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# The Impact of Trade Liberalization and the Global Economic Crisis on the Productive Sectors, Employment and Incomes in Mexico



By Alicia Puyana,  
FLACSO



International Centre for Trade  
and Sustainable Development

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## LIST OF ABBREVIATIONS AND ACRONYMS

A4T	Aid for trade
ASERCA	Apoyos y Servicios a la Comercialización Agropecuaria
CUSFTA	Canada-US Free Trade Agreement
FDI	Foreign direct investment
DFID	UK Department For International Development
EAP	Economically active population
EU	European Union
FDI	Foreign direct investment
FTAA	Free Trade Area of the Americas
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GSP	Generalized system of preferences
IADB	Inter-American Development Bank
IATP	Institute for Agriculture and Trade Policy
IMF	International Monetary Fund
INEGI	Instituto Nacional de Estadística Geografía e Informática
IT	Information Technology
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-Operation and Development
OLF	Occupied Labour Force
PITEX	Programa de Importación Temporal para las Exportaciones
PROCAMPO	Programa de Apoyos Directos al Campo
PROSEC	Programas de Promoción Sectorial
RMS	Medium real salaries
SNE	Servicio Nacional de Empleo
TSE	Total support estimate

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## FOREWORD

Structural reforms and the liberalization of foreign trade and investment have occurred all over the world. The majority of developing countries have embraced reforms that differ regarding the timing and speed of implementation but not in character. The economic model pursued has combined adjustment and stabilization reforms with the liberalization of foreign trade, increasing the level of competition in international markets.

As a result of their increased integration into the world economy, developing countries today are more exposed to the risks associated with external shocks. Indeed, most of them have suffered greatly from the decrease in global demand, the drying up of trade finance and the decline in investment and remittances resulting from the recent financial and economic crisis. While several developing nations have shown early signs of recovery, the crisis may have reversed modest progress towards poverty alleviation. Furthermore, social indicators suggest that natural rates of unemployment are likely to be higher in the future, prompting concerns about possible jobless growth.

Mexico is a particularly interesting case. Starting in the early eighties, it gradually abandoned the import substitution model adopted in the decades before and liberalized its economy, adopting an “outward growth” model based on exports. Nowadays, Mexico is one of the most liberal medium-sized economies in the world, with the movement of goods, services and capital being practically free as a result of multilateral, regional and bilateral trade agreements. Yet, the effects of these reforms have been less positive than expected, with per capita GDP, productivity and employment virtually stagnant. In addition, the adjustment costs have grown and intensified during the recent global economic and financial crisis. Indeed, the crises hit Mexico with particular force, severely contracting GDP growth and causing a rise in unemployment, poverty and financial inequality.

This paper on ‘Trade Liberalization in Mexico: Impact of the Global Financial Crisis on Productive Sectors, Employment and Incomes’ by Alicia Puyana (FLACSO), analyzes the impact of trade reforms on the performance of the Mexican economy and focuses specifically on the aftermath of the crisis. It identifies the effects of the crisis with regards to the agriculture and manufacturing sector, but also describes the changes within the Mexican labour market. The paper not only shows the advantages and disadvantages of liberalization, but also gives concrete policy recommendations and identifies the role of development cooperation, particularly aid for trade, to improve Mexico’s post-crisis development strategies.

With this paper, which was published in combination with three other case studies (Chile, India, and South Africa), ICTSD aims to contribute to a knowledge based debate on the impact of trade liberalization and the economic and financial crisis on the trade and labour market sectors. These studies also aim to inform the debate on whether development assistance and aid for trade in particular, can help to mitigate different impacts of the trade liberalization process and the crisis on the labour market.



Ricardo Meléndez-Ortiz  
Chief Executive, ICTSD

## 1. INTRODUCTION

Mexico is one of the most liberal of the medium-sized economies in the world. Import tariffs have been reduced and the movement of goods, services and capital is practically free. Starting in December 1982, Mexico gradually abandoned the import substitution model adopted since 1940 and began to liberalize the economy. The economic role of the government was reduced by selling public enterprises, and *Petróleos Mexicanos* and the *Comisión Federal de Electricidad*, transports and telecommunications and banks and financial institutions were severely deregulated, reducing government investments. The process of liberalization also included opening the country to foreign capital flows.

The objectives of the reforms and the new trade regime, which were manifold, included:

- reversing the loss of competitiveness in international markets;
- overcoming the inefficient allocation of productive factors to regain export dynamism and larger shares of world trade;
- speeding up growth and reducing unemployment or underemployment;
- advancing to a new industrialization process at higher levels of productivity by creating an environment conducive to encouraging private investment (both domestic and foreign) and increasing the rate of capital formation;
- sustaining macroeconomic stability; and
- reducing inflation, increasing incomes and reducing poverty.

In theory, successful liberalization of trade policies would induce sustained expansion of the external coefficient to gross domestic product (GDP), measured as the ratio of imports plus exports to GDP. It can be assumed that lower import tariffs would reduce the domestic prices of nationally produced goods

that compete with imports and increase the internal prices of exportable goods. Since the degree of openness of an economy (measured by the external coefficient to GDP) is inversely associated with the gap between international and domestic prices, the more open an economy, the lower the difference between international and domestic prices; therefore, production and export structures should move toward a more comparative advantage. If the exchange rate is properly established, no excessive trade deficit should emerge. Assuming the export sector has higher productivity than the rest of the economy, those countries that reallocate resources toward exports should grow faster.

By closely linking domestic prices to international prices gains in efficiency will emerge through changes in:

- i) the productive structure, which would favour increased production of tradable goods whose domestic relative production costs are lower than international goods;
- ii) domestic firms that compete with imports, which will improve their productivity and become more efficient as a result of increased competition from imports;
- iii) use of abundant factors of production, e.g. labour in particular, leading to an increase in aggregate wages.

The theory rests on the assumption of full employment and perfect markets, i.e. conditions not fulfilled in Mexico and elsewhere in the developing world.

With this conceptual framework - and under perfect market conditions - if the relative price of a good is lower in the international market than in the domestic market, opening the commercial economy would be:

- prejudicial to all those individuals who were net vendors of that product prior to the opening up of trade and who continue to act as such following it; and

- beneficial to all those domestic buyers who were net purchasers before the opening, and continue to be so afterwards.

Consequently, the net benefit to a country of the opening of its economy, or its integration in a larger economy, depends on whether the overall benefits to those who end up winning are greater than the costs to those who come out losing, a condition that in the event of its realization, will make it feasible to compensate the losers to the exact degree of their losses, while maintaining profits for the winners. Such compensations are effected via tax transferences, e.g. levying taxes on winners and transferring all or part of these contributions to the losers. However, fiscal policies of this kind are mediated by the political system and by the structure of power; what often prevails is a policy of keeping the primary distribution of income untouched or even making it more unequal.

The law of compensation also works for evaluating the benefits of free trade and their distribution among participating countries. It can also be applied to regional integration agreements, in which the aim of the different countries is to satisfy their national interests and not merely to achieve increases in overall benefit (Seade, 1993). In these agreements, the disequilibrium of winners and losers is apparent, and many agreements therefore include compensatory measures or some preferential treatment in favour of the less developed countries. The asymmetry in the distribution of the dynamic effects of trade in North-South integration accords is, however, a subject that has not been sufficiently dealt with and which has taken on increasing relevance in the last decade. According to Michalopoulos (1993), answers are needed to the following questions:

- Does the distribution of the benefits of integration depend on the level of development and the size of member countries?
- If this is so, what compensatory mechanisms are feasible and appropriate?

- Are gradualist mechanisms necessary in line with the level of development?

The financial crisis initiated in the autumn of 2007 hit Mexico with particular intensity. Mexico's GDP contracted two and half times more than in the economy of the United States of America. Employment and real salaries took the toll, giving rise to poverty and inequality. Despite the low inflation, intensive liberalization of both capital and goods markets and severe fiscal discipline, the Mexican economy proved to be highly vulnerable to external shocks.

The severity of the crisis is related to the character of the external shocks that affected the economy. As the International Monetary Fund (IMF) (2009) indicated, Mexico was the "hardest-hit economy in the Western Hemisphere . . . because its economy has suffered a sharper drop in trade flows, because of its high trade integration, dependence on the United States, and reliance on manufacturing exports" (IMF, 2009: 83-86). The contraction of the US economy is the main factor behind the fall in Mexican GDP, given the related fall in exports and remittances and tourism. Mexico did not benefit from the expansion of the Chinese demand for raw materials. In light of the fiscal crisis, Mexico controlled expenditure, prioritizing anti-inflation policy. The credit crunch affected internal demand, and the deceleration of foreign direct and portfolio investment aggravated the impact of the contraction of exports revenue. The positive effect of devaluation on exports may not appear, since external demand will remain feeble for quite some time.

This paper presents an analytical effort to explore the impact of trade reforms on the performance of the Mexican economy. In order to meet its objectives, it has been organized in the following manner:

- the second section considers the policies adopted to liberalize the economy;
- the third analyses some macroeconomic effects of the liberalization;

- the fourth concentrates on the sectoral impacts of the new foreign trade regime;
- the fifth studies some distributional effects and identifies some of the main losers (presenting an analysis of the main changes in the labour market, considering the structure of employment, the gender divide and the improvements in education);
- the sixth considers the changes in income distribution and poverty, and includes a brief discussion on the main losers of the changes introduced since 1985 and the liberalization of trade ;
- the last section, seven, puts forward some conclusions and recommendations.

## 2. OPENING UP THE ECONOMY TO FOREIGN CURRENCY

### 2.1 The Path to GATT

The liberalization of the Mexican economy is divided into two stages. In the first (1985-1987), liberalization was unilateral leading to accession to the General Agreement on Tariffs and Trade (GATT). The second (1994-2008), covers the period leading to the North American Free Trade Agreement (NAFTA). In 2008, the total liberalization of intraregional trade was reached.

Between 1983 and 1984 the Mexican authorities began to dismantle the protection afforded the country's industry. In those two years, 16.5 percent of imports were excluded from import permits, and the average tariff rate was reduced to 22 percent. On 22 April 1985, Mexico signed a Bilateral Trade Agreement on Compensatory Duties with the United States. On 24 July 1985, Mexico formalized its entry into GATT (see Table 1).

**Table 1. Structure of Trade Tariffs on Imported Goods 1980-1991**

	1982	1986	1989	1990	1991
Average tariff	27.0	22.6	13.1	13.1	13.1
Weighted average tariff	16.4	13.1	9.7	10.5	11.1
Maximum tariff	100.0	100.0	20.0	20.0	20.0

Source: *Aspe, P. (1993:158)*

### 2.2 Negotiating NAFTA

In order to analyze the impact of liberalization on the Mexican economy, it is necessary to study both the commitments agreed to in NAFTA and their effects. Trade subject to the treaty comprises almost 90 percent of total Mexican foreign trade. A similar proportion of foreign direct investment (FDI) originates in the US. For Mexico, the full liberalization of commerce with the US is practically equal to total, universal free trade.

In the several studies carried out *ex ante* regarding the negotiations and implementation of the treaty, it was generally accepted that the overall static effects of NAFTA would be rather small and would benefit Mexico in larger proportions than the US or Canada.<sup>1</sup> As Krugman noted:

NAFTA could not produce significant economic effects in the U.S., whether good or bad, simply given the relative smallness of the Mexican economy compared to the American, and the already quite low trade barriers between the two countries. (Fairbrother, 2004:9).

It was also accepted that total benefits would not be very significant and would favour mainly capital-intensive industries with larger scale economies. Small industries and sectors with comparative advantages, i.e. intensive in labour and land, would be left behind (Ros, 1994:96; Székely, 1994:48). The fact that growth effects attributable to NAFTA would be small gave more relevance to the political objectives of the agreement.

It was acknowledged, as well, that NAFTA would produce winners and losers, particularly in the agricultural sector, and to counterbalance these losers it would be necessary to put in place intensive programmes of public investment aimed at creating non-agricultural rural jobs and sources of income (Casco and Romero, 1997:82). These programmes did not come into reality, due to, *inter alia*, the 1994 financial crisis.

A number of factors explain why low economic benefits were expected from NAFTA. First, the agreement implied only small changes in tariffs, since trade flows between Mexico and the US were practically free. Second, trade between Mexico and Canada was fairly small and not

given to grow at a high level (Lustig, 1994:170). Third, trade between Canada and the US had been already liberalized under the Canada-US Free Trade Agreement (CUSFTA).

The “silent integration” of the Mexican economy into the US economy had occurred over decades prior to NAFTA. At the time of signing the agreement, the average Mexican tariff was 10 percent, and the US tariff was about 2.1 percent. Half of Mexican exports entered the US market under the generalized system of preferences (GSP) programme. Another large proportion was geared toward the *maquilas*. With NAFTA, US tariffs declined to a mere 0.61 percent (Clinton, 1997:1). Textiles and apparel were subject to special treatment under the Multifibre Agreement or included in bilateral sectoral programmes, as was the case with the automobile sector. In the agriculture sector, quotas and restrictions on trade were maintained and a longer liberalization period was agreed.

### 2.3 Asymmetric Negotiations

NAFTA does not include any compensatory mechanisms or transfers to speed up growth among the less developed members. It was agreed in 1990 during the Houston meeting that, “Mexico would not be treated as a developing country in the negotiations, meaning that it would not receive preferential treatment in matters such as transition periods for the elimination of tariffs” (Cameron and Brian, 2000). Smith (1993:82) suggests, “Mexican participation in NAFTA is another major step in the dramatic liberalization of the Mexican economy since the mid-1980s”, and states that “[...] in spite of the differences in incomes and the worries about the costs to labour of the adjustment, the NAFTA negotiators are developing an accelerated chronogram and Mexico will rapidly be integrated into the economy of the rest of the region” (at 85).

A country normally decides to enter regional integration agreements in order to advance the realization of national welfare objectives

and not in pursuit of global gains in efficiency and when it is convinced that these national objectives cannot be achieved with either protectionism or universal free trade. In the case of Mexico, the objectives were several and went far beyond mere trade expansion. These included, first, using trade agreements to underpin domestic policy reforms; second, attracting foreign investments; and achieving more secure access to the US market, thereby securing faster and sustained rates of economic growth and more productive employment, and reducing emigration to the US (USITC, 2003). The two first goals - securing reforms and attracting investments - are frequently cited as the main Mexican objectives behind NAFTA.

President Salinas saw NAFTA as the safe way to prevent future governments reversing (or putting a break on) the reform process initiated in 1983 after the eruption of the debt crisis and as a means to pave the way to a modern Mexico, in which little of the remains of the Mexican revolution and Mexican corporatism would prevail. The modernizing spirit included establishing a more closely linked and unwavering political and economic cooperation with the US (Lustig, 1992:169). For that reason, some analysts suggest, Salinas and the Mexican negotiators were willing to sign the agreement at any cost (Ros, 1994).

Consequently, Mexico engaged in a negotiating process marked by several asymmetries. NAFTA constitutes a highly asymmetrical region. US per capita GDP is between 16 and 21 times greater than that of Mexico and the latter’s agricultural GDP represents 15 percent of that of the United States. External sales for the US exceed Mexican sales by a factor of 5, and Canadian exports are 1.8 times larger than Mexican foreign sales. Mexican total GDP was USD 475 billion (in constant 2000 dollars) while the US reached USD 7.7 trillion (see Annex, Figure 27).

Mexico agreed on a fast and total liberalization of trade without regard to the dualistic conformation of its social fabric and economic structure, in which coexist a very large universe

of small producers and large companies linked to multinational corporations. In agriculture, for example, according to the most recent available data, 34 percent of producers owning plots smaller than two hectares concentrate 3.8 percent of all agricultural land. Despite the efforts of the land reform, the Gini index of concentration of land is 62 percent (Deininger and Olinto, 2000:15).<sup>2</sup> The productivity gap in the agricultural sector separating both countries was large and increasing (as shown in Figure A.2). In the manufacturing sector, a similar dual structure exists, with almost 90 percent of establishments defined as micro or small firms with less than five workers, generating a large proportion of low-productivity employment. The effects of free trade will be different for each type of producers.

In addition to the disparities in the economic field, the negotiators faced difficulties due to the differences between the two countries in other critical aspects, such as those affecting the institutional framework, in the value represented for each country by the signing the agreement and in the varying degree of democracy to which the governments were subject in their respective countries. Mexico, with its more centrally controlled and regulated economy, had to change its model in accordance with the NAFTA regulations in which the “Anglo-Saxon” free-market principles ruling the economies of Canada and the United States predominated (Wonnacott, 1994). While Mexico put all its interest in signing NAFTA as the instrument to guarantee stability and growth, the agreement aroused little interest in the US (Lustig, 1992:168; Whally, 1993:367-80). Taking these disparities into consideration, some analysts have suggested that the NAFTA negotiations have given rise to a centre-periphery model yielding greater benefits to the most developed economy (Bhagwati, 1993).

As to the question of why Mexico conceded so much, one of the more accepted answers is that Mexican negotiators were worried that a new government would be interested in reversing

the reforms; therefore, they wanted to sign the agreement prior to the 1994 presidential elections. For that reason, they were ready to pay a high price in order to overcome the reticence of the US.

It is important to note that with De La Madrid, a modernizing elite of highly educated economists and political scientists arrived with “academic training in neoclassical economics - often graduate degrees from the most prestigious U.S. departments” (Fairbrother, 2004:5). They were convinced of the need to transform the Mexican political and economic institutions, and instrumented the reforms, as well as being the architects behind NAFTA (Babb, 1998; Fairbrother, 2004; Fourcade-Gourinchas and Babb, 2002; Woods, 2005). Two main groups supported NAFTA for different reasons: the states and political elites (motivated by the political reasons already presented) and the large, export-oriented business groups (interested in a less liberal agreement with particularly stringent rules of origins and special treatment for some sectors, such as automotive and textiles) (Fairbrother, 2004; Whally, 1993). In fact, business lobbies imposed the most protectionist elements in NAFTA (Thacker, 2000).

Mexican negotiators were convinced that NAFTA would solve all the problems of underdevelopment of the country. Bhagwati commented on the urgency of Mexican negotiators to reach an agreement: “[...] they [Mexican negotiators] look at problems from the same point of views from the north of the Rio Bravo. Highly impressed by the USA they wanted to emulate it. They say ‘the United States are performing well; if we join them all Mexican problems will be over’” (Bhagwati, 1999:24).<sup>3</sup>

One of the special features of NAFTA is that Mexico granted the US larger trade preferences than it received (see Annex, Figures A.3 and A.4). Mexican trade preferences toward the US oscillated around 15 percent, while the US preferences to Mexico were around 2 percent.

### 3. SOME MACROECONOMIC EFFECTS OF TRADE LIBERALIZATION AND NAFTA ON THE MEXICAN ECONOMY

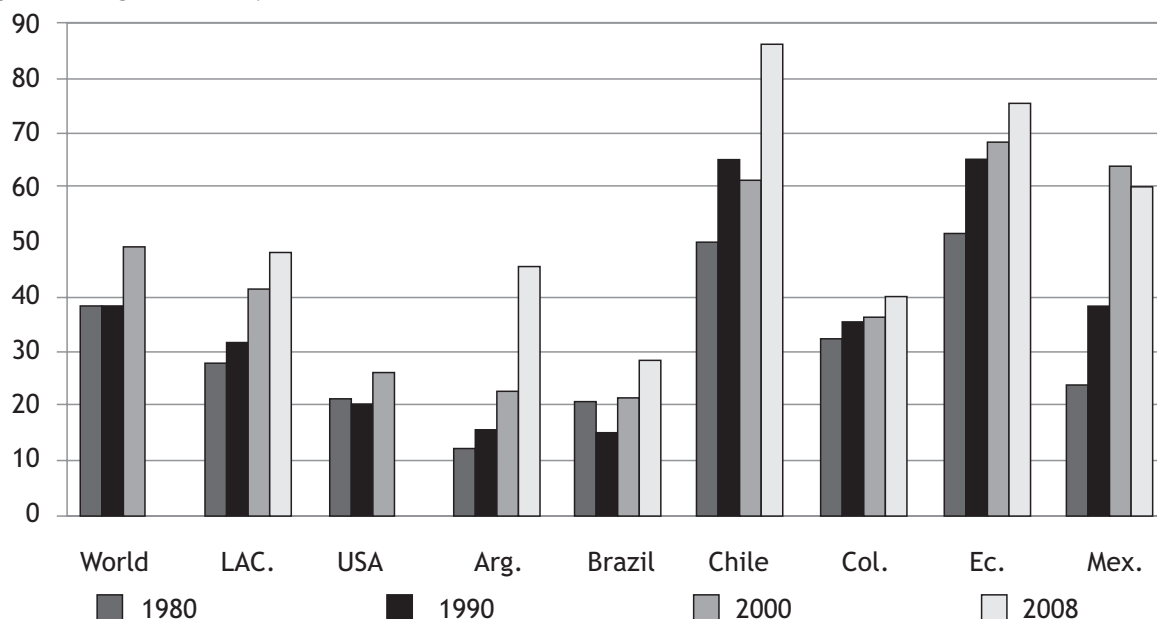
#### 3.1 The Growth of the External Coefficient of the Mexican Economy

Since the mid-1980s, the Mexican economy has evolved from being a closed economy to an open economy with one of the highest external coefficients relative to GDP in the western hemisphere (as illustrated in Figure 1). The growth Mexican and Chilean of the external coefficient in 2007-2008, indicates the increases in the external prices of commodities, such as copper, oil and corn, and does not indicate any

change in trade policies or increases in the quantity of external exchange.

A large external coefficient suggests higher productivity and competitiveness, since both exportable and importable goods compete with foreign production, as well as a larger dependence on imported supplies and inputs. The increased GDP growth elasticity of imports makes it difficult, if not impossible, to simultaneously ensure positive GDP rates of growth and balanced trade and current accounts.<sup>4</sup>

**Figure 1. Mexico and Selected Countries: The External Coefficient of Economy 1980-2008 (percentages of GDP)**



Source: Author's elaboration based on World Bank, WDI (<http://data.worldbank.org/>)

#### 3.2 The Impressive Expansion of Mexican Exports and the Transformation of Mexican External Supply

From 1980 to 2006 exports grew at an average rate of 7.9 percent a year, a smaller rate than imports (illustrated by the change in the importance of exports and imports as a percentage of GDP, as shown in Table 2).

During the first six years of the implementation of NAFTA (1994-2000), total Mexican exports grew by 16.5 percent annually, while imports expanded by 11.5 percent. The maquila exports were the most dynamic element of external sales, reaching 16.5 percent of GDP, almost half of all exports. Since NAFTA was enforced, Mexico shows a permanent trade deficit tempered only by the oil and maquila trade surplus, Table 2



Table 2. Exports and Imports as Percentage of GDP 1980-2011

	Exports			Imports			Balance		
	Total	Maquila	Non maquila	Total	Maquila	Non maquila	Total	Maquila	Non maquila
1980	7.4	1.0	6.3	9.0	0.7	8.2	-1.6	0.3	-1.9
1985	18.0	3.4	14.6	11.8	2.5	9.3	6.3	1.0	5.3
1990	15.5	5.3	10.6	15.8	3.9	11.9	-0.3	1.4	-1.7
1995	26.8	10.5	16.3	24.3	8.8	15.5	2.5	1.7	0.8
2000	34.5	16.5	18.0	36.3	12.8	23.4	-1.7	3.7	-5.4
2005	28.2	12.8	15.4	29.2	10.0	19.2	-1.0	2.9	-3.9
2006	29.5	13.2	16.3	30.2	10.3	19.9	-0.7	2.9	-3.6
2008	28.3	ND	ND	30.5	ND	ND	-2.2	ND	
2009	29.1	ND	ND	31.0	ND	ND	-1.9	ND	
2010	31.9	ND	ND	33.9	ND	ND	-2.0	ND	
2011	31.2	ND	ND	33.7	ND	ND	-2.5	ND	

\* In 2004 oil exports represented 3.5% of GDP.

Source: For 1980-2006: *Presidencia de la República, Informe de Gobierno (several years)*  
For: 2009-2011, World Bank, *Prospects for the Global Economic Prospects, 2010*

The effect of the crisis is evident in the evolution of trade. External trade shows the impact of the crisis. Between 2008 and 2009 exports decreased by 21.2 percent while imports by 24 percent, helping to reduce the deficit. 2010 does look somewhat better, since exports and imports grew by 35 percent and 31 percent, respectively, compared with the same period in 2009, but remaining below the level of 2008. Exports registered a sharp decrease in both value and volume, resulting in a worsening of the terms of trade. In 2009, the external accounts worsened even further owing to the decrease in FDI of 57 percent.

Trade with the US expanded faster and resulted in a significant trade surplus. In 2008, the US represented 85 percent of total exports and 50

percent of imports. The diversification of the origin of imports is related to the imports of components for the maquila and other systems of temporal imports processing for exports, and the largest part of it represents intra-firm trade between US affiliates. Practically 92 percent of Mexican external trade is with high-income industrial countries.

In 2009, exports of manufactures represented almost 82.5 percent of total external sales, compared with 25 percent in 1980 (Table 3). Within the manufacturing sector, the *maquiladora* segment has experienced the fastest expansion, representing about 46 percent of total industrial exports in 2006 (Puyana, 2007:30-33). Because of NAFTA commitments, the special maquila regime ended in 2006.

