52	28.84	11.11	60.05	100.00
1992	11.96	40.18	8.63	31.55	47.86	3.68	44.18	26.42	10.54	63.04	100.00
Labour productivity^a											
1970-1981	-1.3	1.1	1.3	1.2	2.2	3.4	1.7	2.6	3.0	0.5	1.8
1982-1986	-3.0	-1.6	0.1	-2.3	0.6	0.4	0.9	0.4	0.2	-0.6	-0.6
1987-1992	0.8	1.0	1.6	0.5	2.3	5.9	1.0	0.9	4.0	0.9	1.7
Capital productivity^a											
1970-1981	-8.4	-1.7	-2.0	-1.3	2.3	0.4	6.8	-3.9	1.0	-2.9	-1.1
1982-1986	-8.9	-2.6	-1.2	-3.1	0.5	1.8	-1.3	0.2	-1.0	-2.6	-2.1
1987-1992	3.1	1.2	2.7	0.6	3.1	6.8	0.1	-1.0	7.2	-0.2	2.2

Exports^a											
1970-1981	12.3	9.5	12.1	7.1	17.2	7.0	19.1	26.8	4.0	536.7	15.6
1982-1986	45.7	14.2	16.3	7.9	6.6	27.6	5.1	4.5	21.8	24.9	7.9
1987-1992	25.4	7.1	6.0	11.8	2.8	14.7	0.5	0.5	10.0	8.2	4.5
Exports^b											
1982	0.58	10.49	7.88	2.60	88.93	4.69	84.25	81.14	16.99	1.88	100.00
1987	3.90	16.35	12.89	3.46	79.76	12.41	67.35	59.86	39.96	0.18	100.00
1992	7.74	18.46	13.69	4.77	73.40	17.03	56.37	50.10	49.74	0.16	100.00
Imports^a											
1970-1981	15.8	8.4	8.9	6.0	13.8	15.0	12.9	19.43	11.74	8.89	12.09
1982-1986	-7.4	-1.3	-0.4	-14.6	-12.6	-9.9	-11.3	-7.4	-8.5	9.0	-9.8
1987-1992	23.8	24.2	23.0	46.1	21.9	23.3	19.8	15.8	23.5	48.2	27.7
Imports^b											
1982	5.91	23.85	22.02	1.83	70.25	46.55	23.70	9.72	90.22	0.07	100.00
1987	5.00	33.39	32.01	1.38	61.61	37.49	24.12	12.55	87.33	0.12	100.00
1992	5.68	34.75	31.55	3.20	59.57	39.72	19.85	7.78	91.96	0.26	100.00

Key: ^aAverage annual growth rate. ^bPercentage share over total.

Source: own calculations based on INEGI data.

in this ratio is caused by an increase in GDP and relatively stable or falling net capital stocks, particularly in the manufacturing sector (Dussel Peters, 1994B). At the sectorial level, only manufacturing contributed to the increase in capital productivity, while the agriculture and mining and services sectors continue to show negative AAGRs of -1.0 and -0.2% , respectively, during 1987–1992. Group I, characterised by the development of Automobiles, displays the highest AAGR in capital productivity. Again, only Group I shows a significant increase in GDP and capital productivity, while the rest of the groups register an increase in capital productivity as a result of declining net capital stocks.

(v) Exports and imports.¹ Mexico's international trade has been, without doubt, one of the most significant factors affecting its structural change since 1982. Examination of only the relevant issues in this analysis shows that the dynamics of total exports waned after 1970, with an AAGR of exports of 15.6% in 1971–1981, 8% during 1982–1986, and 4.5% during 1987–1992. Nevertheless, an important restructuring of exports has taken place: the share of manufacturing exports increased significantly after 1987, to more than 50% of total exports in 1992.² At the group level, Group I has been the most dynamic in terms of exports, with AAGRs of 46 and 25% , respectively, for 1982–1986 and 1987–1992. However, Group I's share of exports was only 7.7% in 1992, while Group III's exports, although less dynamic in jobs and GDP, represented 73% of total exports.

The impressive dynamism of exports is also important when evaluating the evolution of imports, which have an AAGR of -9.8% for 1982–1986 and 23% for 1987–1992. Hence, much of the structural change in Mexico's trade occurred during 1982–1992; in the first subperiod (1982–1986) there was a great increase in exports and a decline in imports, which reversed itself drastically during 1987–1992. Agriculture and Mining and Manufacturing stand out for their high shares in imports and AAGRs: 16 and 23.5% during 1987–1992. Moreover, Manufacturing's share of imports reached an historical high of 92% in 1992.