Table 3. Sectoral Structure of Mexican Exports 1970-2009 (in percentages)

Sector	1970	1980	1985	1990	1995	2000	2004	2005	2008	2009
Agriculture	14	4.6	3.2	3.9	3.6	2.9	2.8	3.3	2.7	3.4
Mining	37.5	68.5	66.5	47.4	31.9	25.6	15.4	17.2	14.9	11.2
Manufacturing	48.4	26.9	30.3	48.6	64.4	71.4	81.8	79.5	79.2	82.5

Source: *National Financiera (1990), La Economía Mexicana en Cifras, 11 ed; Presidencia de la República, Informe de Gobierno (several years), and INEGI.*

### 3.3 Is the Economy Growing Faster and Convergence Taking Place?

One of the more explicit arguments in favour of NAFTA was that by liberalizing trade and investments, Mexico would achieve faster

economic growth. This would result in economic convergence and lower emigration to the US. However, although the opening up of the economy has practically been completed, economic growth is lower and erratic.

**Table 4. Annual Growth Rates of Total and Sectoral GDP 1940-2009**

	Total	Agric.	Mining	Manuf.	Const.	Elect.	Comm.	Transp.	Others
1940 to 1982	5.97	3.41	2.68	6.39	7.95	7.17	5.32	8.93	7.14
1983 to 2006	2.75	0.86	-1.75	2.78	1.68	4.37	2.36	6.79	2.72
2007	3.29	2.00	0.22	1.02	2.14	3.92	2.71	8.72	3.67
2008	2.13	7.09	-1.35	-0.22	0.88	-3.21	2.06	5.72	5.57
2009	-6.54	1.83	0.97	-10.20	-7.51	1.19	-14.51	-3.19	-2.77
2007 to 2009	-0.37	3.64	-0.05	-3.13	-1.50	0.64	-3.25	3.75	2.16

Source: Based on Puyana & Romero, 2007:178 and *La Economía Mexicana en Cifras*; INEGI (1999), *Estadísticas Históricas de México*; *Presidencia de la República, Informe de Gobierno* (several years), and INEGI.

So far, for the post-reform period, average annual rates of growth of the economy have not performed better than before. The tradable sectors (agriculture, mining and manufacturing) are lagging behind or just keeping pace (see Table 4). During 1994-2009 growth has been erratic with at least three major crises (1986, 1994-5 and 2008-9). During 2007-09 GDP growth was -0.37 percent, owing to the contraction registered in 2001-03 and in 2008/09. The Mexican economy decelerated in 2008 when the effects of the global crisis were evident already in the US.

The ratio of the US GDP per capita to the Mexican GDP per capita decreased from 5:9 in 1965 to 4:2 in 1982; from that year the ratio has grown to 5:7 in 2008 and 2009. From these data it can be seen that the two economies were farther apart in 2008 than in 1965 (Figure 2). While it might be early to register signs of convergence, at least a change in divergence could be expected. Evidently the opposite has occurred (Puyana and Romero, 2006). The World Bank study evaluating the first decade of NAFTA concludes:

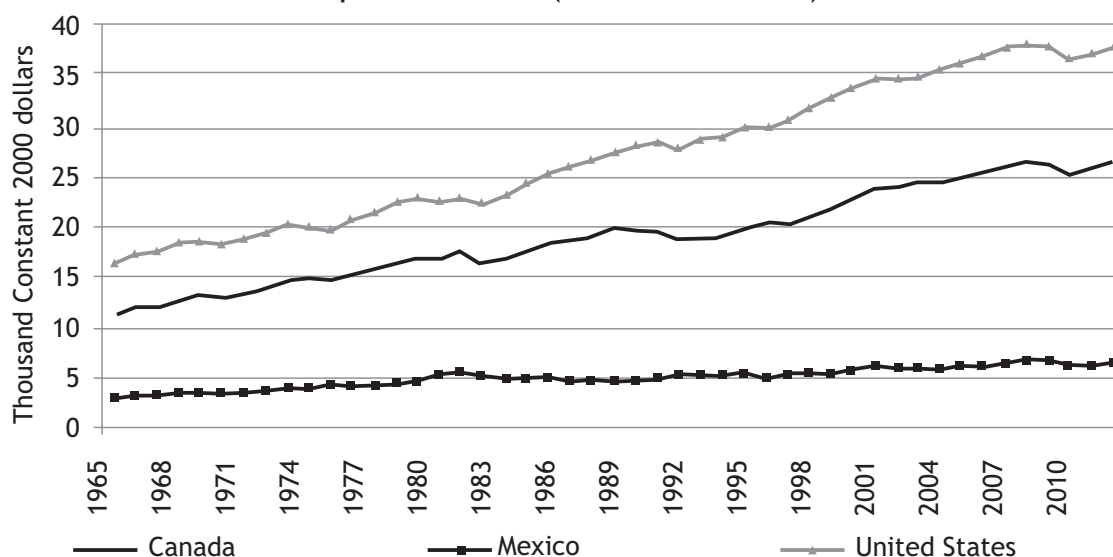
Yet one key conclusion from careful evaluation of the impact of NAFTA is that the

treaty does not suffice to ensure economic convergence in North America. Mexico still suffers from important gaps that constrain its ability to catch up with its Northern neighbours. (Lederman, Maloney, and Servén, 2003:9)

The lack of convergence suggests that the strong relation between aperture and faster economic growth of the less developed country did not materialize (Figure 2). The opening of the economy and the dynamic growth of exports did not succeed in accelerating the rate of economic growth. Mexican experience with liberalization and NAFTA elicits arguments in favour of those questioning the existence of a direct and strong causal relationship between trade and aperture and faster economic growth.<sup>5</sup>

The crisis revealed the fragility of convergence. In 2009, Mexican per capita GDP decreased 2.5 times more than US per capita GDP and amplified the distance between the two nations. The strength of the recovery of the Mexican economy and the extent to which the factors that balked convergence are still in place remain to be seen.

Figure 2 . NAFTA: GDP Per Capita 1965-2010 (constant 2000 USD)



Source: Author's calculations based on World Bank, WDI, (<http://data.worldbank.org/>).

A negative correlation - although weak - between the high growth of the external coefficient and the expansion of the Mexican economy and other Latin American countries was detected (see Annex, Table A.1). The results suggest that the high degree of openness has not been accompanied by faster economic growth (Puyana and Romero, 2005a). There is no causal relationship between the variables, so it is necessary to go deeper into the elements explaining Mexican economic growth. It is interesting and therefore worrying to note that a positive and significant correlation between the two variables in the Canadian case, and a positive correlation (to a lesser extent) in the US case, was obtained (Puyana and Romero, 2006a, Puyana 2010).

The variables that explain the trajectory of the Mexican economy are, in a direct relation, the rate of gross capital formation as a percentage of GDP and the rate of growth of the US economy, and in an indirect relation, the consumer price index and the fiscal deficit; investments in human capital are not relevant (Puyana and Romero, 2006a) (see Annex, Table A.1). As will be seen, investments did not enlarge the coefficient of gross capital formation to GDP.

### 3.4 Is the Structure of the Mexican Economy Different?

Contrary to what was expected with the reforms and with NAFTA, the tradable sectors are not gaining weight in the structure of the Mexican economy. In effect, no important change can be detected since the 1980s (Table 5). By no means does the 2009 contribution to GDP of the Mexican tradable sectors - agriculture and livestock (7 percent of GDP), mining 3 percent and manufacturing (21 percent of GDP) - correspond to the country's level of development. Rather, it shows a premature decline in their contribution, which does not correspond to the normal process of development. The decline, which is particularly severe in the agricultural sector, began in the 1950s and continues at a slower pace. Manufacturing fluctuates at about 20 percent of GDP. It must be emphasized that contrary to what was expected by eliminating the anti-export bias of the import substitution model and with the liberalization of the trade regimes and NAFTA, the exportable sectors have not grown larger. Manufacturing's share of GDP sharply declined from 1999 to 2003. This tendency, however, abated and was lightly reversed from 2003 to 2007, as shown in Annex, Table A.2. The devaluation of the

Mexican peso imposed by the 1994 and the 2009 crisis has had the effect of stimulating agriculture. Imports have become more

expensive and exports more profitable. Nevertheless, the Dutch Disease effect has not been reversed.

**Table 5. Sectoral Structure of Mexican GDP 1960-2009**

	Agricult.	Mining	Manufact.	Construc.	Services	Tradables
1960	15,5	3,3	20,2	5,2	55,7	39,1
1970	12,3	2,8	21,1	5,7	58,0	36,3
1980	9,2	2,3	22,1	6,3	60,1	33,6
1985	7,6	2,1	22,5	6,6	31,2	32,2
1990	6,0	1,8	23,0	6,9	62,3	30,8
1995	4,4	1,6	23,5	7,2	63,3	29,4
2000	6,2	3,0	25,2	4,6	60,9	34,5
2005	6,2	2,9	23,2	4,6	63,1	32,3
2006	6,2	2,8	23,2	4,7	63,0	32,3
2007	6,1	2,7	23,0	4,7	63,4	31,9
2008	6,3	2,6	22,6	4,6	63,9	31,5
2009	7,0	3,0	21,0	4,7	64,3	31,0

\* Tradable sectors = Agriculture, Mining and Manufactures.

Source: Author's calculations based on INEGI, SNCN (several years).

As economies develop and income per head grows, a change in the structures of their GDP and labour takes place: primary sectors first stagnate and later decline, and industry and manufacturing increase their presence in both GDP and labour. In later stages, manufacturing stagnates and declines, and the economy enters the post-industrial stage. Chenery and Syrquin (1986) developed a model to calculate the corresponding sectoral shares in GDP and employment at different levels of development. The decline of the sectors is associated with productivity growth in each of them and to the differences in the income elasticity of the demand for basic goods, raw materials and manufactured and sophisticated services. The US agriculture sector reached 4 percent of GDP (as in the case of Mexico

today), when GDP per capita was USD 17,000 and manufacturing started to stagnate as a source of GDP at USD 13,000 per head.

Mexico suffers from the so-called Dutch disease, i.e. the premature decline of tradable sectors, which afflicts all economies rich in natural resources subjected to frequent external price shocks, or to the intense and unstable flow of external financial resources and the remittances of workers abroad.<sup>6</sup> On the basis of the Chenery-Syrquin norm (Chenery and Syrquin, 1986), however, it is calculated that with Mexico's current per capita GDP, agriculture ought to contribute between 12 and 15 percent of total GDP and manufacturing nearly 30 percent (Puyana and Romero, 2006b) (Table No 6).

**Table 6. Dutch Disease Symptoms in the Mexican Economy 1980-2001**

	National					Norm		
	1980	1993	1999	2000	2001	US\$*	US\$*	US\$*
	Current values in Mexico					Chenery Norm		
Per capita GDP (dollars 1999)	5860	5720	5060	5836	6018	4222	6000	10555
	%	%	%	%	%	%	%	%
Agriculture, Forestry, Fishery	8.2	6.8	5.3	4.2	4.4	15.4	11.6	7.0
Mining	3.2	1.7	1.4	1.4	1.4			

Table 6. *Continued*

	National					Norm		
	1980	1993	1999	2000	2001	US\$*	US\$*	US\$*
	Current values in Mexico					Chenery Norm		
Manufacturing	22.1	20.1	21.3	20.3	19.4	21.0	23.1	28.0
Construction	6.4	5.3	4.7	5.1	4.9	6.1	6.4	7.0
Services	61.1	66.1	68.4	70.2	71.3	41.2	43.0	47.0
Dutch Disease Index	4.3	7.8	8.1	10.2	10.9			

\* dollars 1999

Source: Author's calculations based on INEGI and FMI, *International Financial Statistics*

Since the reforms were launched, the Dutch Disease Index, which measures the distance separating the actual share of tradable sectors from the norm, instead of falling, has grown larger, from 4.3 percent in 1980 to 10.9 percent in 2001 (Puyana and Romero, 2005:32). This section attempts to explain the diverging path between the large contribution of manufacturers to total exports and the sectoral contribution to GDP. While the first shows a steep ascent up to 80 percent in 2005, the sector's participation stagnated at about 23 percent and fell during 1997-2005.

The decline of agriculture began in the 1940s, with the import substitution model, and for several reasons it was not reversed by the reforms: the speed of liberalization, the urban bias of the macroeconomic policies, the chronic deficit in public and private investments, and the distortion of agricultural prices induced by the developed countries' policies.

The pattern of change of the sectoral structure of total employment confirms the decline of tradable sectors. Employment in agriculture and livestock fell from almost 30 percent in 1980 to 18 percent in 2005,

while in mining the reduction was from 1.3 percent to 0.4 percent and employment in manufacturing shrank from 13 percent to 11 percent at the end of the period. In 2005, the services sector concentrated 57 percent of all employment while construction accounted for 11.8 percent.

In summary, the trajectory of the structure of GDP and employment did not follow the path expected from the theory. The expected expansion of high productivity tradable activities did not materialize. It was, rather, employment in the construction and services sectors that grew faster and increased their participation in total employment (see Table 7 and Annex Table A.3). Note also the acceleration in the decline of agricultural and manufacturing employment after NAFTA. The Mexican services sector has segments of high productivity, such as the banking system, which is fully privatized and controlled by foreign banks. Some important foreign investments have been made in internal commerce, but there is a very large segment of low productivity and low income that absorbs the bulk of the precarious employment. Mexico is not an exporter of services, like India, China or some of the Caribbean countries.

**Table 7. Structure of Mexican Employment by Sector 1960-2008 (in percentages)**

Year	Agriculture	Mining	Manufact.	Construc.	Services
1960	54.1	1.3	13.8	3.6	27.3
1970	34.7	1.2	13.4	6.3	44.4
1980	26.1	1.3	12.9	9.0	50.8
1990	24.0	0.7	12.6	9.7	52.9
1994	22.4	0.4	11.5	10.8	54.8
2000	20.0	0.4	12.8	12.2	54.6
2005	17.9	0.5	10.7	15.3	56.7
2008	17.0	0.4	9.6	15.0	58.0

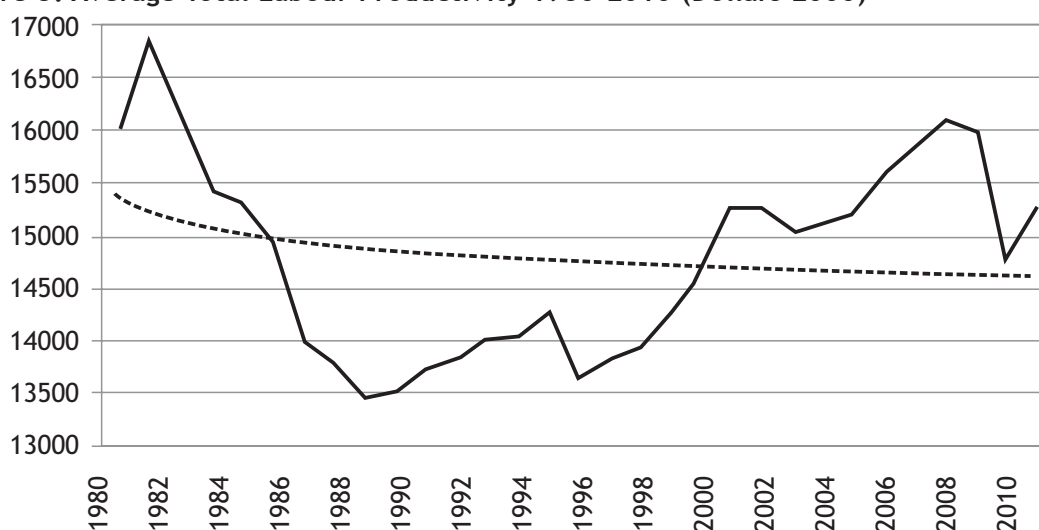
Source: INEGI: *Sistema de Cuentas Nacionales de México*, obtained from [inegi.gob.mx](http://inegi.gob.mx)

### 3.5 Did Productivity Growth Speed Up?

Faster growth of productivity was another effect the reforms and the liberalization of trade regimes were supposed to deliver. From the trends in GDP per capita it can be inferred that Mexico has not registered significant advances in productivity. The average value of per capita income (GDP/C) has been identified as an accurate indicator of the level of development and an approximation of factor endowments. Helpman and Krugman (1985) suggest that a higher per capita income indicates higher capital intensity and greater productivity, a superior capacity to innovate and to produce differentiated goods, by production processes that are intensive in

capital and technology. Others (Loertscher and Wolter, 1980) have argued that since higher income countries have better information and superior communication systems, they can expand their trade of differentiated goods.

Labour productivity in Mexico over the last 28 years as a whole shows a negative trend (Figure 3). Productivity per worker was lower in 2009 than in 1981. The tendency is negative but a clear recovery, with ups and downs, has been registered since 1996 and during 2004-07 to fall again in 2008 and 2009. So far estimates for 2010 show a recovery, but not strong enough to recover the level registered in 2007. If these estimates are correct, productivity in 2010 will be 9 percent below 1981.

**Figure 3. Average Total Labour Productivity 1980-2010 (Dollars 2000)**

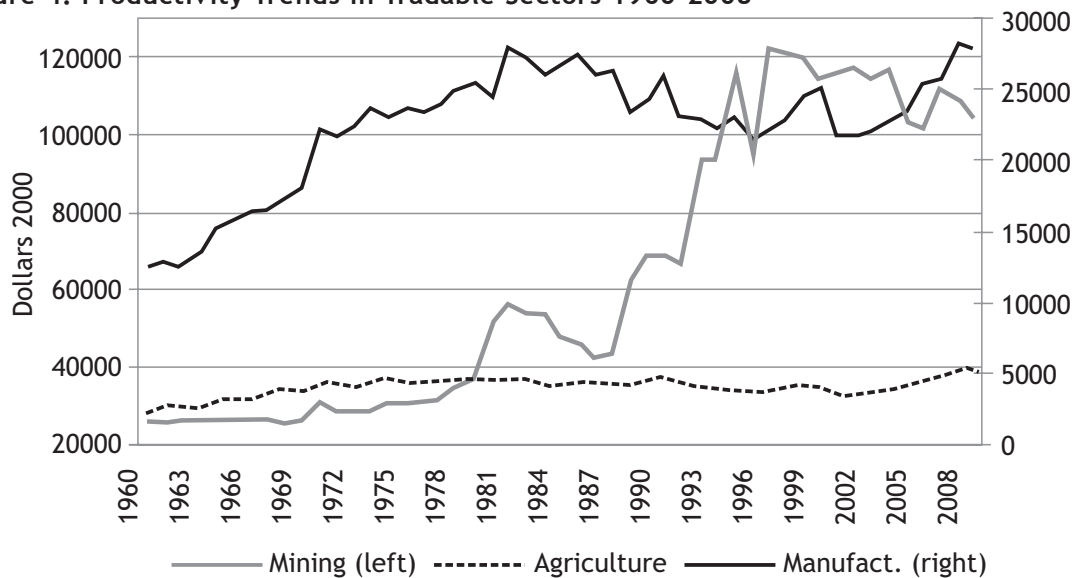
Source: Author's calculations based on INEGI, *Sistema Nacional de Cuentas Nacionales*, obtained from [inegi.gob.mx/](http://inegi.gob.mx/)

In none of the tradable sectors did productivity per worker grow during 1982- 2006 (Figure 4). In 2006, productivity in manufacturing and agricultural was still lower than in the early 1980s and late 1970s, respectively. This is also the case in the mining sector, where the high increases during the 1980s are explained mainly by new oil discoveries and the high international prices of the late 1970s. Since then, labour and well productivity have fallen due to the inability to add new reserves

to overcome the decline in production of Cantarell, the giant oil field responsible for almost 70 percent of total crude production. It is mining that accounts for almost all the gains in productivity in tradable sectors.

The fall of productivity in construction and services is striking and helps to illustrate the trajectory of total productivity. In 2008, productivity in services and construction was one third lower than the peak level registered in 1968-9, (see Annex, Table A.2).

Figure 4. Productivity Trends in Tradable Sectors 1960-2008



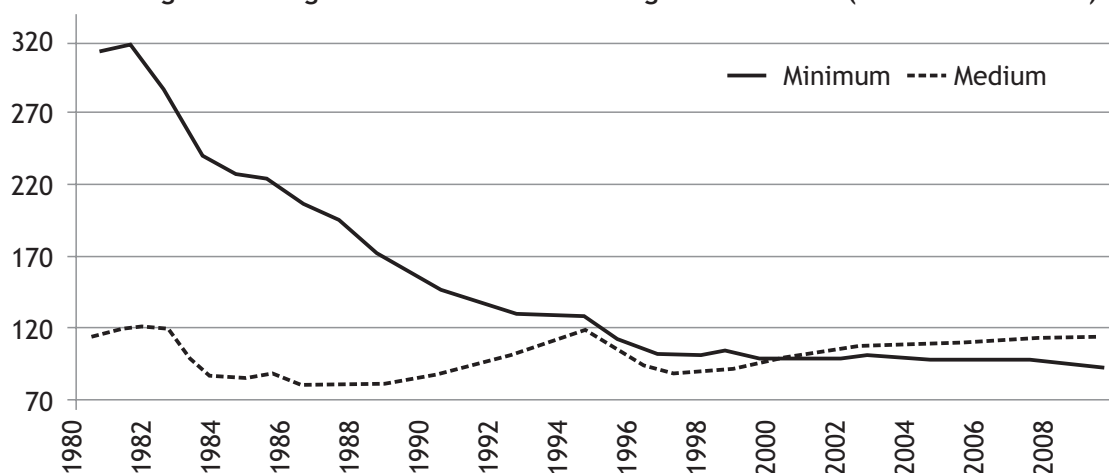
Source: Author's calculations based on INEGI, SNCN, obtained from [inegi.gob.mx/](http://inegi.gob.mx/)

### 3.6 Performance of Wages

From 1980 to 2005 the average wage for workers showed certain circumstantial fluctuations that did not modify the general tendency towards a decline, if compared with the record level of 1981. This can be seen in Figure 5. Real average wages deteriorated during the periods of "structural readjustment" (1980-1988) and "macroeconomic stabilization" (1983-1988), and recovered - with fluctuations - during 1988-2008, although not sufficiently to re-establish the level registered in 1981. In 2008, wages were below the 1994 level.

The trajectory of real minimum wages is different. The index of the minimum wages

fell from 312 in 1980 to 98 in 2008, deteriorating at an annual average rate of more than 3.8 percent. Even during 2000-2007 when GDP expanded, minimum wages deteriorated although at a lower pace (annual rate of 1.15 percent, see Figure 5). Mexican medium real salaries (RMS) have fared somewhat better. They grew at an annual rate of 0.2 percent during 1980-2009, with the rhythm picking up after 2000 reaching an average rate of growth of 1.3 percent for the period 2000 to 2005. Nevertheless, we could conclude that even MRS did not improve in the last 25 years. The crisis experienced in 2008-09, hit Mexican minimum wages harder than medium wages. The former contracted by 1.0 percent, and medium wages grew by 0.6 percent.

**Figure 5. Average Real Wages and Minimum Real Wages 1980-2009 (Index 2000 = 100)**

Source: Authors calculation based on ECLAC, <http://websie.eclac.cl/infest/ajax/cepalstat.asp>.

\* For 2009: Comisión de Salarios Mínimos y ECLAC, *Balance Preliminar de América Latina, 2009*

This trend in remunerations cannot be attributed exclusively to the trade agreements; other mechanisms also influenced it. Monetary and exchange policies together with policies for reducing state spending, wage control, reforms to the social security system and flexibility in labour relations have contributed to a precarious employment situation, as well as to self-employment, which is characterized by low levels of remuneration, the absence of social benefits and lack of job security, all of which depress the level of wages.

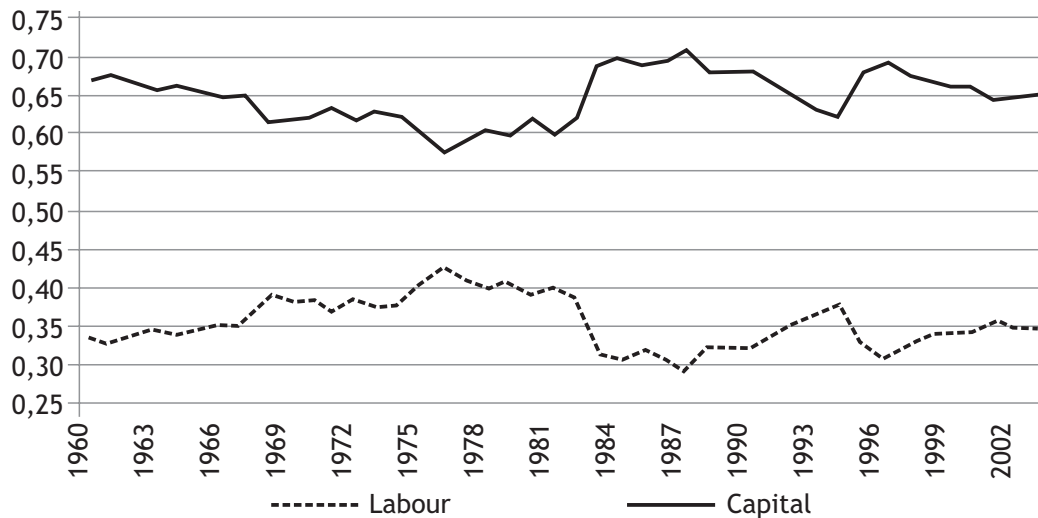
The growth in informal employment without any social benefits increased in recent years, from 61 percent of the active population in 1991 to 64 percent in 2009. According to employment surveys (INEGI, 2010), the percentage of the labour force that does not receive any income, or receives only twice the minimum wage, accounted for 66 percent and 65 percent of the work force in the years 1991 and 2009, respectively.<sup>7</sup>

### 3.7 The Retribution to Labour and Capital

Finally, the trajectory of the retributions to labour and capital as a percentage of GDP are presented. The reforms and commercial liberalization were to benefit labour and increase its participation in GDP due to changes in production and exports towards more labour-intensive activities. As with other macro variables, the results differed from original expectations (Figure 6). In 2009, the share of wages in GDP was 20 percent lower than in 1976, when wages registered the highest share (Puyana and Romero, 2009). After that, capital gained ground. The 2008-09 crisis reduced the participation of wages due to the fall in employment and the deceleration of medium wages accompanied by the deterioration of minimum wages. As the IMF suggests, the crisis affected both salaries and returns of capital, but in Mexico this second effect was more severe (IMF, 2009).