The trade balance/GDP ratio reflects much of the drastic structural change in Mexico's economy since 1987. It fell from 4.2 to -7% for the total economy from 1987 to 1992, and from -6.7 to -42% for Manufacturing. This dramatic loss of backward linkages and jobs is manifested in all groups, but particularly in Groups II and III. For the latter, the ratio fell from 10.5 to -10.2% for the same period. More important, it deteriorated significantly in all Subgroups A, i.e., in those branches showing the highest recoveries in terms of GDP. Hence, an important growth pattern of the Mexican economy for 1987–1992 is that the most dynamic branches in terms of GDP growth have a significant tendency to lose their backward linkages and, subsequently, to decrease employment. This is one of the most striking features of Mexico's import-oriented industrialisation.

2.3. *Estimations of Mexico's employment*

This section briefly examines some significant relationships between employment and certain other variables for the Mexican economy during 1970–1992. In the

¹ As mentioned earlier, this analysis does not include data on in-bond or *maquiladora* activities.

² It is important to remember that manufacturing exports were already 53% of total exports during 1970–1981.

Table 5. *Results of the time-series models^a*
Dependent variable: Employment

	Independent variables					R ² (adjusted)	F
	C	LPIB	LSR	LX	LR(-1)		
Group I	-0.67 (0.0017)*	0.95 (0.0000)*	-0.29 (0.0000)*	-0.01 (0.4382)	0.23 (0.0023)*	0.9922	671.6
Group II	0.34 (0.1823)	0.6 (0.0002)*	-0.11 (0.1409)	-0.02** (0.5235)	0.39 (0.0024)*	0.9971	1783.6
Group III	3.78** (0.0009)*	-0.07** (0.6023)	0.14 (0.0132)*	0.11 (0.0061)*	0.31 (0.1647)	0.9648	144.68
Agriculture and mining	5.31** (0.0001)*	-0.23 (0.4892)	-0.16 (0.0273)*	0.1 (0.0406)*	0.29 (0.2637)	0.9191	60.6
Manufacturing	3.06 (0.0000)*	0.57 (0.0000)*	-0.24 (0.0005)*	-0.09 (0.0000)*	0.008 (0.9499)	0.9825	295.3
Services	0.81 (0.0000)*	0.75 (0.0000)*	-0.07 (0.0259)*	0.008 (0.0035)*	0.18 (0.379)	0.9976	2197.2
Total	4.54 (0.0038)*	0.42** (0.0485)*	0.11** (0.1751)	0.13** (0.0349)*	-0.09** (0.7856)	0.9843	330.1

Key: LPIB=Logarithm of GDP at 1980 prices. LSR=Logarithm of real wages. LX=Logarithm of exports at 1980 prices. LE=Logarithm of remunerated employment.
 Student-*t* probabilities in parentheses.

^aThe following misspecification tests were done: Serial correlation, normality, heteroskedasticity Arch and White, lineality, Ramsey, CUSUM and CUSUM2. *These coefficients are significant at 0.05%.

**Lagged variable (-1).

preceding sections a statistically positive association was established at the group level between employment and GDP, and a negative association for real wages.

Hence, several models are estimated for each group and sector, based on the following equation (see Table 5):

$$LE = \alpha_0 + \alpha_1 LPIB + \alpha_2 LSR + \alpha_3 LX + \alpha_4 LE(-1)^1 \quad (1)$$

where:

LE =logarithm of remunerated employment

LPIB=logarithm of GDP at 1980 prices

LSR =logarithm of real wages

LX =logarithm of exports at 1980 prices

The results are satisfactory with respect to employment and partially reflect the different dynamics of various groups and sectors in Mexico's economy (see Table 5). First, the elasticity of employment-GDP is positive for all sectors and groups except Group III and agriculture and mining. Second, the significant elasticities of employment-real wages and employment-exports are very low and,

¹ The respective time-series models include lags, as specified in the results. All the variables were transformed into logarithms. The regressions were carried out according to the Ordinary Least Squares (OLS) method and the respective tests for incorrect specification were made. The period of analysis is 1970-1992.

respectively, negative and positive. Third, at the sectorial level manufacturing displays the highest elasticities for employment–GDP and employment–real wages (0.57 and -0.24 , respectively). In other words, manufacturing shows a significantly different trend than the other sectors: an increase in real wages is associated with a decline in employment. Moreover, exports show a negative elasticity only with respect to employment for manufacturing. Fourth, Group I shows the highest (positive) employment–GDP and (negative) employment–real wage elasticities and responds the most to changes in GDP and real wages. On the other hand, exports are not significantly associated with employment in these groups and sectors.