Figure 6. Share of Labour and Capital Returns in National Income 1960-2004



Source: Author's calculations based on INEGI, SNCN, obtained from [inegi.gob.mx/est/default.aspx?c=1607](http://inegi.gob.mx/est/default.aspx?c=1607)

### 3.8 Other Factors That Could Explain the Unexpected Results of Liberalizing the Economy

There are at least three other elements that may explain part of the stagnation of productivity and income per head in Mexico: the decline in investment per worker, mainly in the public sector, the overvaluation of the currency and inefficiencies of the national financial system.

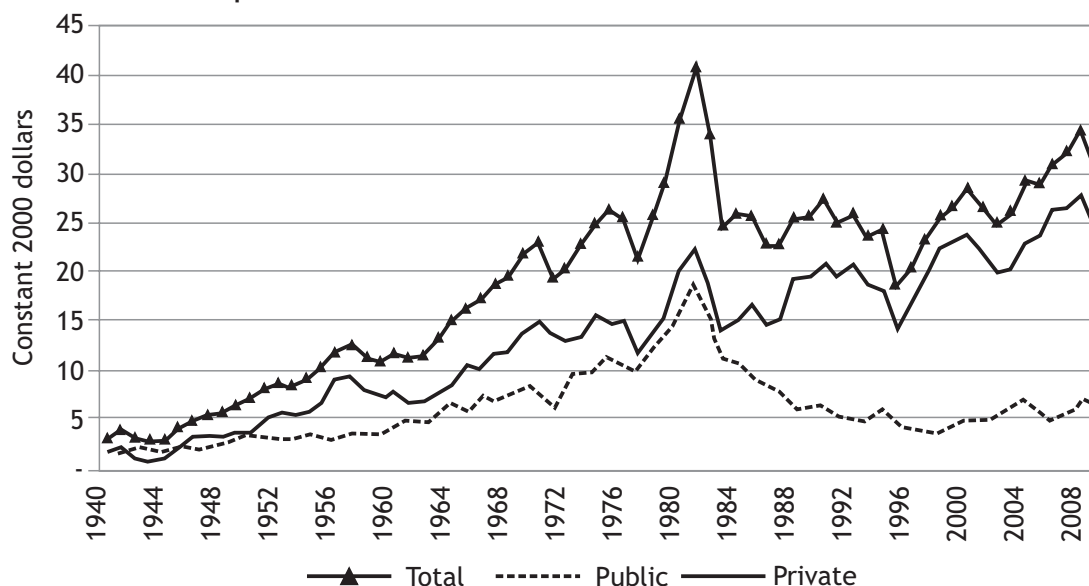
#### 3.8.1 The decline in public investment

Since the debt crisis in 1982, and the implementation of the process of structural reforms, the Mexican economy experienced a sharp decline in the capital-labour ratio with respect to previous periods, which is illustrated by the trend in investment per worker. From 1940 to 1982, public investment per worker grew at an average rate of 4.7 percent a year; in contrast, between 1983 and 2004, total investment per worker collapsed. The growth rate of private investment per worker during the period 1982-2004 was less than half the growth rate experienced during the 1940-82 period (Figure 7). The contraction in public investment was not offset by private investment, the growth of which proved insufficient. These results contradict the assertion that public investment was crowding

out private investment and seem to confirm suggestions that, at the level of development in countries like Mexico, public investment acts as a catalyst for private capital accumulation and constitutes a crucial determinant of total factor productivity (Ishan and Kaufman, 1995). The mild increase in public investments during 1998-2004 activated total investment per worker but not enough to prevent a further decline in 2009 when FDI collapsed by 58 percent compared with 2008. Total investment per worker in 2009 was 26 percent smaller than the record level registered in 1981. Several factors help to explain the causes of the lack of interest in investing in Mexico. Some are related to the macroeconomic policy context: tight monetary policy, long-lasting overvaluation and tight fiscal discipline to reduce the fiscal deficit to nil (Puyana and Romero, 2009 a).

The decline in public investment was defended on ideological grounds as part of the "private sector-based strategy", but in practical terms it was seen as the easiest way to balance the public budget. Public gross capital formation represents only 2 percent of GDP, which induces a critical deficit in investments that has not been replaced by private investments. In the last three years it expanded to 4 percent alleviating this long-lasting shortfall.

Figure 7. Investment per Worker in Mexico 1940-2009



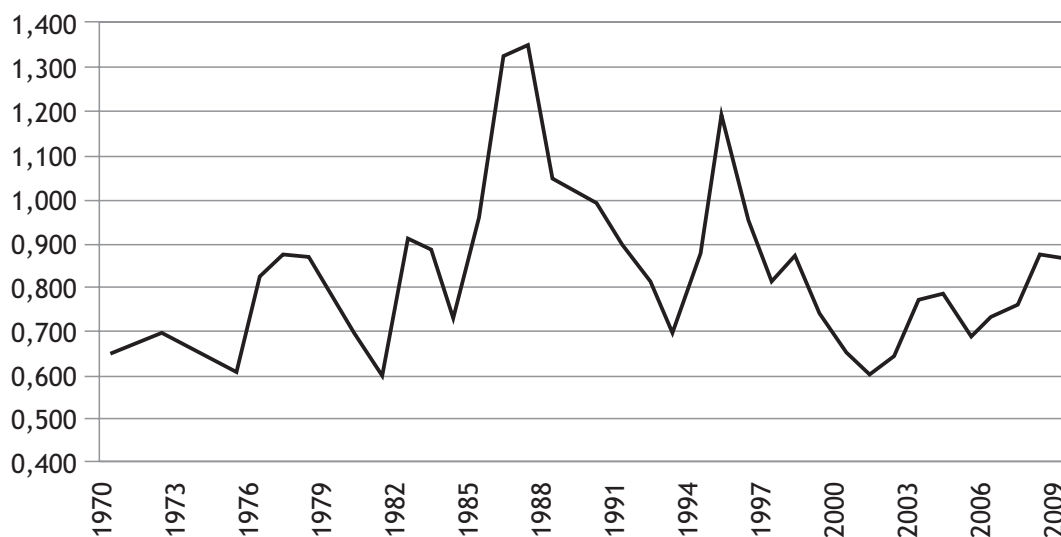
Source: Author's calculations based on *Nacional Financiera (1978)*, *La Economía Mexicana en Cifras*; INEGI (1999), *Estadísticas Históricas de México*; *Presidencia de la República, Informe de Gobierno (several years)*

### 3.8.2 Overvaluation of the currency

Since 1988 (beginning with the Salinas administration) macroeconomic management policy maintained a permanent overvaluation of the currency. The rationale underlying this

policy was that it would reduce inflation and that lower inflation would therefore help to achieve positive real interest rates, which would stimulate the inflow of portfolio capital and the level of fixed capital formation (Figure 8).

Figure 8. Real Exchange Rate of Mexico 1960-2009



Source: Central Bank of Mexico - Banco de México (<http://www.banxico.org.mx>)

Since 1988 the overvaluation of the currency has been interrupted only by the 1994 crisis and marginally in the 2001 and 2009 crises. In 2009 the short-run deviation of the exchange rate from its long-run value was more than 40 percent. The deviation from its long-run value suggests that in 2009, the

Mexican peso was as overvalued as in the eve of both the 1982 and the 1994 crises. Thus, it is reasonable to expect adverse effects on the competitiveness and profitability of the Mexican trading sectors, which in turn inhibits investment and therefore growth in productivity.

### 3.8.3 Inefficiencies of the Mexican financial system

The preceding account of Mexico's recent growth performance could partly be explained by weakness in its financial system. Given the country's level of development, the Mexican banking system and stock market are underdeveloped. The financial system's weakness became even more evident under the new strategy than in the previous one. Once the private sector was "designated to take the lead in investing", the financial system was not prepared to perform its intermediating role.

This resulted in a misallocation of savings in projects and assets with low returns, which manifested in reduced productivity growth. The emphasis on the benefits of liberalizing capital flows has made the Mexican financial system more closely linked with world capital markets and rendered it even more vulnerable and less capable of completing its task of allocating resources among investors. The Mexican financial system has turned to finance real estate and consumption of durable goods rather than the productive sector.

## 4. SOME RELEVANT SECTORAL EFFECTS

### 4.1 Trends in the Agricultural Sector<sup>8</sup>

#### 4.1.1 The intensity of agricultural liberalization

Mexican agriculture has been singled out as the main loser of the reforms and NAFTA. To illustrate this, this section first discusses some features of the commitments signed by Mexico in NAFTA and, second, some sectoral developments.

NAFTA was a key element in the policy of modernizing the Mexican agriculture sector, which had begun with the reform of Article 27 of the National Constitution, the measures adopted on joining GATT, together with those implemented within the framework of structural adjustment programmes. Sectoral policy instruments were to induce the changes necessary to raise productivity through:

- i. increased cultivation of fruits and vegetables and a reduction of basic grain and oilseed plants, resulting in land and investment being devoted to more competitive products and higher returns to these factors;
- ii. reduced overall sectoral employment, while ensuring a rise in aggregate wages; and
- iii. increased imports of basic grains and oilseeds and exports of fruit and vegetables.

As will be seen, some of these effects have indeed been felt.

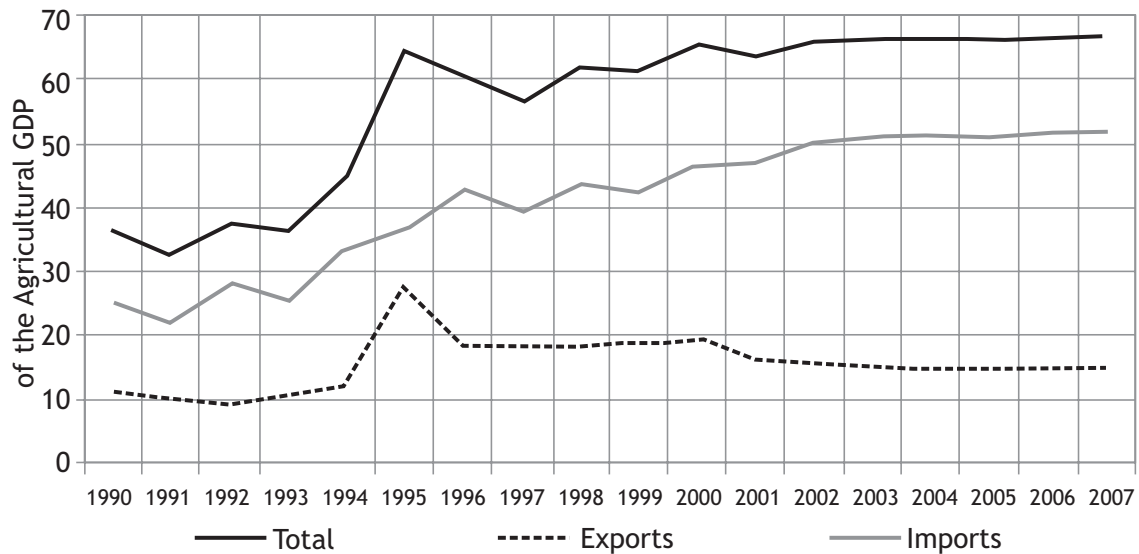
The agreements reached in NAFTA do not reflect the asymmetries existing between the agricultural and livestock sectors of Mexico and its NAFTA partners. In the list of critical products, those scheduled for opening in 10

and 15 years, during which tariffs and quotas would apply, the US included trade representing 17.3 percent of its imports from Mexico, while Mexico only included 12.6 percent of its imports from the US. Mexico reserved its market for 15 years, with quotas and tariffs, for its imports of corn and beans representing 7.2 percent of total agricultural imports. Nevertheless, the government decided to import maize and beans in excess of the quotas, without charging the respective tariffs, and thus exposed its market more rapidly than agreed to competition (Puyana and Romero, 2005:132). This policy was a response to the pressure from stock-raisers and millers.

Mexico granted the US a 15 percent tariff preference against imports originating in non-member countries (and to its national production) and received a preference of only 2 percent. As a result of the US unilateral preferential agreements, these preferences fell generally by 50 percent (Puyana and Romero, 2005c).<sup>9</sup> The remaining preference can be eliminated by a marginal increase of the real revaluation of the peso, or by gains in productivity or reduction of the profit margin in competing countries.

In 2007, the agricultural sector showed a larger degree of openness than the total economy. In 2007, the external coefficient of the agricultural sector was 66.7. Imports contributed substantially more to increase openness and came to represent more than 50 percent of GDP. Exports accounted for less than 17 percent of GDP (Figure 9). With such intense openness, one would expect a strong impact from external prices on productivity, location of factors, and employment and income. It is evident that exports expanded in the aftermath of devaluations as in 1995.

Figure 9. External Coefficient of the Mexican Agricultural Sector (in percentages of sectoral GDP 1990-2007)



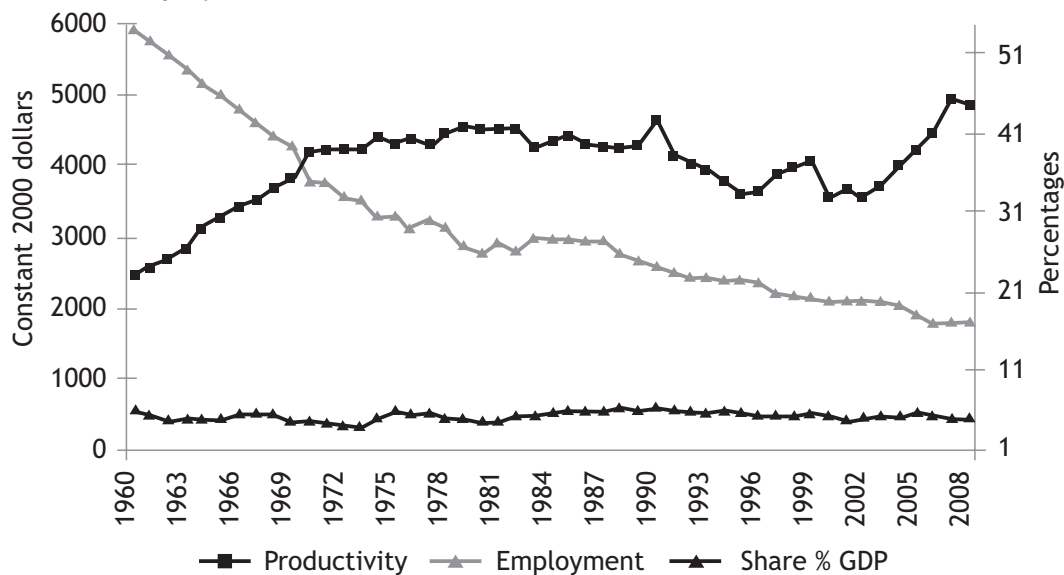
Source: Author's calculations based on INEGI, SNCN, obtained from [inegi.gob.mx/](http://inegi.gob.mx/)

#### 4.1.2 The evolution of agricultural productivity

As previously noted, agriculture lost participation in total GDP and employment with little, if any, gains in productivity. The strategy that the Mexican authorities instrumented to increase productivity was shredding employment<sup>10</sup>, and not by increasing product, which could reverse the premature decline of agriculture. During the period 1960-81, agricultural employment's

share of total employment fell by 50 percent and productivity grew at an annual rate of 4.1 percent. During 1981–2006, relative employment decreased by 37 percent and productivity fell by 1.6 percent (Figure 10). The critical period 2007-08, witnessed a partial recovery of productivity in agriculture, an effect of the increase in international prices of some goods such as corn, which is explained by the increase in demand to produce ethanol for fuel.

Figure 10. Evolution of Mexican Agriculture: Productivity and Sectoral Participation in National Total Employment and Value Added 1960-2008



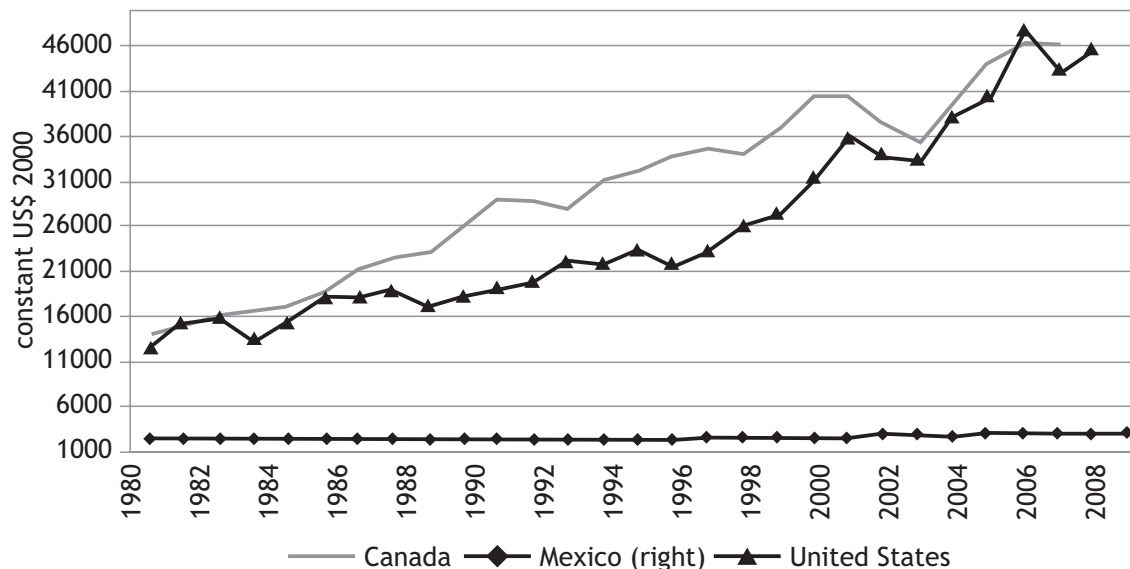
Source: Author's calculations based on INEG, SNCN, obtained from [inegi.gob.mx/est/default.aspx?c=1607](http://inegi.gob.mx/est/default.aspx?c=1607)

The productivity gap with Canada and the US continues to widen (Figure 11). In 1994, US agricultural productivity was 10 times larger than Mexico's and in 2008, the ratio increased to 14.5 times. Competing with the US becomes harder as time passes and the US consolidates its lead as an agricultural exporter, increasing competitiveness with generous policy instruments, such as the Farm Bill, which affects international prices. It is important to bear in mind that with the majority of agricultural products that Mexico exports to the US, such as tomatoes, oranges, grapefruits, vegetables and many others, Mexico competes with US production. Consequently, if productivity does not grow faster, Mexico will lose ground.

All in all, the result of the agricultural development strategy is a stagnating productivity per worker and stagnating or falling production per inhabitant, particularly of some goods such as rice, soy and corn. In addition, Mexico has lost shares of the US market in its most important exports, i.e. tomatoes and strawberries among others (Puyana and Romero, 2005:158-160).

One reason for the low productivity growth in agriculture could be the low investment per worker in agriculture, which amounted to MXN 400 1993 per annum, or approximately USD 100 (Puyana and Romero, 2009 a: 79).

**Figure 11. Evolution of Agricultural Productivity: Agricultural Value Added Per Worker 1980-2008 (in constant USD 2000)**



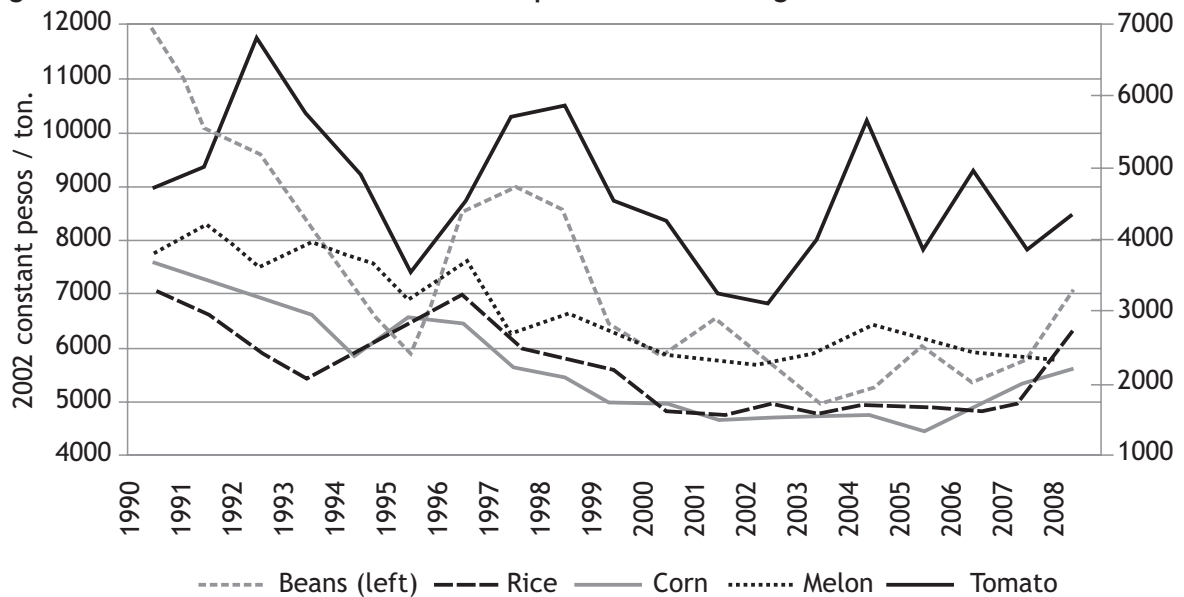
Source: World Bank, World Development Indicators (<http://databank.worldbank.org/>)

#### 4.1.3 Effects on prices

Liberalization did link domestic and international prices more closely and induced a decline in producers' internal prices of the main products, such as grains, beans, fruits and vegetables (Lederman, Maloney and Servén, 2003; Puyana and Romero, 2008 and 2009 b; Yúnez, 2002; Yúnez-Naude and Barceinas Paredes, 2002). As shown below,

both exportable and importable products registered a reduction in prices (Figure 12). The decline of internal producer prices of the main exportable goods, such as tomatoes, vegetables and fruits - in which Mexico has a comparative advantage and is a world exporter - is puzzling. Those prices were supposed to rise closer to the international standards and benefit producers and exporters. It did not happen that way.

Figure 12. Evolution of Prices of Some Important Mexican Agricultural Products 1980-2008

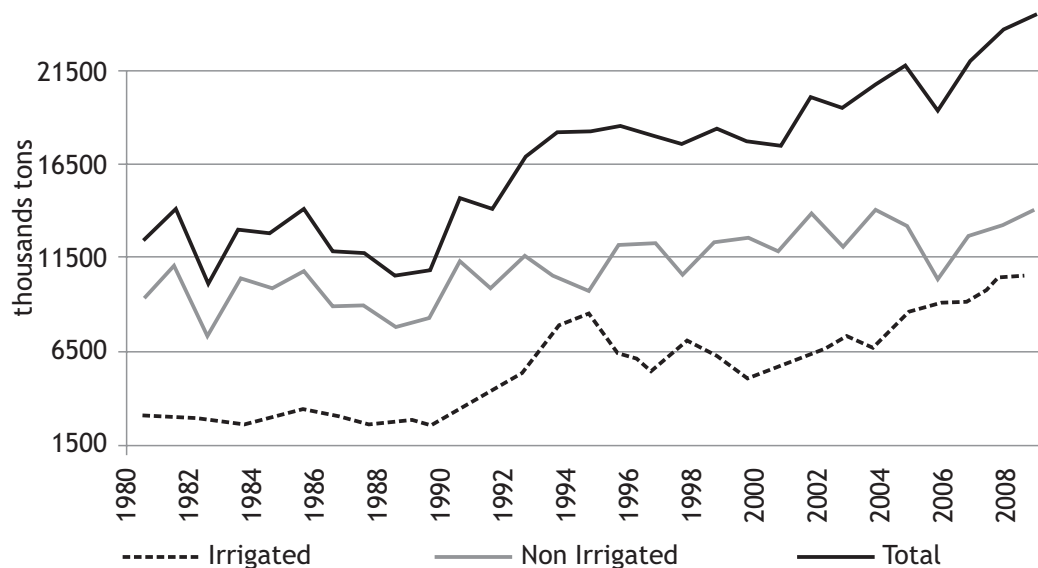


Source: SAGARPA, Sistema de Información Agroalimentaria - SIACON.

Small growers of corn and beans are among the main losers of the liberalization process. They confronted a sharp decline in prices (shown in Figure 12 above) that was more intensive than for any other commodity (Puyana and Romero, 2008:130). The most important reaction to the fall in prices was the effort to improve cultivation techniques in order to increase yields and volume of production. It should be noted, too, that it is

precisely the rain-fed grain producers who have most consistently increased their production, while that of the large, market-oriented producers in irrigated areas has been more volatile and has grown at a slower pace (Figure 13). These producers have more possibilities of shifting to other products when prices are unfavourable. They have financial support that the small producers are unable to find.

Figure 13. Production of Maize in Irrigated and Non-irrigated Areas 1981-2008



Source: SAGARPA, Sistema de Información Agroalimentaria - SIACON.

Rain-fed corn production survived against all predictions.<sup>11</sup> The behaviour of small producers of corn is not explained by their insulation from the impact of external prices, as suggested by

Yúnez (2002) and Lederman (2004). In order to survive, poor peasants apply a diverse range of strategies:

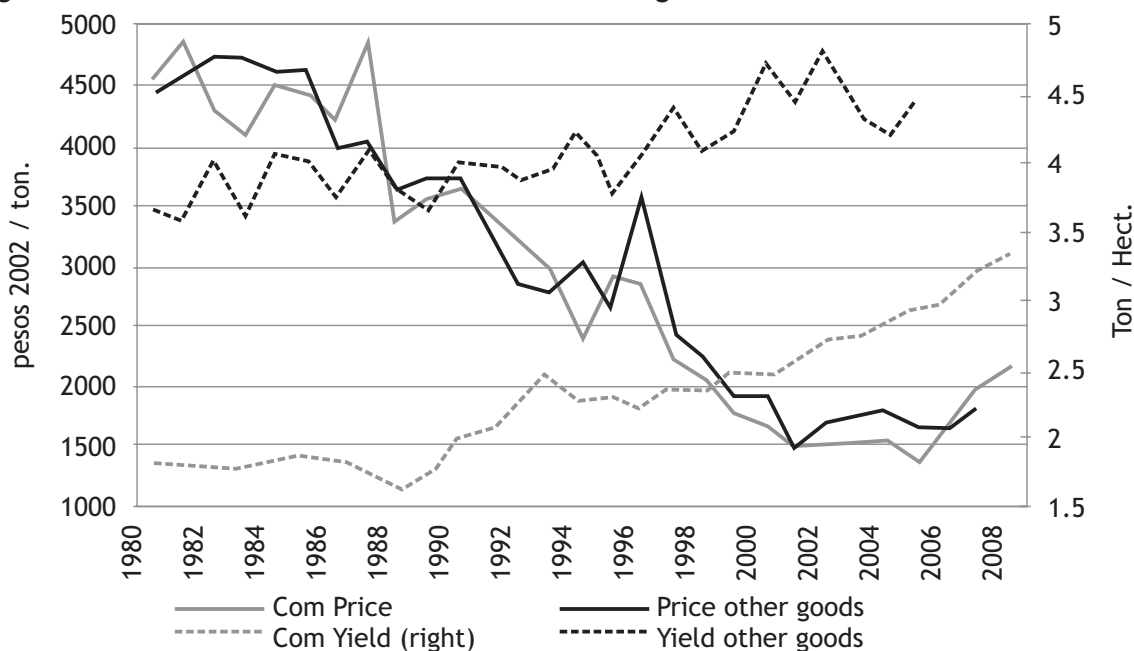
The survival of Rural Mexicans' diverse survival strategies help to explain some surprising developments that run counter to economic predictions but are well documented in Mexican statistics. For example, production of maize on irrigated lands (mainly larger commercial farms) has declined since cheaper, subsidized U.S. corn was allowed into Mexico and subsidies for water use were reduced. However, maize production on nonirrigated, rain-fed land (overwhelmingly small subsistence plots) increased when household incomes contracted sharply during the severe recession that followed the peso crisis in 1995. Production has continued at similar levels, despite imports of cheaper U.S. corn (Polaski, 2003:21).

maintain income, since corn is one of the ways to finance their basic expenditures. It is the normal economic rationale of peasants. As Ingco and Nash suggest, peasants are indeed exposed to the full impact of international prices and have to respond by increasing their production when prices fall (Ingco and Nash, 2004:151-168). Another strategy is to diversify the sources of income by engaging in non-agricultural rural activities. And, finally, they migrate, as will be seen.

Corn producers succeed in elevating yields more effectively than other agricultural producers, as indicated in Figure 14. In doing so corn producers managed to reverse the growth in the coefficient of external supply of domestic consumption and prevented an even higher deficit in the sectoral external trade balance. Figure 14 shows the path of corn yields and prices compared with other agricultural goods.

The survival strategies of peasants include the need to increase production in order to

**Figure 14. Prices and Yields of Corn and All Other Agricultural Products 1980-2008**



\*Right axis. \*\* Left Axis

Source: Author's calculations based on SIECON-SAGARPA, obtained from.sagarpa.gob.mx

The fall in corn prices can and should be imputed at least in large measure to NAFTA:

Based on this evidence, we conclude that the change in farmers' income from corn farming is directly tied to the changes in the price of corn at least partially brought on by NAFTA. (McMillan, Peterson and Zwane, 2005:28)

The same authors suggest that no less than 60 percent of the poorest corn growers participate in the market and have been negatively hit by the fall in world prices, which the authors link to the US Farm Bill and other support of the US government (Id. p. 27). The authors suggest that the effect attributable to US policies could be rather small. Nevertheless, other authors



suggest US agricultural policies, the reforms and NAFTA explain the outcome (Ingco and Nash, 2004:151-168; Polasky, 2004 and 2006; Puyana y Romero, 2008; USITC, 2003; Vollrath, T et al, 2001).

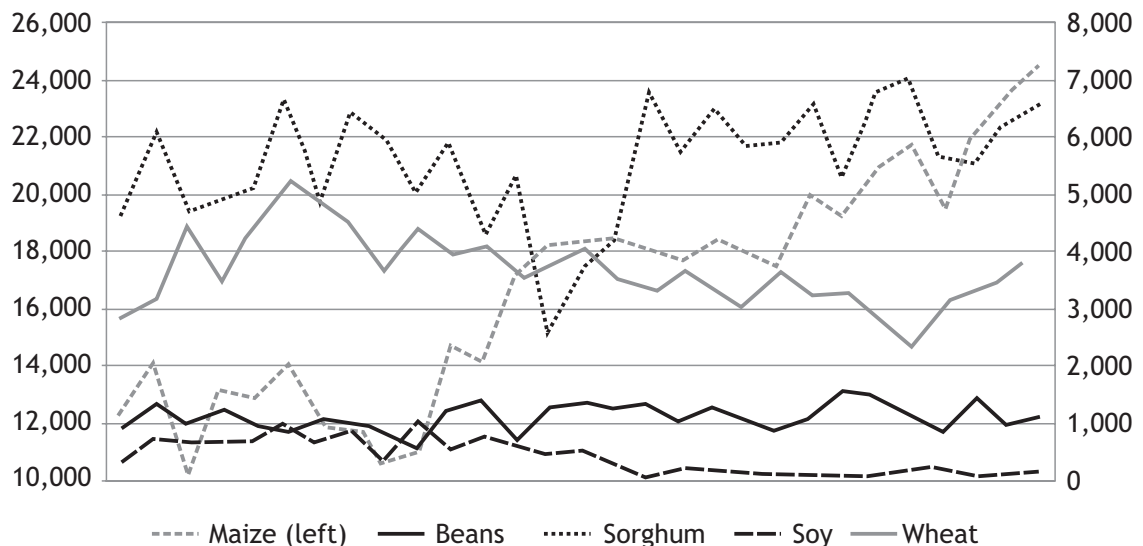
#### 4.1.4 Changes in the structure of the agricultural production mix

As expected, the structure of production has been modified in favour of more profitable exportable products, which have won the ground lost by some grains, such as rice and soy. Other products have grown at a slower pace than the population (Figure 15). This evolution is reflected in the deceleration of the volume

of production and per capita consumption of wheat, barley, rice, cotton and other goods; the increase in the imported content of the apparent consumption of these goods and a greater dependence on imported food.

The evolution of production was affected by the survival strategies of peasants who increased production of some importable products, particularly corn and beans. Maize producers, even small *minifundio* producers in rain-fed areas, introduced new techniques and increased yields as a tool to counterbalance the effect of declining prices on their incomes. This achievement contradicts all assumptions about their incapability of improving production.

**Figure 15. Production of Major Agricultural Products 1980-2008 (in metric tons)**

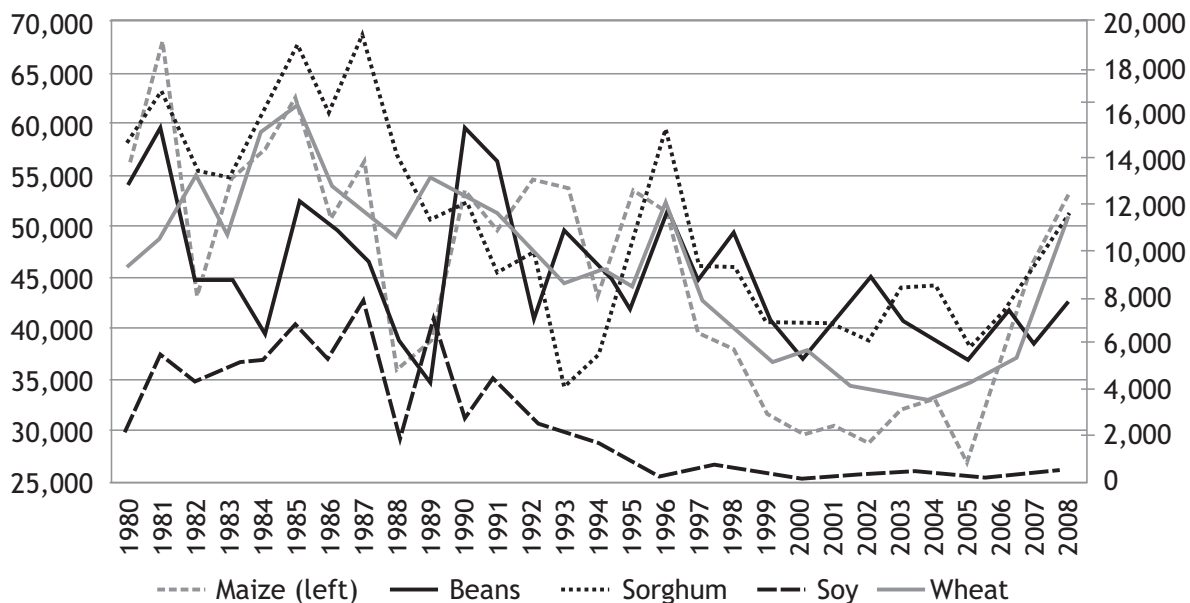


Source: Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación, obtained from [siap.sagarpa.gob.mx/AnxInfo](http://siap.sagarpa.gob.mx/AnxInfo)

The increased volume of produce did not entirely contribute to maintaining the value of total production and income (or returns on capital) since the adjustment of prices outstripped the adjustment in quantities (Puyana and Romero 2008) (Figure 16). Despite

all their efforts, maize producers and other grain producers are therefore losers in the liberalization process. Not even the substantial increase in international and local prices registered in the period 2005- 08 help to restore the lost value of total production.

**Figure 16. Value of Product of Main Mexican Agricultural Goods 1980-2008 (Millions constant 2000 MXN)**



Source: Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación, obtained from [siap.sagarpa.gob.mx/AnxInfo](http://siap.sagarpa.gob.mx/AnxInfo)

#### 4.1.5 Changes in factor allocation

##### *Land allocation*

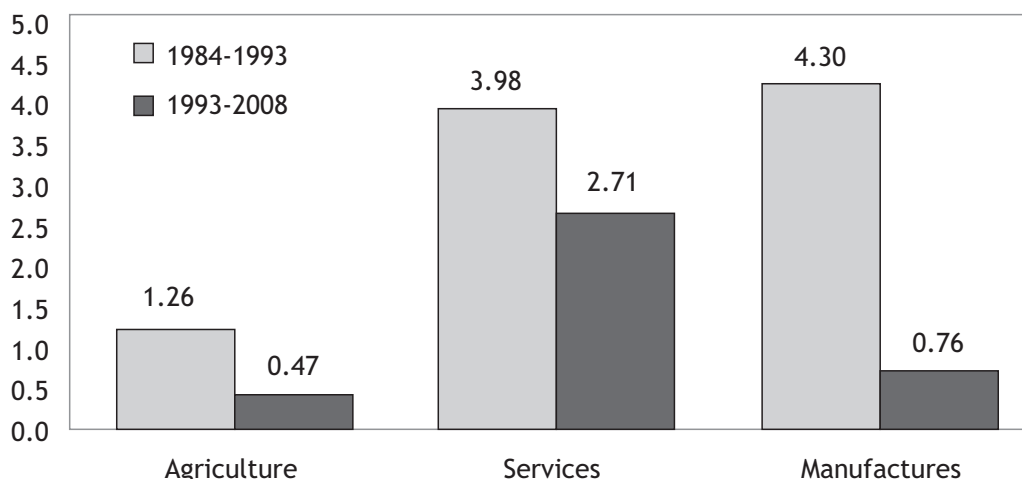
While production of fruits and vegetables has increased, the proportion of occupied land has remained stable (Puyana and Romero, 2008:150). There are high initial costs that make it difficult to extend these crops to new areas, such as the investments needed in the case of fruit trees, which require a long period between planting and the first marketable harvests. Lack of investment in irrigation limits the potential for cultivating vegetables, as does the insufficiency of transport networks for enabling highly perishable products to reach points of sale. Not the least of the problems is the poor functioning of the markets (goods, capital and technology). The domestic markets are not competitive; they are dominated by oligopolistic and monopsonic structures: no more than 27 agents with considerable market power control the maize market. In other grains, concentration is even greater and reduces the proportion of the final price that producers receive to less than 30 percent. The same is true for the fruit and vegetable sector: the avocado market is controlled by seven wholesale traders, the market for oranges

by five, and that for tomatoes by only eight buyers. The producer receives no more than 30 percent to 35 percent of the final price (World Bank, 2001).

##### *Changes in agricultural employment*

A clear objective of the opening of the agricultural sector was to make a large part of the rural workforce redundant and to abandon the sector by shifting its orientation towards a less labour-intensive mixture of products, which would in turn induce a reduction in wages and incomes (De Janvry et al., 1998:34-35). Free trade leads to new production being less labour intensive than that prevalent before the opening of the economy, which means that real wages have to fall in order to restore full employment. López (2000) suggests that as a result of the changes in the structure of agricultural production since the liberalization of trade, there has been a loss of 700,000 jobs that would have been generated had these changes not taken place. Polasky places the loss of jobs at over 1 million (Polasky, 2003:16). Figure 17 illustrates the contrasting rates of growth of agricultural employment during 1984-93 and 1993-2003.

Figure 17. Annual Growth Rates of Employment by Sectors 1984-2003



Source: *Secretaría de Trabajo y Seguridad Social, 2003 and 2010*

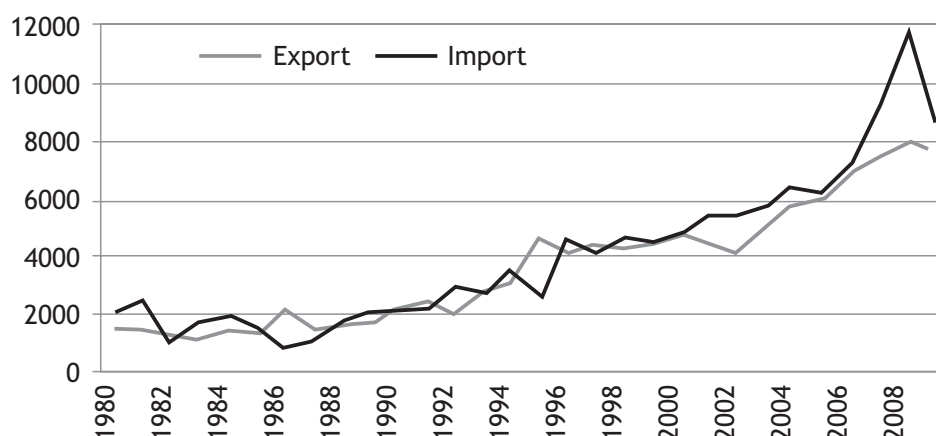
The reduction in the weight of agricultural employment has been dramatic, falling from 27 percent of total employment in 1981 to just 13.5 percent in 2009, according to the new INEGI classification following US practice (Annex, Table A.3). Displaced agricultural workers have been absorbed mainly by the less productive activities in the tertiary sector. Real wages in the agriculture and livestock sectors fell noticeably during the crisis of 1994-1995 and have not yet recovered. In 2009, average wages in agriculture were 12.1 percent lower than in 1994.<sup>12</sup> Average incomes in the livestock sector were higher, despite the nil growth of productivity.

#### 4.1.6 Effects on external trade equilibrium

From 1993 to 2009 external agricultural trade grew, in real terms, at a slower rate than total

external trade. The livestock sector registered a trade surplus; but not the agricultural and livestock sector as a whole, which registered the biggest trade deficit since 1980 in 2002. The trend followed by trade in agricultural, livestock and food products reveals a high sensitivity to changes in the real exchange rate. In 1995 imports diminished and exports increased as a consequence of the devaluation, thereby registering a significant sectoral trade surplus<sup>13</sup> (Figure 18). The relatively smaller devaluation of 2008 did not have the same effect. Under NAFTA, Mexico has accumulated a substantial deficit of about USD 10 billion that has affected negatively the income of the rural population. The effect of the Farm bill is clearly a factor behind that problem. Total losses for Mexican producers during 1997-2005 have been calculated at USD 12 billion (Wise, 2009: 16).

Figure 18. Foreign Trade in Agricultural and Livestock Products 1980-2008 (in USD 1000)



Source: *Instituto Nacional de Estadística y Geografía - INEGI*

Mexico has not been able to maintain the fraction of the US market that it occupied in 1993. It has reduced its presence in the US market or been pushed aside by external competitors, as indicated by the calculations of revealed comparative advantage, or index of specialization.<sup>14</sup> In 2008, products qualified as examples of Mexico's success as an exporter registered lower indices of specialization when compared with those for 1990. For example, tomatoes lost 60 percent of the value of their specialization index and other exporters are gaining ground in this field. The same is happening, although to a lesser extent, in the case of other fruits, such as melons, grapes and vegetables in general. The fact that products already established on the market and enjoying a majority share in US foreign purchases are unable to make further advances may be an indication of the difficulty of gaining new ground or maintaining that already gained, despite trade preferences. There is a need for permanent increases in productivity (Puyana and Romero, 2009b; Vollrath and Johnston, 2001).

#### 4.1.7 The official response

The government has implicitly abandoned any active policy to promote the agricultural sector. It is clear, for instance, from the decision of President Calderon, who decided that the *Secretaria de Agricultura* forms part of the social sector and does not belong to the economic sector, as do the *Secretarias de Economía, Hacienda, Communications And Transport, Mining or PEMEX*.

There are two main lines of action towards agriculture. The first are the policies established to compensate for the reduction in tariffs and the elimination of price supports and all other sectoral development instruments existing since the 1960s. These new instruments were implemented as a prerequisite to entry into GATT and were eliminated by 2008 as agreed in NAFTA. The main programmes are the *Programa de Apoyos Directos al Campo* (PROCAMPO) and *Alianza para el Campo*, and the programme to finance exports of *Apoyos y Servicios a la Comercialización Agropecuaria*

(ASERCA).<sup>15</sup> The budget for all the programmes oriented toward agricultural development was reduced, in real terms in 2003 constant pesos, from MXN 49 billion in 1994 to MXN 4.9 billion in 2007. Total public investments have remained lower than the necessary level to stimulate sectoral expansion. To be able to stimulate sectoral growth, public investments as a percentage of total investments should be higher than the share of agriculture in GDP (Schiff and Montenegro, 1995). In Mexico, public investments in agriculture for the last decades have never reached 1 percent of total investments, when they should represent not less than 5 percent of total investments (Puyana and Romero 2009b). That suggests a chronic deficit, which means that to eliminate the deficit investments should be at least five times larger than they have been over the past 20 years or so.

Another element to emphasize is the limited capacity of the programmes that do not cover the entire sector. In effect, only a reduced number of producers receive support. In 2004, only 200,000 producers of 3.5 million were beneficiaries of PROCAMPO (Puyana and Romero, 2005:72). The number of producers inscribed in other programmes is even smaller.

By 2009, the number of beneficiaries of PROCAMPO increased to 2.1 million producers that own 9.8 million hectares (SAGARPA 2009). That formidable increment has been criticized because of lack of transparency, duality and corruption of different kinds.

In addition, it has been argued that the supports given by PROCAMPO and other programmes are regressive and provide more help to the less-needy producer rather than reducing the unequal distribution of rural income. Sixty five percent of beneficiaries own holdings smaller than five hectares. Assuming that all plots measure five hectares they represent only 35 percent of all the PROCAMPO support.

Up to 2008, PROCAMPO transferred MXN 900 per hectare, per annum, i.e. USD 90 annually per hectare -which is a small fraction compared not only with support to

producers in Members of the Organisation for Economic Co-Operation and Development (OECD), but also with the pension to elderly persons established by the government of Mexico City, which was MXN 600 per month. PROCAMPO benefits were mainly used for current expenditures in the consumption of basic goods.

The overall amount of government transfers and support benefits at work in Mexico is relatively low compared with that existing in other OECD Member countries, especially those with which Mexico has signed trade agreements, such as Canada, the US and the European Union (EU). These agreements do not counterbalance the subsidies in those countries (Table 8).

**Table 8. Total Producer Support Estimates (PSE) for Main Agricultural Products**

Total Support to Producers		2000			2001			2002		
		Mexico	USA	EU	Mexico	USA	EU	Mexico	USA	EU
Rice	PSE (US\$ mn)	26	886	127	19	995	309	11	891	328
	% PSE	29	45	17	35	53	40	32	52	37
Poultry	PSE (US\$ mn)	839	753	3 079	545	934	3 128	853	823	3 537
	% PSE	29	4	37	18	5	35	30	5	38
Sugar	PSE (US\$ mn)	765	1 204	2 443	693	1 287	1 777	718	1 176	2 499
	% PSE	54	53	50	47	58	44	56	55	49
Pork	PSE (US\$ mn)	77	476	5 545	138	527	5 207	367	415	6 924
	% PSE	5	4	25	8	4	20	24	5	26
Eggs	PSE (US\$ mn)	-12	191	228	30	205	110	21	215	330
	% PSE	-1	4	4	2	4	2	2	5	6
Corn	PSE (US\$ mn)	1 462	9 268	2 839	1 394	6 550	2 488	1 013	4 579	2 038
	% PSE	42	34	41	37	26	37	31	17	28
Oilseeds	PSE (US\$ mn)	13	4 849	2 016	22	4 522	1 598	6	2 101	1 723
	% PSE	38	28	39	52	26	34	30	13	31
Wheat	PSE (US\$ mn)	183	5 388	9 299	171	3 980	8 180	189	2 611	10 284
	% PSE	31	48	46	28	42	46	34	30	46

Source: OECD, *Agricultural Policies in OECD Countries. Monitoring and Evaluation 2003*, pp. 241-242, 256-257 and 277-278

While the Mexican total support estimate (TSE)<sup>16</sup> as a percentage of GDP is similar to other OECD Member countries, Mexican TSE per producer was USD 91 per annum and near USD 350 in the US and EU (OECD, 2003:230). Mexico cannot increase its financial supports; rather, it should join the rank of those countries demanding that the developed countries revise their policies. By 2007 the differences in TSE had increased substantially. In 2007 the

TSE of the US was 1392 times bigger than the Mexican and experienced an increase of 22.3 percent while the Canadian TSE was 100 times larger. A bigger difference was registered for the EU (OCDE, 2008). It is striking to note is that the US and Canada increased TSE during the NAFTA period.

The effect of these subsidies constitutes a dumping affecting Mexican producers. With

the methodology developed by Ritchie, Murphy and Lake (2003) for the Institute for Agriculture and Trade Policy (IATP), Wise (2009) calculated that "... dumping margins rose significantly for all crops after 1996, with averages for 1997-2003 ranging from 12% for soy to nearly 50% for cotton and 20 for corn" (10). The same author added:

Corn showed the highest losses. Average dumping margins of 19% contributed to a 413% increase in US exports and a 66% decline in real producer prices in Mexico from the early 1990s to 2005. The estimated cost to Mexican producers of dumping-level corn prices was \$6.6 billion over the nine-year period, an average of \$99 per hectare per year, \$38 per ton. (Wise, 2009: 3).

Polasky (2006) came to a similar conclusion in a complex analysis of the models used by several multilateral organizations to evaluate the impact of proposals put forward under the Doha Development Round.

The second line of action to support rural population is the poverty alleviation programme called *Oportunidades*, which consists of cash transfers to extremely poor families under the conditions that children attend school and regularly visit health centres. The programme is regularly evaluated by highly authorized independent national and international experts. *Oportunidades* helps to reduce poverty in smaller proportion than remittances and constitutes a long-term investment in human

capital that can or cannot increase agricultural product and rural income.

All these programmes should be continued since they represent a significant part of the income of poor families. Nevertheless, these programmes have not contributed to balancing the negative impact of the reforms and economic liberalization on the rural population, since, as shown above, the general balance is negative. They therefore need to be complemented with actions to increase productivity and create new income-generating activities in rural areas.

## 4.2 The Mexican Manufacturing Sector

### 4.2.1 Opening of manufacturing to foreign competition

The evolution of the external coefficient of Mexican manufacturing reveals the changes towards assembly activities and growing imported content. A higher imported content of GDP is equivalent to the reduction of domestic value added of the product and especially of the exports. Imports represent over half of the total sectoral product, while imports above one third. All in all, the external coefficient exceeds 90 percent of the product (Table 9). The increased dependence on imports that characterizes Mexican manufactures explains the decreasing contribution to GDP formation and the weak link between the exports of manufactures and the growth of both GDP and employment.