The results of the different models stress the crucial importance of Mexican economic growth in generating employment in all sectors and groups, as is also the case with other nations (Singh, 1991). According to these estimates, GDP would have to increase between 5% (for Group I) and more than 10% (for the total economy) in order to generate employment growth of more than 5%. However, GDP growth does not generate employment significantly in Group III and in agriculture and mining, branches which have the highest propensity to displace labour. On the other hand, real wages are negatively associated with employment, particularly in Group I and manufacturing, which partially explains labour displacement in the latter. Finally, increases in exports are not related to significant expansions in employment, which is very significant for future expectations, including NAFTA.

3. Recent evolution in Mexico's employment (1993–1995) and the impact of NAFTA

Mexico's macroeconomic and sectorial performance deteriorated significantly after 1992, particularly with the crisis of December 1994. After a slowdown in manufacturing and overall GDP growth, the economy appeared to recover in 1994 as financial deficits were decreasing: 0.5, 0.7, and -1% for 1992, 1993, and 1994.

However, as described earlier, Mexico's economy showed serious macroeconomic and sectorial problems. The increasing current account trade deficit, created mainly by trade deficits in manufacturing, was being financed by extremely volatile foreign investments. Thus, contrary to the crisis of 1982, that of 1994 was in the manufacturing and private sectors, i.e., sectors that are central to Mexico's future development according to the government strategy. Moreover, the crisis of 1994 was directly related to its macroeconomic liberalisation strategy and the sectorial impasse in manufacturing. As indicated, the initial export-oriented industrialisation actually led to an import-oriented industrialisation in which the manufacturing sector—with high GDP, productivity, and export growth—decreased drastically both its backward and its forward linkages to the rest of the economy. This trend revealed itself clearly during 1987–1992, when the trade balance/GDP ratio increased from -6.7 to -42.4% . In other words, during this period manufacturing's net import penetration increased by a factor of almost seven.

This trend had radical consequences for the labour market. During the recovery period 1987–1992, as shown, the economy was not able to generate sufficient

employment growth in net terms, i.e., above the 5% annually required by Mexican society. However, the total economy, particularly manufacturing, has decreased labour demand in absolute terms since 1992. In manufacturing, employment growth for 1992, 1993, and 1994 was -2.1, -7.2, and -5.7%, and the trend is expected to continue in 1995. Official sources expect GDP growth to be around -7% and the economy to displace two million workers. Thus, the serious challenge of employment generation in Mexico has intensified radically and, as emphasised earlier, current economic programs do not project specific measures to solve these structural conditions.

What has been the impact of NAFTA on Mexican employment? So far, any evaluation has to be preliminary. First, the relatively short implementation period (since January 1994) does not allow for definitive results. Second, several major political and economic events since the beginning of 1994—the Indian-peasant rebellion in Chiapas, the assassination of several politicians, federal elections, and the crisis of December 1994—have to qualify any first-year analysis of the job impact of NAFTA. Third, the economic and political crisis since the end of 1994 has had a significant impact on Mexico's trade patterns. The drastic fall in GDP and domestic consumption, together with a peso devaluation of roughly 120%, caused a surplus in Mexico's trade balance for the first time since 1988. Finally, data are not yet available regarding employment and the impact on employment. Thus, the following has to be an introduction to future work on this question.

It has to be emphasised that from the Mexican government's perspective NAFTA was a necessary element in its macroeconomic liberalisation strategy. Liberalisation strategy has been a failure, particularly in the case of employment, since it did not provide jobs for the increasing EAP during 1987–1992 and has since even displaced labour. This process, as suggested earlier, is directly related to the results of import-oriented industrialisation. Thus, NAFTA can either alleviate or intensify the radical structural change that has occurred in Mexico's economy since 1987.

On the one hand, Banco de México (1995) supports the argument that the structural change in employment of 1987–1992 continued throughout 1994, with only construction showing much growth of employment: 2.6% to November 1994. On the other hand, information provided by the National Trade Data Bank on US–Mexican trade for all of 1994 and up to March of 1995, suggests a positive impact for Mexico:

(i) Mexico's trade deficit with the US has been reduced significantly, from \$1.6 billion in 1993 to \$0.4 billion in 1994.¹ This was the result of increasing exports to the US (by 28%) and lower imports from it (22%) in 1994. Electric machinery and TV equipment and vehicles were the most dynamic trade sectors for both nations.