**Table 9. External Coefficient of GDP of the Manufacturing Sector (in percentages)**

	Imports	Exports	Total
1970	17.4	6.6	24
1980	28.1	6.7	34.8
1990	22.2	14.5	36.7
2001	56.5	39	95.5
2002	53.6	38.4	92
2003	53.1	39.6	92.7
2004	54.1	38.5	92.6
2005	54	38.5	92.5
2008	54.2	38.1	92.3

Source: Author's calculations based on INEGI, *Encuesta Industrial Anual 2001-2009*

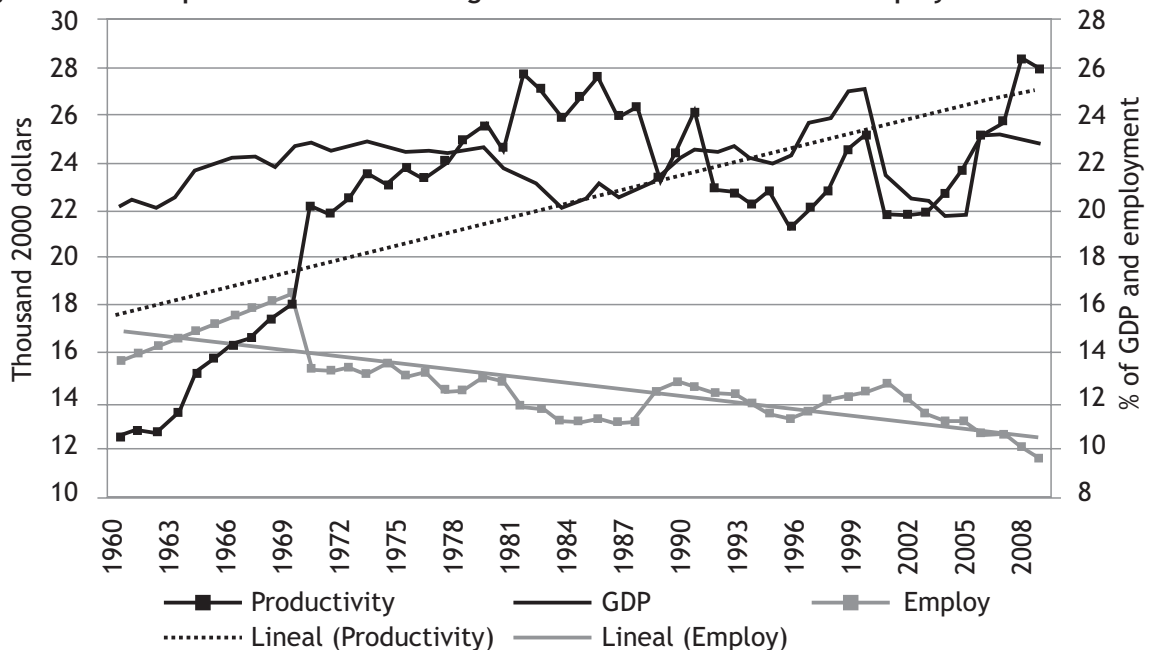
#### 4.2.2 Labour productivity and employment in manufacturing

The developmental process of Mexican manufacturing can be illustrated by the declining path followed by the share of sectoral employment and value added in the national total values. The sectoral employment loss as a source of total job generation was more intensive than the decline in value added. In effect, manufactured value added recovered and was similar in 2006 to the level registered in 1983 (Figure 19). Gains in productivity were not followed by increases in the quantum of

the product to raise the contribution of the sector to total employment.

In 2008 manufactures contributed 22 percent of GDP, almost the same proportion as in early 1980s and considerably lower than the record level of 1999, when manufactures represented a quarter of GDP. The sector experienced an important push in 1995-99, owing to the devaluation of the peso in December 1994 and the impulse of the US demand for Mexican manufactures from the *maquila* sector. When these factors faded out the sector retreated to its relatively low participation in GDP while its contribution to employment continues to fall.

**Figure 19. Participation of Manufacturing Sector in Total GDP and Total Employment 1960-2008**

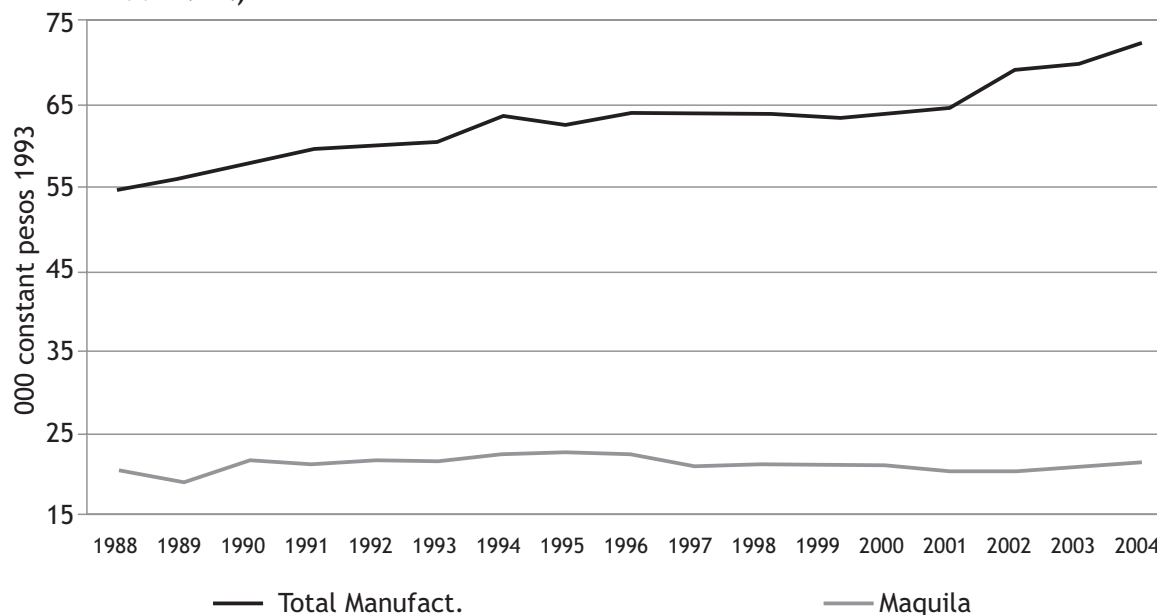


Source: Author's calculations based on INEG, SNCN, obtained from [inegi.gob.mx/est/default.aspx?c=1607](http://inegi.gob.mx/est/default.aspx?c=1607)

The observed average growth rate of labour productivity in the manufacturing sector during 1980-2004 was slightly positive: MXN 17,000 in 17 years, i.e. USD 100 a year.

The pace of productivity is explained at least partially by the practically stagnated productivity of *maquila* activity, which grew during 1989-2004 at an annual rate of 0.8 percent (as discussed in 4.2.4) (Figure 20).

**Figure 20. Evolution of Productivity per Worker in Mexican Manufacturing 1989-2004 (1000 constant 1993 MXN)**



Source: Author's calculations based on INEG, SNCN, obtained from [inegi.gob.mx/est/default.aspx?c=1607](http://inegi.gob.mx/est/default.aspx?c=1607)

From 1990 onward, it is clear that the sectors with the highest rates of growth of production also registered the fastest productivity growth and gains in sectoral shares, i.e. the automotive, machinery and electronics sectors. The automotive sector registered a spectacular increase in its contribution to manufacturing GDP, jumping from 3.7 percent in 1980 to 8.9 percent in 1999 and 14.8 percent in 2007 (INEGI, 2010). The growth rate of total labour productivity recorded by the entire manufacturing sector was induced by the recomposition of the manufacturing sector towards more successful activities, particularly those mentioned above.

#### 4.2.3 Changes in the structure of sectoral GDP

Since 1989, the Mexican manufacturing sector has experienced a reallocation of the labour force towards activities with lower capital-labour ratios, a trend that has affected total labour productivity in the entire sector (as explained in analyzing the structural effects of *maquila* activity - see 4.2.4).

The most successful manufacturing activities so far are, in the first place, metal basic products and, in the second place, the automotive industry, which in recent years contributed at least 65 percent of the net

rate of growth of labour productivity in manufacturing. This is a surprising and revealing fact. The automotive sector did not fully face international competition until 2004 and was subjected, until that year, to the commitments of the Automobile Programme.<sup>17</sup> This industrial policy ended in 2004, exposing the industry for the first time to unhindered international competition. If, as a result of the disappearance of the protection that favoured its growth, this industry were to stop growing, labour productivity in the entire Mexican manufacturing sector will decelerate. The 2004-07 period was particularly important due to the generalized productivity increases in manufactures. Higher capital intensity in some sectors and particular firms explain that outcome. Nevertheless, during 2005-2008, the contribution of the sector to GDP creation fell, as mentioned above.

In sum, Mexican manufacturing is characterized by generalized slow growth in productive efficiency, except for its automobile, machinery and electronics, basic metallic, mineral and food sectors. The automobile industry recorded the strongest positive growth rate of productivity, stimulated by a sectoral development programme, and not as a result of the liberalization process, which affected it only recently (Table 10).



Table 10. Annual Change in Productivity by Sector

	1990-1994	1995-2004	2004-2007
Manufactures	0,70	0,87	4,97
Processed foods, beverages and tobacco	2,38	2,73	5,83
Textiles, apparel and leather products	1,68	0,57	0,90
Woods and wood products	2,73	1,04	3,46
Paper products and publishing	2,29	2,56	9,28
Chemical, rubber and plastic products	2,62	2,51	9,08
Mineral products	4,85	3,62	1,89
Metal basic	13,65	4,12	12,44
Metal products, machinery and equipment	3,34	3,72	3,58
Other manufactures	0,96	0,59	ND

Source: Author's calculations based on INEG, SNCN, obtained from [inegi.gob.mx/est/default.aspx?c=1607](http://inegi.gob.mx/est/default.aspx?c=1607)

#### 4.2.4 Fragmentation of the productive process

The ever-deepening Mexican specialization in assembly activities (*maquila* and the twin programme *Programa de Importación Temporal para las Exportaciones* (PITEX) account for 85 percent of all manufactured exports) helps to explain the feeble impact of exports of manufacturers on the expansion of sectoral GDP, productivity and employment. Another element to consider is the substantial presence of large multinational corporations in total exports. Companies with direct foreign investments are responsible for at least 60 percent of total non-oil exports; if only exports of manufacturers are considered, the concentration reaches 63 percent.

Any analysis of the Mexican manufacturing sector has to consider that it is divided into two very different segments: normal manufacturers and assembly activities, i.e. the *maquiladoras*. The difference between them emerges not only from the different fiscal and trade regimes governing each, but also the scope of vertical integration. By 2004, the *maquila* sector accounted for 30 percent of all employment in manufacturing. The share was 50 percent in the automotive industry, and it jumped to over 60 percent in the electronics and textiles sectors. The value added to the total *maquila* segment represents only 7 percent of the sectoral value added, illustrating its low integration of national content. This minimal contribution to the national value

added shows that the integration of the value chain is limited and that the links between the non-*maquila* industry and the *maquila* are not increasing either.

The long-term objective when the *maquilas* were established was to create links between the *maquilas* and the rest of the economy, with the assumption that the former would benefit the latter by the integration of domestic productive elements, increasing productivity and intensifying, upgrading and improving human capital and technology. The stimuli that encouraged the expansion of the *maquila* and the PITEX programme offered in Mexico (tax exemption for imports and some others) and in the US (free importation of US components for the manufactured products and exemption from Mexican VAT) limited the value added in Mexico and the margin for increasing productivity. The *maquilas* had to import all their components and, up to 2001, were forced to export the whole of their production, as a measure of protection for national industry. They could not supply the demand for imports from Mexican *maquilas*. In addition, *maquilas* were not allowed to meet the domestic demand for their products originating from industrial national plants (Puyana and Romero, 2005c). The reforms introduced by NAFTA eliminated these restrictions (and created others). Today, the *maquila* has to conform to national regulations as well as those of NAFTA.

A 1 percent growth in *maquila* exports results only in a 0.3 percent growth in its contribution to GDP (Puyana and Romero, 2006b). By the end of 2000, the contribution of the *maquila* to Mexican GDP was slightly above 1.58 percent, which corresponds to an advance of 0.04 percentage points of GDP since it was first established in the late 1960s. After 1994 there was a significant growth in this share, which then dropped and has still not recovered. For this reason, given the weight of the *maquila* in manufactured production and total exports, there is no connection between the expansion of manufactured exports and the contribution of the manufacturing sector to the generation of GDP. In fact, the relation between the growth of *maquila* exports and the increased share of manufacturing production in GDP is very low (1 percent of the 0.08 percent growth of the latter).

Table 11 shows some variables relating to the performance of *maquila* and non-*maquila* manufacturing. The difference in growth

of the *maquila* is evident in nearly all the variables, particularly in the number of jobs created, which rose from 300,000 in 1988 to 1.3 million in 2000 and declined to 1.1 million by 2004. As regards average wages, *maquila* expansion was also higher than in non-*maquila* activities. The difference is smaller in the rate of growth of value, while the productivity in non-*maquila* manufacturers expanded at a faster pace than *maquila* manufacturers. There were periods (e.g. 1988-95) in which the *maquila* experienced extensive growth, with a greater increase in employment than in value added. During 1993-2005, average wages outstripped productivity, suggesting that there were certain rigidities in the labour market. From 1988 to 2004, employment in non-*maquila* manufacturing showed a substantially lower increase (33 percent), so that total employment in manufacturing remained unchanged. However, average remuneration in the *maquila* increased by 13.7 percent over the period, or almost doubled that of the other manufacturing sector.

**Table 11. Evolution of Manufacturing and Maquila Sectors 1988-2004**

	Total									
	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.
	Employees		Wages		Value Added		Average wages		Average productivity	
	Million persons		Million pesos de 93				000 pesos 1993 per worker			
1988	3.0	0.4	61575	6072	178416	7562	20.3	16.4	58.8	20.5
1993	3.3	0.5	79694	9324	219934	11529	24.1	17.7	66.5	21.9
2000	4.1	1.3	89853	23950	317092	27577	21.9	18.5	77.3	21.4
2004	3.5	1.1	84677	23730	311014	24367	24.2	21.3	88.7	21.8
Autocar										
1988	0.3	0.1	7031.5	1360.1	16415.9	1746.3	26.3	18.5	61.3	23.8
1993	0.3	0.1	9828.0	2059.2	25417.0	2686.3	28.2	19.9	73.0	26.0
2000	0.5	0.2	13113.9	4744.1	47401.2	5491.2	26.2	21.9	94.6	25.3
2002	0.5	0.2	13181.7	5270.4	45781.1	5323.0	28.4	24.5	98.6	24.7
2004	0.5	0.2	12427.3	5408.5	45624.0	6054.6	27.1	23.3	99.5	26.1
Electric & Electronics										
1988	0.3	0.1	4999.2	2291.4	8763.5	2843.3	19.7	18.1	34.6	22.5
1993	0.3	0.2	6477.8	3015.4	11372.4	3670.2	22.2	19.3	38.9	23.5
2000	0.6	0.4	12434.5	8597.8	27736.6	9295.8	22.0	22.0	49.1	23.8
2002	0.4	0.3	10209.8	6875.8	22448.2	6553.3	23.9	23.8	52.5	22.7
2004	0.4	0.3	10063.1	7303.0	22701.1	7387.6	23.9	23.7	53.8	24.0

Table 11. *Continued*

	Total									
	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.	N Maq.	Maq.
	Employees		Wages		Value Added		Average wages		Average productivity	
	Million persons		Million pesos de 93				000 pesos 1993 per worker			
Textiles and Apparel										
1988	0.2	0.0	2393.4	296.4	6090.9	378.3	11.0	9.6	27.9	12.5
2000	0.4	0.3	4638.5	2825.8	10395.4	3349.7	11.0	11.3	24.6	13.4
2002	0.3	0.2	4181.4	2582.0	8687.0	2484.2	12.3	13.3	25.6	12.8
2004	0.3	0.2	3655.7	2271.0	8364.7	2454.2	12.3	13.2	28.3	14.2

Source: Own calculations based on: *Estadísticas de contabilidad Nacional, INEGI on line.*

*Maquila* was the most dynamic generator of employment in the whole manufacturing sector (a rate of 203 percent over the period 1988-2004). In 1988, it accounted for 9.9 percent of manufacturing jobs, which rose to 30.1 percent in 2004.

The impact of the growth of employment in *maquila* manufacturing was not to reduce the continuous expansion of informal employment. That fact could suggest that *maquila* demand for labour is not filled by unskilled labour or by persons linked to informal activities. *Maquila* neither absorbed the surplus labour coming from the agricultural sector nor had a “vent of surplus” effect (Lewis, 1954), with net gains for the economy. It is suggested that *maquila* absorbed part of the labour made redundant by the manufacturing crises of the 1980s and 1990s and by the processes of readjustment of manufacturing businesses to the reform of foreign trade and to the trade agreements (Puyana and Romero, 2005c). *Maquila* employed a relatively more skilled type of labour, at lower wages and in jobs requiring less demanding technical skills. These suppositions are based on the weak relation between the growth of *maquila* exports and the employment and real average wages in the manufacturing sector (Arndt and Kierzkowski, 2001; Puyana and Romero, 2005 and 2006).

Applying the concepts of the theory of “fragmentation of the productive process” developed by Arndt and Kierzkowski (2001),<sup>18</sup> one sees a significant, direct relation between growth of *maquila* exports and informal

employment, in the sense that the growth of *maquila* exports did not reverse or reduce the tendency of informal employment to increase its share in total employment.

As explained earlier, wages can increase because of sustained gains in productivity. As seen in Table 11 and the foregoing analyses, it can be argued that *maquila* productivity is lower and almost static. In 2004, productivity per worker reached USD 21,850 in constant 1993 pesos, an increase from the USD 20,000 registered in 1989, but lower than the productivity levels registered in 1993. That is to say, in 12 years it has recorded a cumulative increase of only 6.7 percent. One percentage point of growth in *maquila* exports corresponds to 0.01 of a percentage point increase in productivity. This result contrasts with the significantly positive relation of the non-*maquila* exports to its productivity, primarily because of the effort made to increase non-*maquila* productivity in order to face the pressure of competition, as suggested by Puyana and Romero (2005b). The comparison of these two tendencies could support the conclusion that movement of factors from manufacturers to *maquila* has meant a relocation of productive factors from more to less productive activities, with less value added per worker.

The share of wages in value added limits the growth of productivity in *maquila* industry. This ratio gives the labour cost per unit of produce. In the *maquila*, labour costs accounted for close to 74 percent of the value added in 1993 and it escalated to 97 percent by 2004. Therefore,

in maquila manufacturing, only if productivity were increased, would there be more value added, better salaries and retributions to capital without an increase of the share of labour costs. One of the comparative advantages of a country that attracts manufacturing activities characterized by the fragmentation of the productive process into several components that can be undertaken in different locations, is the ratio of remuneration to productivity. Low wages are neither the only incentive nor the most important. With the low value added and the low productivity of the maquila sector, it is not surprising that the effect of average individual and total remuneration is equally limited. Low productivity wages had to be contained in order to face international competition. The abundance of work and the evolution of employment in manufacturing allowed this. It can be seen that the relation between the growth in exports of the maquila and of the average remunerations of the non-maquila manufacturing sector is negative (and very feeble in the maquila sector) (Puyana and Romero, 2005c). This partially explains the low impact that maquila exports have had on total wages (Puyana and Romero, 2006b:35).

*Maquila* exports faced fierce competition from China and many other countries in Central America and Asia. During the past several years, many factories have been transferred to China, which suggests that Mexico has lost its “absolute comparative advantage”, i.e. shorter distance and lower transport costs. (See Horbath, 2007 for a detailed discussion of the effects of the China-*Maquila* exports on Mexico). Apparel and textiles have been in crisis since the beginning of the first decade of the 21st century. Import content has increased substantially and with it national value added and employment, contributing to the decline in employment in manufactures. China and other low-wage countries have pushed Mexico.

How much the most dynamic branches of the manufacturing sector (automotive, machinery and electronics) have contributed to the

modernization of the Mexican economy is an open question. The fact is that industrialization has not progressed so far as to reach the participation in GDP and employment that the Mexican level of development would require. Those sectors, despite their modernity, have not created the necessary linkages with the rest of the economy, and they are not establishing the centres to develop science and technology. In the three most important branches of *maquila* activity, the national content of production has declined since the 1980s (Puyana and Romero, 2007).

#### 4.2.5 The official responses

The thrust of the economic policy followed by the three last governments has been the implementation of structural reforms and the effort to guarantee macroeconomic, monetary and exchange stability, all guided by the principal objective to control inflation. That could be one of the reasons behind the high imported content of the economy and especially of the manufacturing sector.

In relation to manufacturing, the Mexican authorities continue the assumption that the best sectoral policy is no policy at all. The actions to define the allocations of resources are mainly the tariff and trade agreements. There are some programmes oriented towards the small and medium companies, which do not apply any sectoral selection. Those programmes deserve detailed evaluation in order to be continued and broadened to support the integration of value added and the growth of productivity of small and medium firms.<sup>19</sup>

Nevertheless, some programmes at the *Secretaría de Economía* have tempered that sectoral neutrality, e.g. *Programas de Competitividad*, which is oriented to increasing the productivity and competitive capacity of particular activities, namely, software, electronics, textiles and leather products.

## 5. CHANGES IN THE LABOUR MARKET

### 5.1 An Equilibrated Labour Market?

The study undertaken by this author found some important changes in the labour market: first, the increased rate of participation, especially of female workers, and higher unemployment rates between young people; second, the growth of informal employment, third, the increased supply of better qualified workers and last but not least, the labour market adjusts to the changes in economic activity by reducing income rather than unemployment. Nevertheless, in each crisis, unemployment tends to be higher and remains higher during growth periods. With the 1982 crisis, unemployment grew to 6.2 percent, and with the recovery it decreased to 2.7 percent in 1992-93. The crisis of 1994-95 inflicted a heavy toll on employment and the growth after it pushed unemployment down to 3.4 percent. With the 2008-09 crisis unemployment grew to 6.8 percent and the annualized unemployment rate for 2010 is calculated to reach 5 percent. The jobless growth seems to manifest in Mexico as an increasing “natural” rate of unemployment of around 5 percent, compared with 4.4 for the 1980-2003 period. During the growth spells (2003-07), unemployment remained relatively high: 5.1 percent of the economically active population.

#### 5.1.1 High participation rate and “feminization of labour force”

Due to the lack of unemployment insurance, Mexican unemployed have to find work of any kind, mainly in the informal sector, i.e. employment with no contracts and without social security. The rate of open unemployment in Mexico is thus small and often negligible: the economically active population (EAP) and the occupied labour force (OLF) are almost identical. This is why the recent evolution of the Mexican economy has been characterized

by rates of unemployment that border on 3 percent annually, close to the “natural” unemployment rate. Such a low unemployment rate would suggest that the labour market was highly tensioned and that any increase in the growth rate of the economy would induce inflationary wage pressures or demand significant increases in productivity. As has been seen, productivity has stagnated and real wages have declined. All this suggests that the labour market does not show any tensions and the low “open” unemployment rates hide the precarious employment of the booming informal sector.

The rate of participation, however, has increased and, in the absence of relevant productivity growth, this larger participation rate explains in major proportion the growth of total GDP. It is generally accepted that when income is falling (due to decreasing real wages of rising unemployment) the rate of participation may grow. This seems to be the case in Mexico, as shown in Table 12. The highest participation (59 percent) was registered in 2008. Male participation grew moderately, by 3 percentage points in the 16 years comprised from 1989 to 2006, while the participation rate of female labour grew by 14 percentage points, but still remains lower than male participation. After 2006, the year with the highest male and female participation, the rate started to decline. What is surprising and deserves a closer analysis is the increase in the rate of female participation of more mature women, primarily those older than 50 years. The participation of males older than 50 is also very high. The lack of social security is forcing elderly people to remain at work after retirement age and many others to enter the labour market for the first time. Workers at that age, however, will confront very hard working conditions, particularly if they are new entrants.