(ii) The structure of bilateral trade has not changed significantly since the implementation of NAFTA. At the ten-digit level, the vehicle, oil, TV, and in-bond sectors have benefitted most. Thus, electrical equipment and TV exports accounted for more than 44% of Mexico's export growth with the US in 1994, vehicles for more than 20%, in-bond activities 6%, and oil-related exports more than 4%. On

¹ Mexico's deficit with the US remained relatively stable after the late 1980s, but it increased drastically with the European Community and Asian nations.

the other hand, Mexican imports from the US that year were more diversified, including consumer goods such as meat, cereals, fruits, and oil seeds. At the product level, imports in electrical machinery and equipment accounted for more than 35% of total growth, vehicles for more than 10%, and plastics more than 8%.

However, after 1994 the structure of US-Mexican trade shifted drastically. During the first quarter of 1995 Mexican exports increased 32% and imports fell 6%. As a result, Mexico had a trade surplus with the US of \$3.8 billion, compared with a deficit of \$0.5 billion for the first quarter of 1994. In addition to the general fall in Mexican imports, the most striking aspect of first quarter 1995 trade was the export performance of knitted and non-knitted apparels (with growth rates of 92 and 48%), and the growth of electrical machinery (28%) and vehicle (40%) exports. The latter two accounted for more than 42% of total Mexican exports to the US.

This preliminary development suggests that NAFTA, although increasing trade substantially between Mexico and the US during 1994, did not have a significant impact on Mexico's overall trade structure. Changes in its trade flows with the US in 1994 show that Mexico's trade deficit declined with the US, and even accounted for a surplus, but increased with the rest of the world. Similarly, the increase in Mexico's exports to the US have been concentrated in a few sectors, especially electrical equipment and vehicles, both of which are characterised by intra-firm trade and high capital-intensity. On the other hand, Mexico's post-1994 trade performance reflects the fact that NAFTA has been an important institutional change for export growth and a trade surplus with the US, estimated at \$15 billion for 1995. From the US perspective, these recent events, although important for Mexico's fragile macroeconomic stability, seriously put into question the terms of NAFTA and future US economic relationships with Mexico.

4. Conclusions

The macroeconomic liberalisation strategy implemented in 1987 has had an extremely heterogeneous impact on Mexico's economy, characterised by a general process of economic exclusion, which in turn has produced serious contradictions and high social, political, and economic costs. So far, 'flexible production' and overall economic restructuring have increased informal employment. But the government has not provided a favourable environment for, and in fact has even violently opposed, the organisation of independent labour unions. Moreover, only a few sectors and industries have participated in the structural change occurring since 1987, particularly in terms of productivity and foreign trade. The 'defacement' of the government's strategy, i.e., the time lag that elapsed between the imposition of macroeconomic policies and any acknowledgment by the government of contradictions and failures at both the sectoral and the local level, has been a matter of great concern. Government policies have shown no willingness to confront the employment issue directly. Recent programmes have not met the need for new job creation; on the contrary, the current programmes try to do little more than secure existing jobs.

As in other Latin American economies, employment represents a crucial challenge to policymakers that appears to have no short-run solution. Mexico's

ongoing structural change reveals that only a few economic activities, representing 12% of total employment, have generated job growth above the minimum social requirement. This problem was exacerbated during the 1980s in view of the fact that import substitution policies during the 1970s had generated significantly more employment.

The marginalisation of Mexican employment has been significant since 1970, largely because the manufacturing sector displaced so much labour during 1982–1992 and because employment in agriculture and mining has been relatively stable. Hence, employment growth in Mexico during 1987–1992 is associated with inferior jobs in terms of quality, productivity, and real wages. This is especially true in construction, one of the fastest-growing sectors.