Table 12. Rate of Participation in the Labour Force 1989-2010 (in percentages)

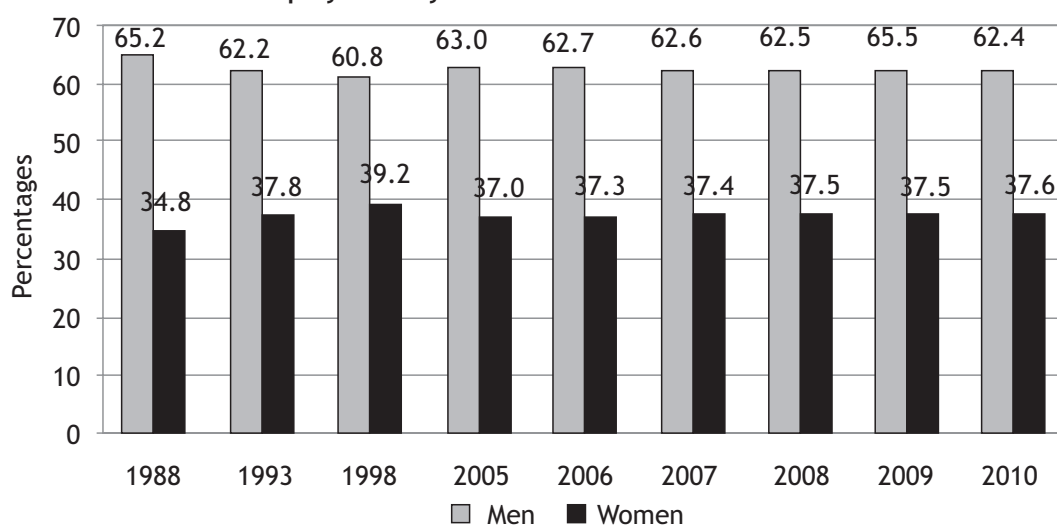
Year	Total	Age									
		Male					Female				
		Total	15-24	25-34	35-49	50-more	Total	15-24	25-34	35-49	50-more
1989	54	79	64	94	94	73	30	26	38	35	21
1994	57	82	71	96	94	73	36	32	44	43	25
1996	58	82	68	95	94	74	40	35	47	49	28
1998	59	82	68	94	94	73	41	37	48	48	31
2002	57	81	65	94	95	75	43	34	51	54	32
2004	58	82	65	97	97	72	43	35	52	55	30
2005	57	81	63	96	97	73	44	35	54	56	33
2006	58	82	65	97	97	75	48	38	59	61	37
2008	59	81	65	96	97	71	45	36	55	58	32
2009	58	77	ND	ND	ND	ND	41	ND	ND	ND	ND
2010	58	77	ND	ND	ND	ND	42	ND	ND	ND	ND

CEPAL, *Panorama Social de America Latina*, (2009), Anexo: Table 15. INEGI, ENOE for 2009 y 2010

Figure 21 presents the continued process of feminization of the occupied labour force during the post-reform period. The incorporation

of female workers has contributed to the expansion of the most dynamic segment of export activity: the maquila, as will be seen.

Figure 21. Structure of Employment by Gender 1988-2010



Source: Author's elaboration based on INEGI, Dirección General de Contabilidad Nacional y Estadísticas Económicas, obtained from [inegi.gob.mx](http://inegi.gob.mx)

In 2003 the number of working women in the *maquila* sector amounted to 300,000; male workers numbered some 350,000. In making the calculations, it was not possible to confirm the "masculinization" of *maquila* employment; on the contrary, the ratio of female to male *maquila* workers rose from 1:1 in 1990 to 1:4 in 2003. What was observed, however, was the prevalence of male employees in directive and administrative jobs. In 2003, the ratio of female to male personnel in directive and

administrative jobs was 0:7, indicating perhaps the existence of a so-called glass ceiling.

Several reasons could explain the prevalence of female employment in *maquila* at the workshop level. One is the pressure to increase the amount of goods to be exported in an environment of constant and dynamic change in consumer preferences. Another reason is the need to have highly flexible methods of production and adaptable workers. Women,

especially younger ones, have less negotiating power than males (Bridge, 2006:2).

Another important change is the high rate of unemployment among young people, which nearly duplicates the total rate. New entrants to the labour market are over-represented in precarious and low-income employment. This evolution could be linked to the growth in the share of micro and small firms in the total commercial establishment. Their share in total employment grew from 15 percent to 18 percent between 1990 and 2003 (Berg, Ernst and Peter, 2006).

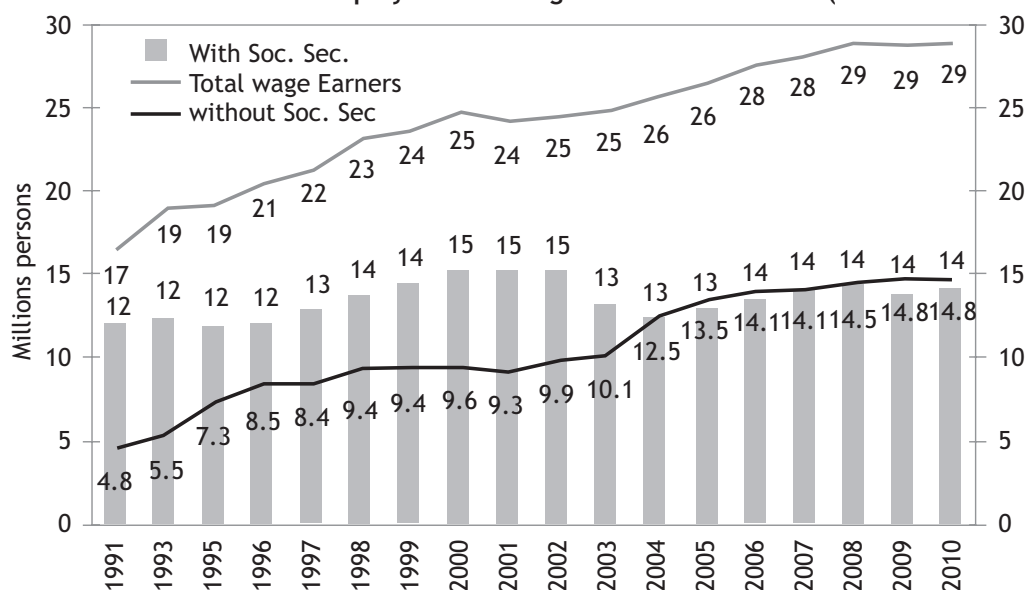
### 5.1.2 Towards informal employment

During 1994-2000, the rhythm of formal employment growth was slower than in 1984-93. The result is that new workers who join

the labour market year after year find jobs in the informal sector or in tertiary activities of lower productivity and poor salaries, such as transports, trade and construction (Figure 22).

The precariousness of employment in Mexico is illustrated by, among other indicators, the so-called rate of partial or out-of-work employment, which comprises some 7.4 percent of the EAP working less than 15 hours a week, while those who work more than 35 hours per week and earn less than the minimum wage covers 15.7 percent of the EAP. This structure shows no less serious results in wages. In 2004, 38 percent of the total workers employed in the labour force received less than minimum wages, i.e. USD 8.00 a day and, in rural areas, this was the level of income for 48 percent of the employed rural population.

**Figure 22. Formal and Informal Employment of Wage Earners 1991-2010 (Millions of Persons)**



Source: *Secretaría de Trabajo y Previsión Social, 2003 and 2010.*

One aspect to note is the changes in occupation in activities with lower productivity: while the number of men declines, women are increasingly engaged in low productivity jobs. In 2005, 43 percent of men and 49 percent of women participated in jobs with low productivity<sup>20</sup> (CEPAL, 2006, Tables 21, 21a and 21b).

### 5.1.3 Better educated labour force

The Mexican labour force is today more educated than ten years ago. Investments in

education, especially in primary and tertiary education, have been large despite the adjustment policies. While the EAP with less than 5 years of education fell from 21.7 percent of the total EAP, those with more than 13 years of education increased from 15 percent to 22 percent. Despite the effort, however, Mexico still lags behind Argentina, Colombia and Chile, but it is far better in this respect than Brazil (Table 13). One of the factors that contributes to the differences in growth between Chile and Mexico is precisely the structure of the labour force by levels of education, Puyana (2010).

Table 13. Composition of EAP by Level of Education 1990-2004

	Argentina			Colombia			Brazil			Chile			Mexico		
	1990	2004	2006	1990	2002	2008	1990	2003	2008	1990	2003	2006	1990	2004	2008
0 to 5 years of education	13.1	6.3	6.1	28.4	29.6	25.5	47.5	33.2	25.8	12.9	7.5	7.6	21.7	14.3	12.2
6 to 9 years of education	34.5	34.2	31.9	28.2	19.1	19.1	24.3	24.3	22.4	26.9	19.9	19.2	50.4	42.8	41.6
10 to 12 years of education	34.5	32.8	33.1	26.9	29.9	28.5	18.4	30.3	36.3	36.5	44.0	45.5	13.2	20.8	23.4
13 or more years of education	17.9	26.7	29.0	16.5	21.4	26.9	9.8	12.1	15.4	23.8	28.5	27.7	14.6	22.1	22.8
Unemployment	7.3	15.6	9.5	10.2	14.2	11.7	3.7	9.7	7.9	5.7	7.4	6.0	2.7	3.0	4.0

EAP\*: Total employee working force

Source: CEPAL Panorama social de América Latina 2009, and World Development Indicators, <http://databank.worldbank.org/>



## 5.2 Declining Real Wages

The minimum wage has been systematically eroded from its record level of 1993-94. From 1995 to September 2006, it lost 25 percent of its value (Table 14). Wages in manufacturing descended 12 percent from their record level of 1993, and remunerations in commerce followed a similar path. *Maquila* sector wages did well, however, as they registered an increase of 8 percent.

Wages in manufacturing slightly recovered from 1990-93 to sharply fall then again rise to the 1994 level. It is interesting that despite the low increases in productivity, wages in *maquila* followed a similar trend but had a stronger recovery. *Maquila* and construction are the only sectors that registered higher wages in 2006 than in 1994. In 2009, all real wages except in the manufacturing sector contracted. The reason for the trajectory is not clear.

Table 14. Real Daily Wages per Worker (Constant 1994 pesos)

Period	Minimum wage	Manufact,	M aquila*	Construc,	Commerce
1990	16,6	38,1	52,8	31,1	ND
1991	15,5	39,0	51,8	32,7	ND
1992	14,2	40,6	52,7	34,4	ND
1993	14,0	43,6	52,6	36,7	ND
1994	14,0	48,1	54,1	38,8	44,2
1995	12,2	40,9	50,7	31,2	36,7
1996	11,2	36,4	47,9	25,9	32,7
1997	11,1	35,6	48,9	25,1	32,4
1998	11,2	36,3	50,9	26,5	33,2
1999	10,8	36,7	52,0	27,1	32,9
2000	10,8	39,6	54,1	29,3	35,1
2001	10,9	42,5	59,2	31,1	37,0
2002	11,0	44,3	62,5	32,3	38,1
2003	11,0	45,1	62,5	33,8	38,4
2004	11,0	45,8	62,2	35,4	39,3
2005	11,1	46,8	62,6	36,7	40,5
2006	11,1	47,6	63,0	37,5	41,3
2007	11,0	48,0		37,6	41,4
2008	10,9	48,7		37,4	41,3
2009	11,0	49,5		36,6	41,6

Programme ended in 2006

Source: 1990-1997, 5to. Presidencia de la República, Informe de Gobierno, 1999; 1998-2009, Estadísticas laborales, STyPS

The reduction in wages was not a problem related exclusively to the informal sector. In effect, the labour earnings perceived by workers inscribed to the social security system also registered losses during the entire period 1994-2002. Salaries grew only for workers in electricity and

water supply. The largest losses went, in the first place, to business and personal services and construction, the two activities that registered the biggest increases in employment and, in the second place, to agriculture, the sector with intensive job losses (Table 15).

Table 15. Average Real Daily Wages Reported to the Social Security System

	1994 pesos daily constants										Change	Change
	1994	1995	1996	1998	2000	2002	2004	2004	2008	2009	* (%)	** (%)
Total	49,6	41,9	37,3	37,3	40,0	43,9	45,6	47,0	47,1	47,4	-0,1	-4,5
Agriculture and Livestock	29,8	24,6	21,6	22,0	23,4	25,9	27,1	26,8	26,3	26,2	-0,6	-12,1
Mining	48,6	41,7	37,8	38,6	41,8	46,9	49,9	58,2	63,2	69,8	2,7	43,8
Manufact.	48,1	40,9	36,4	36,3	39,6	44,3	45,8	47,6	48,7	49,5	0,4	2,9
Construct.	38,8	31,2	25,9	26,5	29,3	32,3	35,4	37,5	37,4	36,6	-0,1	-5,9
Electricity and Water Supply	81,0	70,4	64,5	65,7	74,0	87,7	95,4	101,9	105,3	106,7	2,0	31,7
Commerce	44,2	36,7	32,7	33,2	35,1	38,1	39,3	41,3	41,3	41,6	-0,2	-6,0
Transport and Communication	65,0	54,3	50,3	51,0	54,3	57,4	60,5	61,7	60,2	60,5	-0,3	-7,0
Personal Services	56,9	48,1	42,5	42,0	43,8	46,4	47,1	48,0	47,4	47,2	-1,1	-17,0
Social Services	45,6	38,8	34,1	35,3	38,7	43,7	48,0	49,9	50,2	51,1	1,0	11,9

\* Annual average rate

\*\* Accumulated change rate

Source: Author's elaboration based on *Estadísticas Laborales*, *Secretaría de Trabajo y Seguridad Social*

Wage gender discrimination has not changed significantly during recent years and remains severe. For example, in multiples of the poverty line, the average wage of female workers was equal to 3 times the poverty line, well below wages for male workers, which was 5.3 times the poverty line. In low productivity activities, as defined by CEPAL in the *Panorama Social*,<sup>21</sup> the gap is equally broad: female workers gained up to 2.2 poverty lines while males gained 4.2 (CEPAL, 2006, *Anexo Estadístico*, Tables 21, 21.1 and 21.2).

The evolution of wages for each of the education categories illustrated in Table 16 shows a negative trend in all types of labour, but more intense in the first and fifth categories. The average wages for qualified labour (Categories L4 and L5) fell at a rate of 1.4 percent and 1.5 percent, respectively, considerably faster than categories L1, L2 and L3, which are the largest.

Table 16. Real Average Wage by Type of Work (constant 1990 pesos)

Type of Labour	1991	1993	1995	1996	1997	1998	1999	2000	Rate of growth*
L0	252	188	197	190	184	190	219	206	-2.3%
L1	336	325	308	278	261	276	272	315	-0.7%
L2	990	1148	953	793	713	784	787	899	-1.1%
L3	1251	1398	1345	993	984	1036	1036	1153	-0.9%
L4	2151	2227	1967	1588	1636	1627	1626	1900	-1.4%
L5	2386	2426	2154	1855	1954	1955	2195	2077	-1.5%
Total	474	498	471	409	397	420	419	490	0.4%

\*Geometric annual growth rate: 1991-2000

L0: No schooling. L1: From 1 to 6 years of schooling (Primary). L2: From 7 to 9 years of schooling (end of Secondary) + Technical training I (Primary required) finished or not. L3: From 10 to 12 years of schooling (High school or 6th form College) + Technical II (Secondary required), finished or not. L4: One or more years of university studies + Technical III (High school required) finished or not. L5: One or more years of post-graduate studies, Master's, Ph.D., etc.

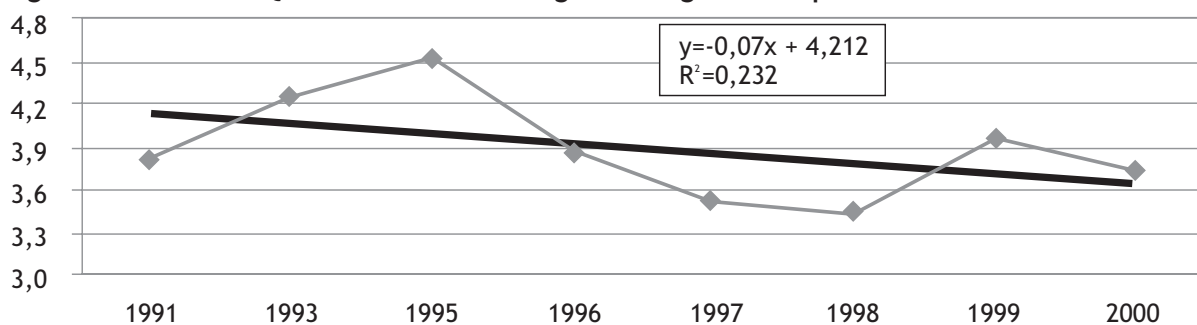
Source: Secretariat of Labour and Social Welfare, National Employment Survey (several years)

What is disappointing about these results is that the stagnation of average wages and the consequent reduction of the labour share in added value took place in spite of the improved conditions in the educational level of the labour force (as discussed in 5.1.3 and shown in Table 13 above).

It therefore appears that the supply of qualified labour expanded faster than the demand. From the above, it can be deduced that the inequality in wages, far from improving as a result of the better education of the work force, has tended to decrease in a perverse

way, as shown by the falling trend of the quotient obtained by dividing the average income of the qualified workers by the average incomes of the unqualified workers. Figure 23 illustrates the regression between the wages of qualified and unqualified workers for 72 economic activities for the period 1990-2002, which indicates the inverse relationship between the two incomes.<sup>22</sup> The value of the standard deviation has tended to decline over recent years because of the larger negative value in the growth rate of wages of qualified labour (as shown in Table 16 above).

Figure 23. Ratio of Qualified Workers' Wages to Wages of Unqualified Workers



Source: Secretariat of Labour and Social Welfare, National Employment Survey (several years)

The path followed by the labour market - which, in this writer's opinion, is the one that took the main burden of the adjustment and of the global financial crisis - has led to important changes in the structure of income of the working force, which runs parallel with the deterioration of real wages. The most important change is the growth of workers receiving from two to five minimum wages

(Table 17). The number of workers without income decreased from 2000 to 2010 but it was larger in the more recent years than it was in 1995.

Although the proportion of workers gaining up to two minimum wages has decreased substantially, so have real wages. Therefore, the improvement in purchasing power and of

wages may be smaller. In real terms and in dollar terms, minimum wages in 2010 are 51 percent below the value of 1995.

Control of inflation has been the first aim of monetary, fiscal and exchange policies. Restrictive monetary policy and overvaluation of the peso induced the revaluation of the real exchange rate and a massive inflow of imports. The effect of this is the substitution of domestic production, domestic value added

and employment, by imports. The end result is the increased income elasticity of imports and the intensification of the external constraints limiting the potential growth of the economy. With an import elasticity of GDP near 3.5 percent, the economy cannot grow above 1.7 percent without increasing the deficit in the current account. But in order to incorporate all the annual increases of the labour force, it has to grow at least at 6 percent (Romero, 2002:90).

**Table 17. Structure of Labour by Level of Income 1995-2010 (Percentages of total employment)**

	1995	2000	2004	2009	2010
< of 1 minimum wage	19.1	16.0	15.5	13.0	13.3
of 1 up 2 minimum wage	31.0	28.6	22.7	22.2	23.7
> of 2 up to 5 minimum wages	14.4	31.6	38.0	48.2	47.0
> of 5 minimum wages	9.5	10.3	10.8	10.7	8.8
Without income	5.0	10.6	8.5	8.3	7.8
Not specified	2.1	2.9	4.5	8.3	8.1
Minimum wage US\$ 2002	6.3	4.1	3.5	3.0	3.1

Source: Author's calculations based on INEGI, *Encuesta de Ingresos y Gasto De los Hogares*, obtained from [inegi.gob.mx](http://inegi.gob.mx)

Parallel to the restrictive monetary policy and revaluation of the peso, the government drastically reduced its investments to near 2 percent of GDP. At the level of development of Mexico, public investment should represent at least 10 percent

of GDP to activate private investments and propel economic growth. Low public investments may be one of the reasons for the stagnating capital per worker and the low growth in productivity (Ishan and Kaufman, 1995).

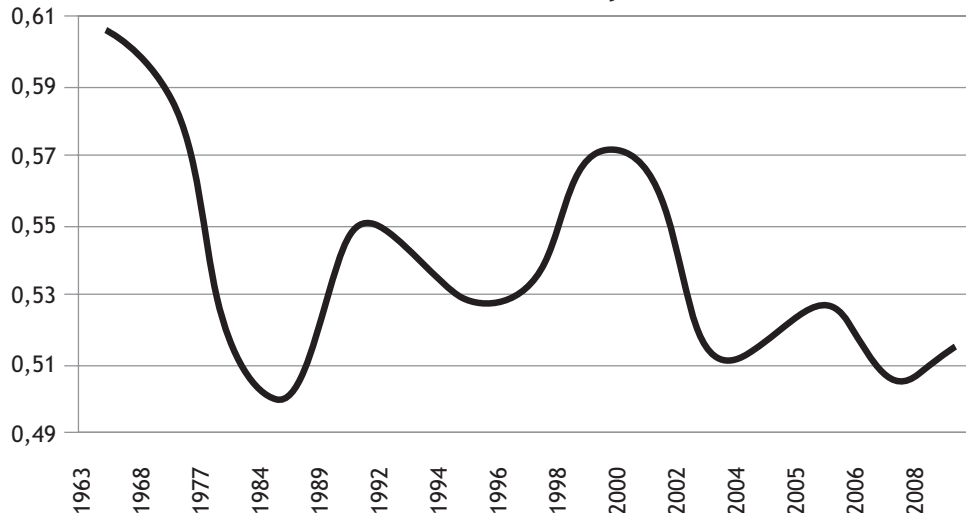
## 6. THE EFFECTS ON INCOME DISTRIBUTION

### 6.1 The Changing Patterns of Income Concentration

The question to be asked is to what effects have the observed trajectories of the economy and the labour market inflicted upon the incomes of the population.

After constant improvement during 1960-80, measured by the Gini coefficient, the distribution of income deteriorated from 1983 to 1992. From 1992 onward, however, the Gini coefficient shows - with ups and downs - a significant improvement (Figure 24).

Figure 24. Evolution of Income Concentration Measured by the Gini Coefficient 1960-2009



Source: for year 1963 to 2000, Hernández Laos, 2005 and for 2000 -2008 ECLAC, Panorama Social de América Latina, 2009.

Table 18 shows the evolution of the distribution of income. During the NAFTA period (1993-2008), national monetary income per household decreased, from 8.1 to 6.0 thousand constant 1993 pesos. In rural areas, household income decreased from 3.7 to 3.1 thousand constant 1993 pesos. The most acute deterioration

of income was registered among the most impoverished rural and national households belonging to the deciles I, II and III, where it reached 46, 31 and 28 percent of income, respectively. This loss was larger than that of the deciles VII to IX, which by no means was small since this was above 25 percent.

Table 18. Monetary Real Income by Household 1992-2008 (by deciles)

	TOTAL NATIONAL					TOTAL RURAL				
	Constant 1994 pesos			Growth rates		Constant 1994 pesos			Growth rates	
	1992	2005	2008	AARC*	2008/93	1992	2005	2008	AARC*	2008/93
<b>Total</b>	<b>8098</b>	<b>5986</b>	<b>6289</b>	<b>-1.4</b>	<b>-22.3</b>	<b>3708</b>	<b>3139</b>	<b>3132</b>	<b>-1.0</b>	<b>-15.5</b>
I	1256	657	854	-2.0	-32.0	1213	634	825	-2.0	-32.0
II	2214	1513	1650	-1.6	-25.5	2177	1507	1660	-1.5	-23.7
III	2996	2174	2281	-1.5	-23.9	2992	2164	2261	-1.5	-24.4
IV	3802	2806	2897	-1.5	-23.8	3769	2811	2984	-1.3	-20.8
V	4647	3503	3609	-1.4	-22.3	4659	3490	3734	-1.2	-19.9
VI	5760	4310	4531	-1.3	-21.3	5789	4278	4602	-1.3	-20.5
VII	7222	5396	5735	-1.3	-20.6	7173	5400	6037	-1.0	-15.8
VIII	9210	7003	7301	-1.3	-20.7	9283	6947	7622	-1.1	-17.9
IX	12969	9657	10434	-1.2	-19.6	12284	9575	10583	-0.9	-13.9
X	30899	22842	23593	-1.5	-23.6	26318	18824	21471	-1.2	-18.4

\* Average annual rate of change

Source: INEGI, Encuesta Nacional de Ingresos y Gastos de los Hogares, 1992 and 2008

## 6.2 The Urban-Rural Divide

The first element to consider is that Mexico today is a highly urbanized society with more than 80 percent of its inhabitants living in urban areas. Urbanization and the decline of agriculture as a source of GDP changed the distribution of total income: In 1989, rural income represented 20 percent of total income and less than 13 percent in 2010.

Table 19 shows the evolution of income distribution by deciles that are graphically illustrated by the Gini coefficient in Figure 23. There are, however, distinctive trends in the evolution of the income structure of rural and urban households, and a different tendency during 1989-94 and 1994-

2004, especially in rural incomes. We added the results obtained for 2008, which somehow reversed some of the previous results suggesting reduction of inequality.

As can be seen, the distribution of urban incomes by deciles has changed. At the national level, the two first deciles and the X decile lost share of income. That trend was caused mainly by the sharp decreases in rural incomes, where only the IX and the X deciles increased participation in income. Urban incomes become less unequal with important losses in the richest decile. While, in 2008 a 7 percent of rural income went to households in the poorest decile, only 0.6 percent of the urban income is accumulated by the same households.

**Table 19. Structure of Rural Income by Deciles of Population 1989-2008 (in percentages)**

DECILE	Total					Urban				
	1989	1994	2004	2008	Growth	1989	1994	2004	2008	Growth
	Percentual Participation				94/08%	Percentual Participation				94/08%
I	1,58	1,5	1,64	1,34	-15,93	0,56	0,62	0,62	0,66	6,00
II	2,81	2,76	2,91	2,63	-4,82	1,40	1,63	1,79	1,72	5,66
III	3,74	3,67	3,90	3,67	0,15	2,53	2,67	3,03	2,91	9,09
IV	4,73	4,64	4,92	4,72	1,90	4,34	3,90	4,39	4,17	7,10
V	5,90	5,68	6,12	5,88	3,61	4,70	5,15	5,63	5,47	6,22
VI	7,29	7,06	7,43	7,30	3,41	6,57	6,48	7,24	7,04	8,62
VII	8,98	8,74	9,25	9,17	4,97	8,34	8,75	9,48	9,11	4,09
VIII	11,42	11,34	11,86	11,75	3,55	11,40	11,44	12,37	11,94	4,35
IX	15,63	16,42	16,42	16,28	1,04	16,53	16,99	17,74	17,02	0,19
X	37,93	35,56	35,56	37,26	-3,01	44,32	42,37	37,70	39,96	-5,70

DECILE	Rural				
	1989	1994	2004	2008	Growth
	Percentual Participation				94/08%
I	5,58	9,46	8,56	7,50	-20,80
II	8,30	11,95	10,53	10,85	-9,22
III	8,45	11,78	9,81	10,59	-10,13
IV	8,90	10,63	8,54	9,72	-8,64
V	10,61	9,94	9,42	9,59	-3,48
VI	10,07	11,76	8,74	9,67	-17,75
VII	11,50	8,61	7,67	9,72	12,90
VIII	11,50	10,52	8,38	9,97	-5,24
IX	12,10	8,97	7,41	9,51	6,10
X	13,00	6,38	20,94	12,8	101,97

Source: Author's calculations based on ENIGH, third quarters 1989 to 2008

The same tendency, although at a slower pace, was registered in deciles V, VII, VIII and IX. In the second period, 1994-2008, decile X recuperated what it had lost before and managed to increase its share, accounting for 21 percent of total rural income, while all the remaining deciles declined. Thus, in rural areas, incomes are lower and more concentrated than in urban areas. The 2008 *Encuesta de Ingreso y Gasto de los Hogares* shows that the X decile regained its traditional share of total income of about 12 percent, similar to 1989.

This result coincides with those reached by Ingco and Nash, (2004) and Polasky (2004 and 2006), who identified the lower four deciles of rural population as the major losers of the liberalization of agricultural foreign trade. A World Bank study arrived at similar results, suggesting that Mexican agriculture is a net loser from liberalization with losses near USD 300 million (Anderson, Martin. and van der Mensbrugghe, 2006, Table 2.14), partially offsetting eventual gains from liberalization in manufacturing (Polaski, 2006:29; CONEVAL, 2009).

An increasing proportion of the income of the poorest rural population comes from rural activities that are not, properly speaking, of farming character, as well as from remittances from abroad and transferences from programmes such as PROCAMPO and *Oportunidades*. Despite this, the total income of more than 30 percent of the population does not exceed the extreme poverty line. Two factors may worsen rural income in the near future: the contraction of remittances and

the devaluation of cash transfers stipulated in minimum wages.

### 6.3 Has Poverty Decreased?

The dynamics of income described here must be seen in a context already characterized by lower income levels and a higher incidence of poverty and inequality in rural than in urban areas. As shown in Tables 18 and 19, rural incomes are lower than urban incomes, and the gap within groups is more severe in rural areas. For example, the total average of all rural households represents only 50 percent of urban income and the income of a rural household belonging to the upper decile equals 85 percent of the urban one. What is even more significant is that in rural areas there were in 2008 only 103,883 households belonging to the top decile, while in urban areas there were almost 2.6 million.

From a longer-term perspective, it is possible to suggest that in Mexico, as elsewhere in Latin America, poverty and inequality are protracted problems that have proved difficult to overcome. In 2008, at the country level, 34.8 percent of all households fell under moderate poverty, an incidence similar to the level registered in 1970. Extreme poverty followed a similar trend (Table 20). The households survey published in 2009 shows that during 2005-08 poverty increased and eliminated the gains obtained from 2004-06. In absolute numbers, total poverty increased in 6.2 million people and extreme poverty in 5.1 million persons (CONEVAL, 2009). Since this worsening of social conditions took place before the full impact of the crisis, it is reasonable to expect a further decline in well-being.

Table 20. Households Under Moderate and Extreme Poverty 1970-2008 (in percentages)

Año	Pobreza			Pobreza Extrema		
	Total	Urbana	Rural	Total	Urbana	Rural
1970	34	20	49	12	6	18
1984	24	28	45	11	7	20
1989	47,7	42,1	56,7	18,7	13,1	27,9
1994	45,1	36,8	56,5	16,8	9	27,5
1996	52,9	46,1	62,8	22	14,3	33
1998	46,9	38,9	58,5	18,5	9,7	31,1
2000	41,1	32,3	54,7	15,2	6,6	28,5
2002	39,4	32,2	51,2	12,6	6,9	21,9
2004	37	32,6	44,1	11,7	7	19,3
2005	35,5	28,5	47,5	11,7	5,8	21,7
2006	31,7	26,8	40,1	8,7	4,4	16,1
2008	34,8	29,2	44,6	11,2	6,4	19,8

Source: Author's calculations based on ENIGH, third quarters 1989, 1992, 1994, 1996, 1998, 2000 and 2008 and ECLAC, *Panorama Social 2009*.

hus, for example, 44.6 percent of the rural population lives in conditions of moderate poverty compared with 29 percent in the urban sector. Extreme poverty affects 20 percent of the rural and only 6.4 percent of the urban population (Table 20). It follows from this that 66 percent of the rural population is poor. While in 2002, moderate urban poverty was higher than in 1970, moderate rural poverty was considerably lower, and the opposite trend was observed for the incidence of extreme rural poverty, which grew larger, during the same period.

The urbanization process has changed the absolute weight of rural and urban poverty. With a total of 21 million urban households compared with 5.5 million in rural areas, there were 5.1 million urban and 2.6 million rural households living in conditions of moderated poverty. As regards extreme poverty, the relation changes with a larger number, 1.3 million rural households living in extreme poverty compared with 0.9 million urban households. Due to lower average rural incomes, the poverty gap is larger and requires more resources to overcome.

## 6.4 Who Are the Losers?

### 6.4.1 The experiences in rural areas

In general, there is a consensus that the main losers from the process of reforms and liberalization of the Mexican economy are to be found among rural inhabitants. This is especially true for small and medium producers of importable goods, whose production costs are above international prices and productivity levels are under the average productivity in the main trading partner, i.e. the US. Several different studies have found similar conclusions, as have ex ante evaluations of the effects of the Doha Round.<sup>23</sup>

As mentioned in 6.3, total agricultural income declined since the early 1980s. At the same time, income concentration intensified, given that the income of the nine deciles of rural population was lower than in 1994 and that of the tenth decile grew by 228 percent during 1994-2002 (Puyana and Romero, 2005:183). In 2008, 61 percent of rural households gained only 28 percent of income, while the urban households gained 49 percent.



Ingco and Nash (2004) measured the effects of the opening of the agricultural and livestock sector on its producers, both proprietors and workers, and also on the urban population, taking into consideration in each case compensatory supports and transferences, such as PROCAMPO.

The 100 percent liberalization of basic grains, rice and oilseeds that is projected to be achieved in 2008 would cause the prices to Mexican producers to shrink by 30 percent and production to decline by 50 percent. On the contrary, the effects on the US would be positive in all cases and for all products (Ingco and Nash, 2004:151-194). Assuming a liberalization of 50 percent, the distribution of the effects to different economic subjects would render benefits for Mexican consumers and taxpayers of USD 1.064 million (in proportions of almost 50 percent for each group) and losses for farmers equivalent to USD 1.036 million. In this case, the net benefit for society would be USD 26 million (Ingco and Nash, 2004:158, Table 7.5). Polasky (2004:26-40 and 2006:21-38) reaches similar conclusions.

The 100 percent liberalization that Mexico has already implemented for many products, and which will apply to the entire universe of tariffs in 2008, induces benefits for taxpayers and consumers of USD 1.826 million, while losses for farmers are about USD 2035 million. Mexican society as a whole suffers welfare losses equivalent to USD 103 million (Ingco and Nash, 2004:158-160).

With total liberalization, reached in 2007, Mexican farmers belonging to the five deciles of lowest earnings are net losers of income. The loss oscillates between 7 percent (in the first decile) and 22 percent (for the second and third deciles). Rural consumers gain between 3 percent (for the first decile) and 1 percent (for deciles 3, 4 and 5). The net effect on the rural sector is negative with a variation between minus 4 percent (in the first decile) and 20 percent (in the second and third deciles). The non-agricultural sectors gain between 2 percent in the first decile and 1 percent in the four remaining deciles. The

biggest losers are the small and commercial producers, for whom income is reduced by 22 percent (Ingco and Nash, 2004:161, Table 7.5). An updated analysis of the losses accrued by farmers due to subsidies and another types of support provided by the US government found similar results (Wise, 2009).

The effects of the fall in prices of food products induced by liberalization have been discussed intensely, it often being stated that there are undeniable positive effects for urban consumers and for the rural poor who are net purchasers of foodstuffs. The affirmation that rural consumers and producers who sell part of their harvest, and are net purchasers of foodstuffs, gain by the fall in grain prices and that food price rises do not benefit them is not very well founded. Such affirmations are grounded on analysis of partial and static equilibrium and do not take into consideration the effects that are obtained when “other prices, relevant in terms of well-being, and the quantities, respond to changes in food prices” (De Gorter, et al., 2004; Puyana and Romero, 2009b).

By stimulating the production of foods and the demand for agricultural labour, high food prices can benefit the poor rural population, even those who are net food purchasers. This effect takes place via the response of wages. In order to fully understand the effect of the changes in food prices it is necessary to carry out a detailed analysis of the many different prices that affect the income of rural households. Detailed account of the elasticity of demand for labour and that of salaries with regard to food prices should be taken into account. It is reasonable to expect that higher food prices and more rural employment will increase rural demand for services, retail trade and infrastructure. In the light of these studies and considerations, the claim that a fall in basic grain prices is inevitably beneficial for the small rural producers who are net purchasers of foodstuffs becomes highly dubious if not simply mistaken.

Monthly income has deteriorated despite the strategies for survival developed by small

farmers in rain-fed areas. Work income of small, poor growers of corn fell by 19 percent during 1990-2000, even taking into account other incomes, such as transferences and remittances from abroad (Table 21). Wise (2009:17 Table 3) calculated the loses of corn producers, mainly small producers, at USD11.1 billion over the 1990-

2008 period resulting from the dumping margin on corn exports of about 25 percent. Brooks, Dyer et al. (2009) suggest that an equivalent increase in producer prices could stimulate production and improve corn producers' revenue by 6 percent, with more land dedicated to corn cultivation (Wise 2009: 24).

**Table 21. Summary Statistics for Families with Corn Farmers. In constant 1994 pesos**

Real Monthly Income	1992	1994	1996	1998	2000
Income from Work	221.57	228.14	209.99	174.43	179.98
Income from Profits	479.06	420.24	327.12	339.03	355.92
Income Other	21.93	6.62	10.9	10.32	13.11
Income from Transfers (Other)	102.19	143.43	175.7	145.97	206.64
Income from Transfers (Remittancas)	83.14	98.99	109.97	88.13	100.69
Observations	1,141,718	1,249,234	1,368,191	1,204,051	990.784

*Note: Consumption figures include corn purchases, corn produced for household's consumption and in-kind payments and gifts of corn. "Corn farmer" is defined as someone who reports that his/her primary occupation is the cultivation of corn and beans.*

*Source: ENIGH, 1992-2000; McMillan, Peterson Zwane and Ashraf (2005:234)*

Table 22 shows the income loss to corn growers, according to McMillan, Peterson Zwane and Ashraf (2005:234). In 2000, compared with 1991, corn growers were better educated (in 1991 corn farmers had 2.44 years of schooling and in 2000 the average years of schooling was 2.94), worked longer hours (40 hours in 2000 against 37.1 in 1991) and sold a larger proportion of their corn production (0.22 in 2000 up from

0.15 in 1999). Nevertheless, in 1994 pesos their income fell from MXN 516 in 1991 to MXN 206 in 2000 (equivalent to USD 261.48 per year).

The difference in years of schooling between all farmers and corn growers was reduced (the ratio was 1:14 in 1991 and fell to 1:10 in 2000). Nevertheless, the divergence in income grew wider from 1:1 in 1999 to 1:9 in 2000.

**Table 22. Means of Socio-Economic Characteristics of Rural Dwellers Across Time**

	Means of Socio-Economic Characteristics of Rural Dwellers Across Time							
	Panel C: All Farmers							
	1991	1993	1995	1996	1997	1998	1999	2000
# Observations	2258	2241	2596	10420	2504	9888	7011	8703
Real Income (1994 Pesos)	582.81	480.74	515.13	450.81	447.93	415.38	389.37	394.7
Age	46.56	47.67	46.79	47.11	48.82	48.2	47.98	48.5
Years of Schooling	2.78	2.63	3.05	3.34	3.54	3.38	3.48	3.46
Hours Worked	37.96	37.02	40.36	43.87	45.27	41.34	44.5	40.87
Total Land (in ha)	7.1	6.21	5.91	7	5.63	6.63	6.95	5.59
Corn Occupation	0.62	0.46	0.64	0.59	0.6	0.6	0.61	0.54
Corn Subsistence	0.81	0.82	0.8	0.76	0.72	0.78	0.75	0.73
Corn Selling	0.12	0.12	0.14	0.2	0.22	0.19	0.18	0.16

Table 22. *Continued*

Means of Socio-Economic Characteristics of Rural Dwellers Across Time								
Panel D: All Corn Farmers								
	1991	1993	1995	1996	1997	1998	1999	2000
# Observations	1420	1.003	1.628	6.047	1.481	6.017	4.185	4.900
Real Income (1994 Pesos)	516.81	349.63	277.89	267.68	270.01	256.84	207.64	206.35
Age	47.85	48.73	47.35	47.58	50.11	48.97	48.5	49.23
Years of Schooling	2.44	2.22	2.62	2.79	2.93	2.79	2.98	2.94
Hours Worked	37.11	36.09	39.66	43.93	45.7	41.05	45.23	40.18
Total Land (in ha)	6.25	3.85	4.09	4.4	4.16	4.94	4.09	3.9
Corn Occupation	1	1	1	1	1	1	1	1
Corn Subsistence	0.86	0.9	0.91	0.85	0.84	0.9	0.87	0.88
Corn Selling	0.15	0.16	0.16	0.25	0.27	0.23	0.24	0.22

*Note: Farmer is defined as someone who takes part in agricultural activities and owns, occupies, or rents as opposed to agricultural labourer). Corn farmer is defined as a farmer who identifies his primary as the cultivation of corn and beans. Corn subsistence is the percent of farmers who respond that their primary crop for subsistence is maize and Corn selling is the percent of farmers who respond that their main crop for selling is corn.*  
*Source: ENE 1991-2000; McMillan, Peterson Zwane and Ashraf (2005:234)*  
*Medians are not reported because they are virtually identical to means*

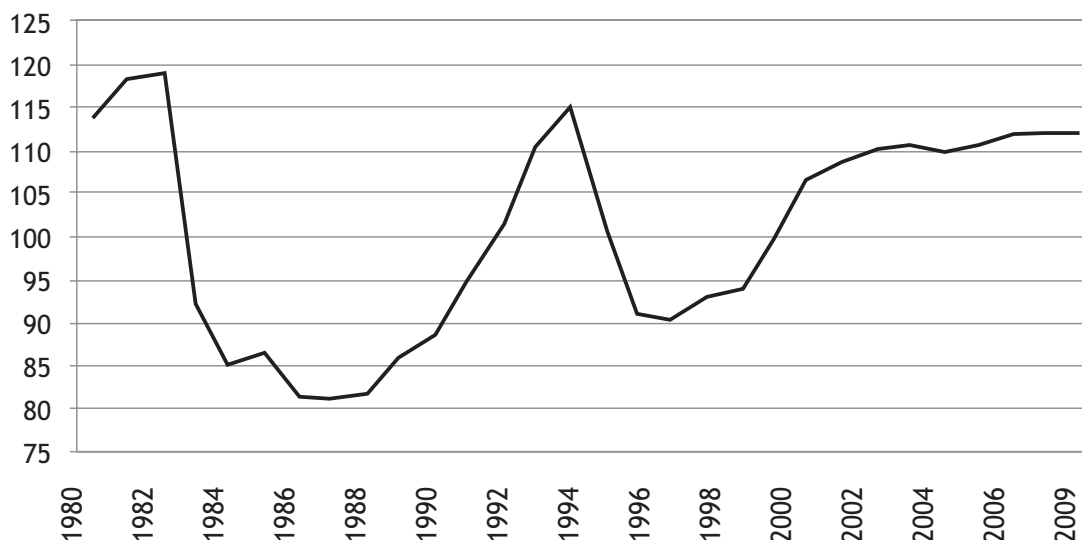
#### 6.4.2 The urban area losses

There is not as much systematic analysis of the losses for urban sectors. Several factors could explain why more attention was paid to analyzing the losses in the agricultural sector. The industrial sector has emerged as a net winner, mainly for the formidable growth of Mexican manufactured exports to the US. Multilateral institutions were deeply preoccupied with the outcomes of the Doha negotiations, as well as with the Free Trade Area of the Americas (FTAA) negotiations. In both arenas, conflicting interest around agriculture was one of the main reasons for

the insignificant advance made. Nevertheless, from the analysis presented in this report and the sources consulted, it is possible to suggest some of the main income effects of trade on urban economic sectors and actors. It bears repeating, however, that by no means is trade identified here as the unique cause.

First, small gains in productivity were found in the entire manufacturing sector, which means there is little room to increase salaries and profits. Medium average real wages did not increase compared with the levels registered in 1980 or 1994, as illustrated in Figure 25 (compare with Figure 17 above).

Figure 25. Real Average Wages in Manufacturing Sector 1980-2009



Source: Author's elaboration based on INEGI, *Encuesta Nacional de Ingresos y Gastos de los Hogares 1992 and 2010*

Non-*maquila* industrial workers were losers: during 1988-2004 their productivity grew considerably faster than in *maquila* and their real average salaries grew, but expanded at only 1.1 percent annually; total employment decreased as a percentage of total employment.

*Maquila* exporters and workers gained from liberalization and NAFTA, and *maquila* exports gained ground in the US market. Employment in *maquila* activities and salaries expanded and, in some years, increased faster than productivity, which could suggest a contraction in profit margins.

The evolution of wages presented above suggests that among workers within the formal sector, only those in electricity and water supply registered increases in averages (Table 15 above). On the other hand, when considering the evolution of wages of qualified and unqualified workers it was found that salaries decreased in all five educational categories. The loss of the higher qualified workers with university education was the second largest, after the loss of workers without any year of education.

Another indication of the worsening conditions urban workers confront is the ever growing share of informality as a proportion of occupied EAP and the low and declining long-term labour contracts.

### 6.5 Is Going North the Option?

Given the conditions described above, it is little wonder migration has increased despite all the hopes put on NAFTA. To slow down migration was an explicit objective of the accord. It was advocated on both sides of the border that, "NAFTA will allow us to export goods instead of persons". Migration constitutes an equilibrating mechanism of the labour market (Perry et al., 2006:156-154). During 1996-2007, net Mexican migration to the US grew from 294,000 to 324,000 persons to decline by 25 percent in 2009 as a result of the measures taken by the US government to control the border and the higher return of migrants to Mexico (Passel, 2009: 3).

In source countries, migration has two main effects. First, it reduces the supply of labour, preventing major deterioration in wages. Second, remittances complement household incomes, which help to reduce poverty incidence and maintain a certain level of consumption. A small proportion of remittances is saved or invested (CEPAL, 2006b).

Remittances constitute an indirect way to estimate the worsening of the economic conditions for Mexican workers, and from other Latin American countries, such as Colombia, Ecuador or El Salvador, as well as from all those countries in which remittances became

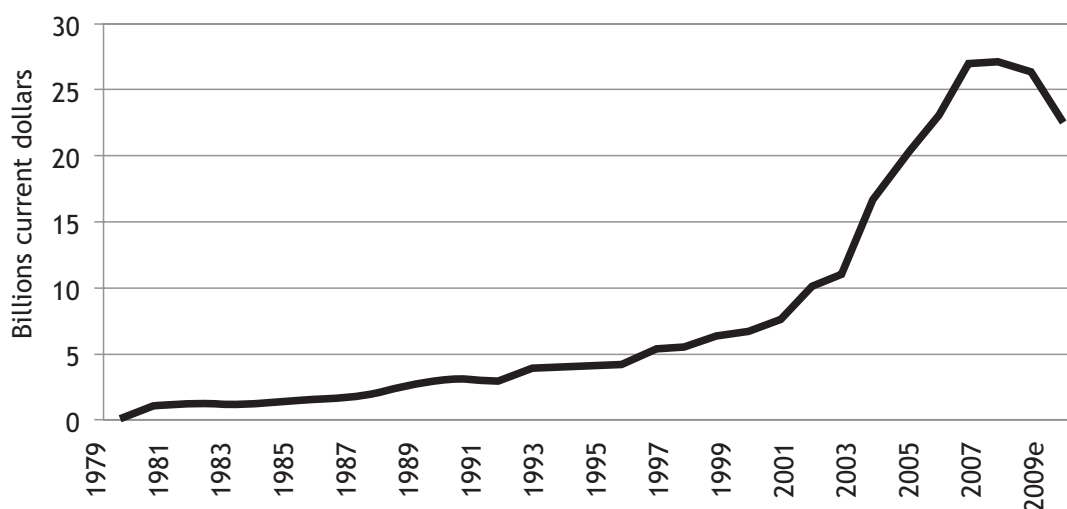
an important source of income (Papademetriou, 2004).

Increases in total remittances respond mainly to the growth of the number of migrants and, to a lesser extent, to better registration due to more generalized use of formal channels for transferring money. It is possible to assume that remittances per worker have remained constant; different reasons support that supposition as suggested by experts and data,<sup>24</sup> which use remittances to illustrate that since the inauguration of NAFTA, poverty

and inequality intensified and migration accelerated, as concluded by Papademetriou (2004:29), Taylor et al. (2005) and Yunez-Naude and Barceinas Paredes (2002).

Remittances started to spread out after 1980 and grew pari passu with the volume of migration and faster than total world and to Latin America remittances (World Bank, 2010a). Remittances expanded from USD 4 billion to USD 24.5 billion during 1995-2007, just to sharply decay in 2009 when Mexico received USD 22 billion dollars. Figure 26.

**Figure 26. Net Remittances from Mexicans in the US (USD Billions)**



Source: Based World Bank, (2010 a) "Remittances Inflows 2010"

Remittances are therefore, another casualty of the global financial crisis. From the record level reached in 2007, remittances fell 22.3 percent in 2009. Not clear signs of strong recovery emerged in the first quarter 2010, but the future trajectory depends on how strong the US recovery turns out to be. During the first quarter 2010, remittances fell by 12, 0 percent compared with the same period in 2009.

At its highest level, remittances represented 2.7 percent of total Mexican GDP and concentrated 43 percent of all remittances to Latin America. In 2009, these two proportions grew smaller to 4.0 percent and 2.4 percent respectively, suggesting perhaps that Mexican migrants are more vulnerable to the US employment downfall (World Bank, 2010b). Nevertheless, remittances fall less intensively than private credit, equity flows and FDI. There are several factors that may help to

explain that trajectory. Remittances are a small part of migrants' income and they do not stop sending even when their income falls. In addition, the anti-immigration atmosphere developing in the US and in Europe has caused migration to become longer or permanent; finally, the large fiscal stimulus packages developed in response to the financial crisis increased demand for labour and prevented further deterioration of migrants' income (World Bank, 2010b)

In Mexico, remittances influence macroeconomic policies. In 2009, remittances surpassed 4 percent in the oil and services exports and represented 8.8 percent of total exports. So, remittances increase the supply of foreign exchange and help to finance the policy of controlling inflation by over-valuing the peso. Over-valuation discriminates against tradable production, particularly production

intensive in employment (CEPAL, 2006b). Remittances can be a factor contributing to the Dutch disease effect in the same way as oil and other commodity windfalls, external aid or foreign financial flows.

Remittances helped to reduce poverty incidence, poverty levels and the concentration of income in Mexico and in other recipient countries in Latin America. Extreme poverty incidence was reduced by 1.3 percent and poverty by 1.3 percent. The Gini coefficient of income concentration is also reduced by 1.3 percent. The average monthly remittances received by 1.4 million households are USD 215, which represents 36 percent of their total monetary income. The number of households receiving remittances is relatively small, only 5.7 percent of total households, the majority of which are located in rural areas. In Mexico, nearly 78 percent of remittances goes to current consumption (food, apparel, electricity, health, etc.) and only 1 percent is invested.

## 6.6 The Official Responses

After the reforms, the government established several programmes to alleviate the effects of structural reforms on the lower income groups, all of them inspired by the strategies to create safety nets. Others were aimed at supporting agricultural producers of grains and other products that were expected to be replaced by imports. For the industrial sector, actions were oriented toward the small- and medium-size firms, programmes of active employment policies and *Programas de Competitividad*. The effects of these actions have been closely scrutinized and already integrated in the overall evaluation exercises mentioned in this report.

Mexico has been identified as one of the countries most affected by the global financial crisis and among these one with the mildest responses to it (ECLAC, 2009; OECD, 2010). Public investments were increased to 4 percent of GDP, but the primary fiscal surplus was kept in 2009-10 at 0.3 percent and 0.2 percent of GDP, respectively, and the budgetary deficit remained at 2.5 percent of GDP, a constant fi-

gure in the last decade (SHCP, 2010). Measures to alleviate unemployment are short-term training programmes and other non-active employment programmes. An unemployment benefit was created by the Mexico City government. The crisis reveals the fragility of social policy to economic downturns, inflation and fiscal deficits. Transferences are denominated in minimum wages and their real value falls at the same rhythm.