Many branches of Mexico's economy, particularly those in Groups II and III, show a 'perverse' increase in both labour and capital productivity at the expense of employment. Only the branches in Group I show simultaneous growth both in employment and GDP and in labour and capital productivity. The most dynamic activities in terms of employment and GDP growth are not associated with increases in real wages, with the significant exception of automobile production. Thus, at an aggregate level, real wage levels in all product groups and sectors and in the total economy are still below those of 1980, despite a small improvement since 1989. The 'lost decade' of the 1980s, and the structural changes initiated during that time, doubly exacerbated labour displacement: it generated employment far below Mexico's social requirements, even decreasing employment in absolute terms; but the economic recovery since 1987, in terms of GDP growth, has not produced significant increases in real wages. Thus, it can be concluded that weaknesses in recent economic growth and in the macroeconomic adjustment process initiated in 1982 are directly related to the low growth of employment since 1987.

The statistical and econometric results show that the Mexican experience, similar to that of many other nations, is that GDP growth is crucially important to job growth at the industry, group, and sectoral levels, and for the economy as a whole. The time-series models emphasise this relationship, since the employment–GDP elasticities are high and positive in all cases. On the other hand, real wages are associated negatively with employment, particularly for manufacturing, which to some extent explains the loss of jobs in this sector. Finally, the increase in exports does not produce a corresponding increase in employment. This is critical to Mexico's employment prospects, since the government stresses that exports will be the central mechanism for future development.

Both Mexican society and economy are at a highly complex historical crossroads. Despite important macroeconomic successes, the high growth rate of the EAP presents huge economic, social, and political risks. But we now know that massive investments, public and/or private, do not necessarily generate employment, particularly in the most modern, capital-intensive sectors. This is especially true for manufacturing, which is characterised by high capital intensity. However, a high growth rate in GDP does create, without doubt, the necessary conditions for greater job growth, although it is difficult to imagine that the economy will grow at 10% a year, the estimated rate needed to generate sufficient employment growth.

Labour market conditions in Mexico have worsened considerably since 1993. The economy not only was unable to generate employment according to the needs of its increasing EAP but even lost jobs in absolute terms. This is particularly so for manufacturing, even though that sector increased its share of total exports significantly. As a result of the crisis of December 1994, some two million workers are expected to lose their jobs. At this time there is little hope that conditions will improve in the short- and medium-run.

Preliminary analysis of the impact of NAFTA on Mexican employment finds that NAFTA was one element of the Mexican government's macroeconomic liberalisation strategy, but has only worsened already poor labour market conditions. It continued Mexico's concentration on foreign trade. Since 1987 only a few industries, most of them relatively capital-intensive and intra-firm in nature, sustained their high growth in exports. However, as shown earlier, the employment-export elasticities for Mexican trade activities are both statistically and economically insignificant. Thus, even in the best of the scenarios—in which Mexico experiences significant growth in exports through NAFTA—it cannot be expected that employment conditions would improve. Thus, the priorities of the macroeconomic liberalisation, import-oriented strategy of 1987 are at the core of the development contradictions in the current crisis and of the economy's inability to generate sufficient employment.

Now it is absolutely necessary that the government implement an explicit employment policy for Mexico. It is also crucial that the goals of this policy be formulated and negotiated among independent labour unions, businesses, the government, and the civil society, and that they be on a long-term basis and coordinated in time and space as a 'package'. The high costs of modernisation and macroeconomic adjustment, particularly those involving employment, are no longer sustainable, either economically, politically, or socially. In some instances a more active government policy should envision higher growth and employment levels regardless of inflation risks. The compatibility of the macroeconomic aspects of the adjustment process with the microeconomic goals, particularly employment policy, must be discussed, and goals must be redefined and revised where necessary.

Such a policy is also in the interests of the US and Canada, as an alternative to mass migration from Mexico into those countries. Recent trade data for 1995 suggests that the impact of the December 1994 crisis has had a much more significant impact on subsequent trade between the US and Mexico than did NAFTA. However, the estimated \$15 billion trade surplus for Mexico with the US in 1995, added to \$20 billion of credits from the US government to help overcome the 1995 financial crisis, might generate strong criticisms in the US. It is therefore most important to have a clear understanding of the structural origins of Mexico's crisis, as well as of the employment challenge.

The government has a fundamental responsibility to coordinate and enhance employment growth and to assess whether structural change—only three industry groups have generated employment above the minimum required—is both desirable and economically and socially sustainable. Moreover, it is indispensable that within any 'negotiated package' there be a commitment that strategic economic activities give priority to job growth and improved infrastructure, education, and research.

On the other hand, much of the responsibility also rests with other social classes, workers, businessmen, and civil society in general. The outlook is highly uncertain, however, and directly related to the development of stronger political democracy in Mexico and the organisation of independent labour unions.

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