The Salinas government established the well-known *Solidaridad* programme, which evolved into the Zedillo administration's *Progresa* and was converted to *Oportunidades* by President Fox. These programmes are examples of well-focused actions that constitute conditioned cash transfers to families under the extreme poverty line. The transfers cover payments for babies and children under the conditions, including regular health centre visits and regular school attendance. The coverage has extended to four million families. More recently, the central government established a pension scheme for elderly persons under the extreme poverty line. One of its main merits is the coverage of about 75 percent of all the population under extreme poverty. But it is a residual programme increasingly dependent on the resources provided by multilateral organizations, mainly the Inter-American Development Bank (IADB). The effects on the income of youngsters "graduating" from the programme are mixed.

The impact of *Oportunidades*, *Procampo* and other social programmes is relatively important. For instance, *Oportunidades* and *Procampo* led to a 1.1 percentage point reduction in extreme poverty at the national level. The effect of these programmes is higher in the rural areas, where extreme poverty rates were reduced by 2.6 percentage points as a result of these programmes. If the transferences from *Oportunidades* and *Procampo* were excluded from household income, the poverty rate would be 0.7 percentage point higher at the national level than the levels shown in Table 8 above.

For the industrial sector, the government has responded with different initiatives. One of the

most important is the *Programas de Promoción Sectorial* (PROSEC), established in 2002 with the objective of helping industrial producers respond to the elimination of the special provisions that stimulated the expansion of ensemble manufactures. PROSEC allows imports of inputs in practically all sectors, at tariff rates equal to those levied in the US. The objective of PROSEC is to reduce the costs of exports and increase production. PROSEC needs to be complemented with incentives to invest, especially in increasing access to credit, and with investments in human capital.

Another important line of action is the “Active Policies of Employment” programmes. These programmes do not consist of transferences to increase income or to provide unemployment benefits. They are oriented to increase the employability of unemployed persons and are the main responsibility of the *Servicio Nacional de Empleo* (SNE), or National Employment Service. Today, eight employment programmes exist in Mexico. All of them have been evaluated with mixed results (Aportela, 1999; Calderon and Trejo, 2001; Samaniego, 2002). Certain weaknesses in these programmes have been identified:

- i) low financial resources are allocated to them;
- ii) limited coverage;
- iii) lack of effective promotion;
- iv) short-term objectives and frequent changes in orientation; and
- v) no active participation of the private sector.

These programmes do have, however, some strong elements:

- i) their positive effects on helping people find jobs, albeit with no clear evidence they help increase income;
- ii) a broad menu of options and actions;
- iii) the teaching of information technology (IT); and
- iv) the *Programas de Competitividad*.

Evaluations of these programmes tend to concur in suggesting that they have contributed to reducing extreme poverty but have had little or no impact on income concentration. For a recent review and evaluations of the programmes, see Scott (2005).

Two of the main concerns about the general driving force that directs Mexican social policy are its assistance character and its slight effort to create permanent income opportunities for low-income groups or training programmes for changing employment. To create these conditions, what is urgently needed is to provide the people with capital: land, financial capital, knowledge and productive equipment. This would result in reducing the extreme concentration of property and creating more competitive domestic markets. In other words, it would resolve one of the problems of the reforms: they eliminated the market constraints derived from the actions of the state but left untouched the constraints derived from the concentration of private capital; see, for example, Lipton (1991).

The crisis revealed the exposure of social policies to external conditions and internal restrictions, especially fiscal problems. Mexican economic authorities have given utmost priority to controlling inflation even in times of severe crisis.

## 7. CONCLUSIONS AND SUGGESTIONS

### 7.1 Conclusions

The Mexican economy changed rapidly from the industrialization model led by the state to the “outward growth” model based on exports and the multiplier effects of the external sector. The reforms were carried out by means of liberalizing capital investments and opening up trade. The effects of these reforms have not been entirely favourable in terms of economic growth, as measured by Mexican per capita GDP, which has been virtually stagnant for the past two decades, as has been productivity and employment. In addition, the adjustment costs have been large and have been intensified by the 2008-09 global financial crisis.

The severity of the crisis gives reason to rethink and reshape some major pillars around which macroeconomic policy was constructed. We are referring, first, to the strict control of inflation using the exchange rate and tight monetary policy. Second, we have in mind the need to change the reduction of the public deficit by contracting public investment while maintaining loose current expenditure. Third, we consider there is an urgent need to adopt a fresh approach towards sectoral policies: to foster the increase of the contribution of agriculture and manufactures to GDP and employment creation. That means expanding at the same time productivity and the volume of production to reverse the premature decline of tradable sectors, especially agriculture and manufactures as dynamic sources of employment and gross domestic product. This strategy is coherent with the suggestions to overcome the supply constraints that have impaired Mexico from achieving more dynamic participation in the world market and have diluted the dynamic effects of exports on the economy.

Nevertheless, some positive effects can be accounted for: the economy has opened to foreign competition; the production of fruits and vegetables for exports and the domestic market has increased (some new varieties, which were almost impossible to find ten years

ago, such as asparagus, aubergines, runner beans and artichokes, are now regularly found in supermarkets); and the quality of fruits has also improved. It can therefore be said that imports and production for exports, part of which is channelled to domestic markets, have improved consumption options for urban settlers.

With the liberalization of imports, prices of cars have decreased and competition has induced local producers to improve quality and prices. Production in the modern industrial sector has diversified and is reducing the level of separation with the standards of the US. Foreign investments in the financial sector and in domestic trade are modernizing these services and their productivity has increased, together with the employment they generate. All these effects, however, could have greater impact and be more broadly distributed were the domestic markets more competitive.

Due to the aggressive liberalization of the Mexican economy, the compromises acquired in NAFTA and the 40 or more trade agreements signed with all types of countries, there is little margin left in trade policy, different to multilateral negotiations in the WTO and to trade promotion activities.

Agriculture has lost participation in both total GDP and employment. Manufacturing is more or less at the same level registered in 1980, despite the formidable expansion and diversification of exports of manufacturers. Productivity growth has been very low, and salaries and incomes have gained little improvement. Nevertheless, some changes in productive structure have emerged with the expansion of the automotive, electronics and electrical machinery sectors. These are the branches that have supported the growth of the total manufacturing sector. Within these sectors, salaries have improved, particularly for the more qualified workers.

There are several reasons for the lack of strong positive linkages between the formidable expansion of manufactured exports and sectoral



and overall economic growth and the effects of the reforms. For example, the low savings and investments ratio to GDP, both public and private, and therefore, capital formation, as a percentage of GDP and per worker, has been rather small. Private investments have not fully replaced the fall in the level of public investments.

Long-lasting overvaluation could be another reason. Maintaining a competitive exchange rate is not an easy task when the capital account has been fully liberalized. It is even more difficult in the presence of strong flows of foreign currency, such as remittances from workers abroad and oil bonanzas. Mexican public investment in social and physical infrastructure has been reduced as dramatically as the economy has been liberalized, reducing its competitiveness and limiting the capacity of the country to assimilate new technologies, let alone develop them. Such investments are not the monopoly of the public sector. Private investments are equally important and should be stimulated.

The main losers of the process are the workers and wage earners, since the bulk of the adjustment was made primarily by contracting employment in the formal tradable sectors, especially in agriculture and in the non-*maquila* manufacturers. Minimum and medium salaries lost purchasing power. Young, first entrant workers and women are the main losers in the new labour market, with a high share in unemployment, underemployment and casual work. Low-qualified youngsters and women are concentrated in low-productivity activities.

The winners in the agricultural sector are large-scale producers of fruits, vegetables and livestock, mainly poultry. Livestock producers got the better of the liberalization of corn and other foodstuffs, as well as the international subsidized prices. The losers in the agricultural sector are small- and medium-scale producers of all goods. But the main losers are the small self-sufficient producers that sell part of their production and are net buyers of food. The three lower income deciles of rural population lost about one quarter of their income. Cheaper food goods do not benefit them.

In the industrial sector, the winners are large-scale modern sectors, with strong foreign investments, particularly the automobile sector and electronics and chemical industries. A sensible change in the structure of the industrial sector did take place. Automotive, chemical, electronics and electrical machinery increased productivity and expanded production and exports. Textiles and apparel are fighting to overcome the fierce competition coming from China in both the external and the domestic market.

The policies that have helped to support the adjustment process are mainly cash transferences in the agricultural sector and some projects to increase productivity in textiles and leather products, software and electronics. Worthy of mention are the employment programmes established at the *Secretaria de Trabajo y Seguridad Social*. Although so far the effects of such policies have not been able to counterbalance the costs that have emerged in some sectors and have not helped to increase incomes, they have to be maintained. Perhaps these programmes have to be revised and improved. There is therefore an important area for international cooperation.

## 7.2 Suggestions

As suggested by Stiglitz and Charlton (2006):

Rather than seeing aid as an exchange for progress in the round, we see it as a necessary complement to the core market access issues at the centre of the round. ... “In the context of supply constraints, giving access to your markets must mean giving us both free entry and aid to ensure we can use it” (p. 5).

These authors add:

The objective [of Aid for Trade] should be to put resources into increasing the volume and value-added of exports, diversifying export products and export markets and attracting foreign investment to generate jobs and exports. (p. 27)

International cooperation should therefore support developing countries to overcome the lack of productivity growth, the stagnation of productive employment and the premature “de-agriculturization” and “de-industrialization” affecting the economies of almost all developing countries. To that aim, actions should be taken to improve the productive capacity of tradable sectors. It is of prime importance that productive investments, both public and private, in all sectors be reactivated to induce the vertical integration and increase the value content of total production and exports. These actions can, and should be, complemented with the programmes to be adopted in the framework of A4T.

To increase the capability of developing countries, Stiglitz and Charlton identified three main areas of actions: “Assistance to build supply capacity is of three types - each of which should be the focus of an expanded aid for trade agenda” (Stiglitz and Charlton, 2006:18-19). These are as follows:

1. *Trade policy and regulations* – to help countries participate in the multilateral trading system and reform their own trade policies;
2. *Enterprise development* – to help private sector enterprises trade and create a favourable business climate; and
3. *Infrastructure* – to assist in the identification of infrastructure bottlenecks and finance infrastructure projects.

This paper organizes its recommendations in accordance with the following three areas:

#### A. *Trade policy and regulations*

From the study undertaken, the need emerged to coordinate the commitments in trade agreements and in the WTO with sectoral policies designed to reinforce the capability to penetrate markets. Although Mexico and other developing countries have been labelled as export miracles, they need to reinforce

their capacity to negotiate and to design and implement new trade strategies.

One pressing problem is the growing number of trade agreements and preferences that complicates the action of exporting.

International cooperation can be of great benefit by stimulating changes in some elements of macroeconomic policies, such as the preference to control inflation over employment generation. For that, a new direction of monetary and exchange policies should be adopted to end the substitution of national employment and value added by imports. Partner countries should accept such national priorities.<sup>25</sup>

A planned correction in the relative value of the peso to the dollar could be another policy to overcome the stagnation of the tradable sectors and the so-called jobless growth affecting many developing countries, Mexico included. In this case, developed countries have to cooperate with developing countries if they decide, for instance, to use measures to control capital movements or to change their exchange policy to favour job creation and national value added generation.

International cooperation, A4T included, could help to finance part of the expansion of public expenditure, provided it is siphoned to support producers identified as losers and to enhance the capacity of the countries to participate in international trade.

The government should use all the margins existing in the WTO, NAFTA and in similar conventions to protect sectors and activities threatened by imports, and to improve competitiveness in foreign markets.

It is especially important in the agricultural sector, in which the losers are more likely to appear, affecting mainly the poor population and increasing food dependence on imports. In agriculture, perhaps some special understanding with the US could be required. There is the need to revise the liberalization policy and to prevent the full elimination of

the tariffs on maize, beans and other products that was to be implemented in 2008. Other areas of action are how to negotiate the liberalization of trade in agriculture within the WTO and the dismantling of subsidies in the US and the EU. The failure to conclude on time and form the FTAA made it evident that for Latin American countries, this is an important negotiating point.

*B. Enterprise development - to help private sector enterprises to trade and create a favourable business climate*

As to A4T, all the support is needed to advance the agricultural and manufacturing sectors so as to enlarge their share of total GDP as the way to improve productivity, employment and incomes. Tradable sectors have to improve their capacity to compete; i.e. exportable goods in order to penetrate foreign markets and importable goods to compete with imports and to expand their presence in the domestic market. But aid should be channelled preferentially to small and medium producers to help them to expand investments in capital and technology.

A4T could support such policies by helping to create and/or encourage the programmes implemented by developing countries' governments, such as those implemented by the Mexican *Secretaria de Economia* to increase productivity in small and medium enterprises in agriculture, industry and services. Special attention should be placed on strengthening the capability of these enterprises to supply intermediate goods for larger companies or to initiate direct exports.<sup>26</sup>

The programmes should include training in technology, administration and marketing. Quality controls should be improved. One of the main complaints of foreign investors in the assembly industries is that frequently national suppliers fail to fulfil the terms agreed in contracts. Supplies arrive late or the quality is insufficient. One starting point could be to identify those products that are important in the structure of developing countries' exports and are losing share in the external market.<sup>27</sup> It

should be kept in mind that with outsourcing, low prices do not compensate for low quality.

All of these areas are today those in which public-private partnership is welcome, therefore, A4T can help to finance such programmes. But a more detailed elaboration must be found through specific studies at regional and local levels and for specific products.

There is a window of opportunity for corn producers with the growing demand for corn and sugar cane to produce ethanol as a source of cleaner energy for transport. Since small producers have proved their capacity to improve yields and productivity, a plan could be carried out to create the conditions for them to take full advantage of this growing demand. Long-term contracts between ethanol and small and medium corn and sugar cane producers could be initiated. The US and the WTO should accept this discrimination in favour of national produce and not attempt to impose sanctions. A4T can be channelled to support such programmes throughout all developing countries.

Investments and support financed by A4T and other sources could be oriented to help producers of grains and other importable products to shift their land use to produce export goods. This will require investments in irrigation facilities, roads and marketing.

Mexican producers of coffee and honey from Veracruz and Chiapas have been very successful in penetrating the organic and high-quality market niches. This experience can be spread to other regions and goods. Fair-trade types of programmes can help small producers directly to take advantage of the globalization surge. This is one of the routes to help producers overcome the weaknesses of the domestic agricultural markets existing in all developing countries.

The losers in manufacturing are mainly the sectors that compete with imports and, in particular, the small and medium producers of practically all sectors.

But the main loser has been the textiles and apparel sector, due to the Chinese penetration of this market. Mexico, and other developing countries, should abandon the cheap segment of these markets and exploit existing opportunities to enter higher-income markets. For that, improvements in quality and design are needed. As with the other ideas suggested here, a detailed analysis and evaluation is needed and specific programmes need to be drafted.

*C. Infrastructure - to assist in the identification of infrastructure bottlenecks and finance infrastructure projects*

More active public investment programmes should be developed to resolve the deficiencies in infrastructure, education, and science and technology development, all with the objective to increase productivity of tradable sectors,

services included. Rural infrastructure should be developed in rain-fed areas and in regions with high fragmentation of land tenure. Loans to the public sector and to producers to invest in small-scale irrigation utilities and in storage facilities, among other programmes, could be included as part of international cooperation.

Infrastructure comprises as well the existence of well-developed markets. These are missing in almost all developing countries and that is one of the reasons for the losses of some producers. Missing markets, especially financial markets,<sup>28</sup> are responsible as well for not allowing the needed movement of factors of production. This is a problem affecting particularly fruit and vegetable small producers. The present study detected a lack of investments in science and technology in Mexico, which makes it difficult to accelerate productivity growth. Perhaps here, cooperation can be most useful.<sup>29</sup>

## ENDNOTES

- 1 Some of the several studies to ex ante evaluate the impact of NAFTA are Casco and Romero, 1994; Hinojosa and Robinson, 1992; Lustig, Bosworth and Lawrence, 1992.
- 2 For further analysis of this point see Puyana and Romero, 2005:Ch. 3.
- 3 Interview given by Bhagwati to *El Universal*. Author's translation from Spanish. *El Universal*, November 22:24.
- 4 The income elasticity of imports nears 3.8 percent, as indicated by Romero, 2002:90.
- 5 For an analysis of the debate see Rodríguez and Rodrik, 1999.
- 6 Income from illegal traffic of drugs or arms can induce similar effects.
- 7 For information on these and other trends in the Mexican labour market during the 1980s and 1990s, see Oliveira and García, 1996; Rendón and Salas, 1996 and 2000; Estrella and Zenteno, 1998; García, 1999; Salas and Zepeda, 1999.
- 8 As suggested in the terms of reference of the project, emphasis is given to the analysis of the two main tradable sectors: agriculture and manufacturing. The main objective of the reforms introduced to the import substitution model of industrialization was precisely to expand the participation of these sectors in both total employment and GDP. Also, in Mexico, exports of services are not as important as they are in India or in some Caribbean countries. Nevertheless, when pertinent, references to the services sector are made in this report.
- 9 These are: the generalized system of preferences (GSP); the Caribbean Basin Economic Recovery Act (CBERA), which regulates the application of the Caribbean Basin Initiative (CBI); the Caribbean Basin Trade Association Act (CBPTA), based on the LRECC; the Andean Trade Preference Act (ATPA), modified as the Andean Trade Promotion and Drug Eradication Act (ATPDEA); and the Africa Growth and Opportunity Act (AGOA). In addition to the above-mentioned, the United States has signed trade agreements with Chile, Singapore and the Central American countries.
- 10 At the time of negotiations it was assumed that labour expelled from agriculture would be employed in more productive rural non-agricultural activities and in manufacturing. It did not happen that way.
- 11 "They were supposed to go", exclaimed a high ranking expert of the *Secretaría de Agricultura* (responsible for keeping an eye on the implementation of the NAFTA agreements) when Puyana and Romero presented the results of their study evaluating the first decade of NAFTA and its effects on the Mexican agricultural sector (Puyana and Romero, 2005).
- 12 The evolution of the labour market and the path of wages is discussed in 5.2.
- 13 During 1993 a reduction of the trade deficit was noted, accompanied by a strong appreciation of the peso, which indicates that the real exchange rate is not the only factor explaining the flow of trade; differing growth rates in income between countries also explains to a large extent these results.
- 14 Revealed Comparative Advantage (RCA), or Specialization Index, (Balassa, 1967).
- 15 For a detailed discussion of these programs see Puyana and Romero, 2005:Ch. 3.
- 16 All direct and indirect transfers and payments to agricultural producers.

- 17 Since the Automobile Decree of 1989, the assembly firms were obliged to maintain in 2002 a national value added (VAN) from Mexican sources of 30 percent in 2002 and 29 percent in 2003. The decree also established that the assembly could import new vehicles only when they account with a positive trade balance. The Automobile Decree also establishes that the manufacturers of auto parts have to maintain a VAN of at least 20 percent.
- 18 For a discussion of the literature on fragmentation see Puyana, Cord, 2007.
- 19 As a director of two dissertation works in obtaining a master's degree in Public Policy at FLACSO, the author discovered that the programmes have clearly not been evaluated.
- 20 ECLAC considers as low productivity activities the following: micro business (less than 5 workers), domestic service and unqualified independent workers (CEPAL, 2006, Tables 21, 21a and 21b).
- 21 CEPAL defines low productivity activities as follows: i) micro enterprises (employers and wage earners in establishments with less than 5 workers); ii) domestic services; and iii) unskilled self-employed workers in construction, commerce and services, (CEPAL, 2006, *Panorama Social de America Latina, 2005, Anexo Estadístico*, Tables 21; 21.1; 21.2).
- 22 Table 29 (see Annex) presents the summary data and evolution of the relationship between wages for the two types of work.
- 23 For a detailed analysis of this point see, inter alia: World Bank (2001); Ingco and Nash, (2004); De Gorter, Ingco and Short, (2004); Polaski (2004); Schwentesius, R., ed., (2004); Puyana and Romero (2005a); and Anderson, Martin and van der Mensbrughe, (2006).
- 24 The reasons are, inter alia, first, that the type of workers who migrate has not experienced any radical change; average wages in the destination country remain similar and average monthly remittances received by recipient households is stable. See CEPAL, 2006:Ch. I.
- 25 Such understanding is suggested by Stiglitz and Charlton (2006), under the title of "Country ownership". "Best practices in aid delivery indicate that donors must be responsive to partner countries' priorities for aid financed projects" (Stiglitz and Charlton, 2006:9).
- 26 "The aid should be designed to facilitate job creation in areas most adversely affected and to help those who have lost their jobs obtain alternative employment" (Stiglitz and Charlton, 2006:18).
- 27 For a list of such goods in the Mexican case, see Puyana and Romero, 2005c.
- 28 "In the context of low productive capacity, a deficient policy environment, poor infrastructure, poor access to technology, and missing/imperfect markets (especially financial markets), liberalized markets will not stimulate the required development to take advantage of new trading opportunities" (Stiglitz and Charlton, 2006:18).
- 29 "The Global Trade Facility could support the development of institutions capable of facilitating the transfer of technology (e.g. science and technology oriented universities, research centres, standards centres). It could help organize global internship programs, in which those from developing countries learn from the practices of the advanced industrial countries" (Stiglitz and Charlton, 2006:27).

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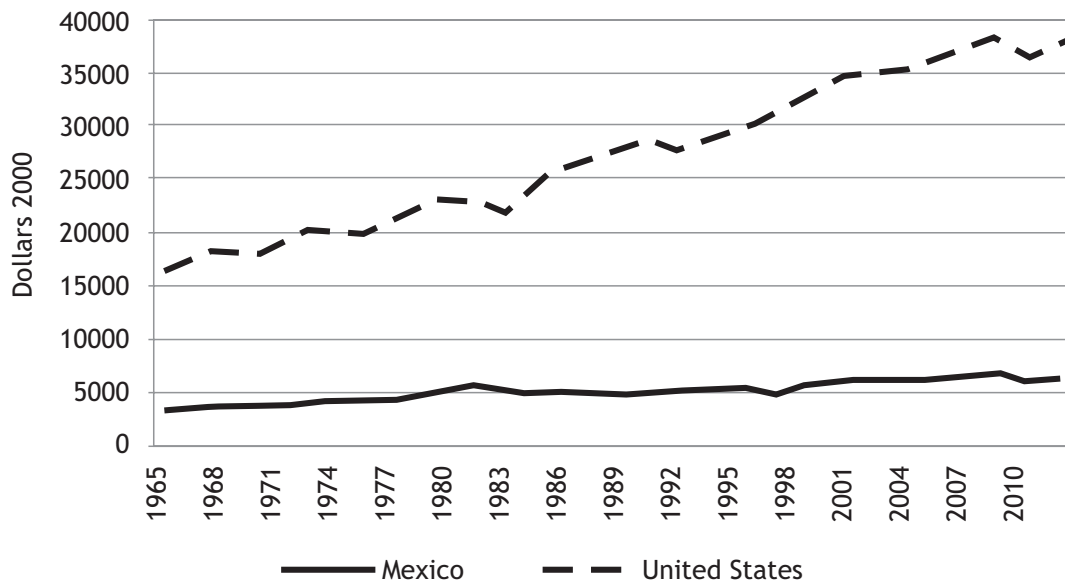
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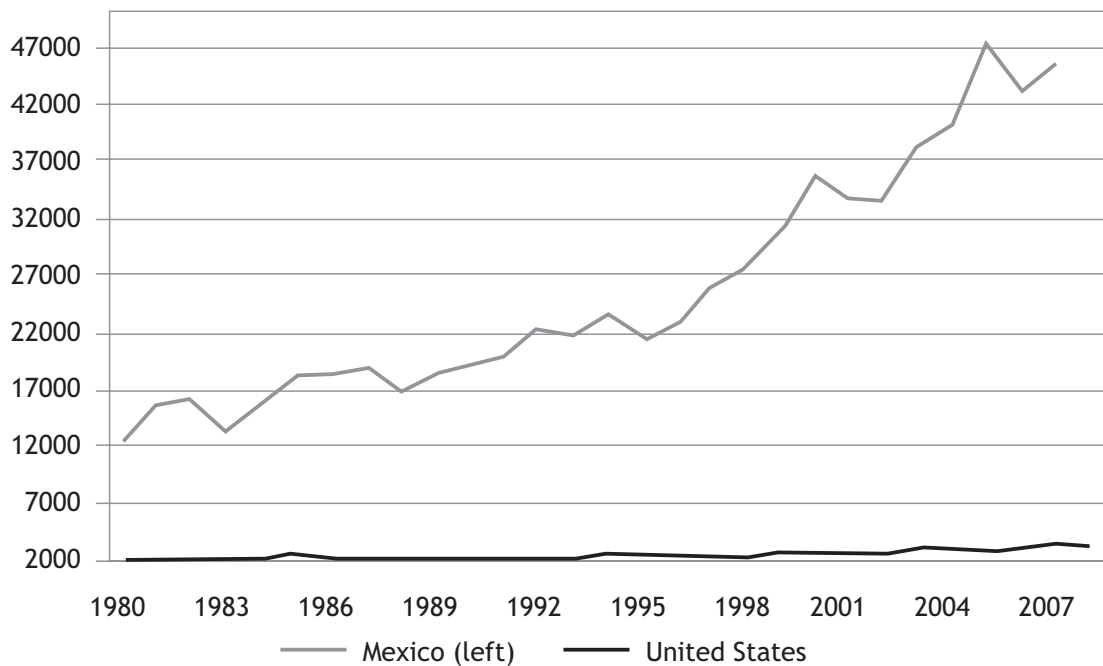
## ANNEX

Figure 27. Mexican and US GDP 1965-2011 (in constant 2000 billion dollars)



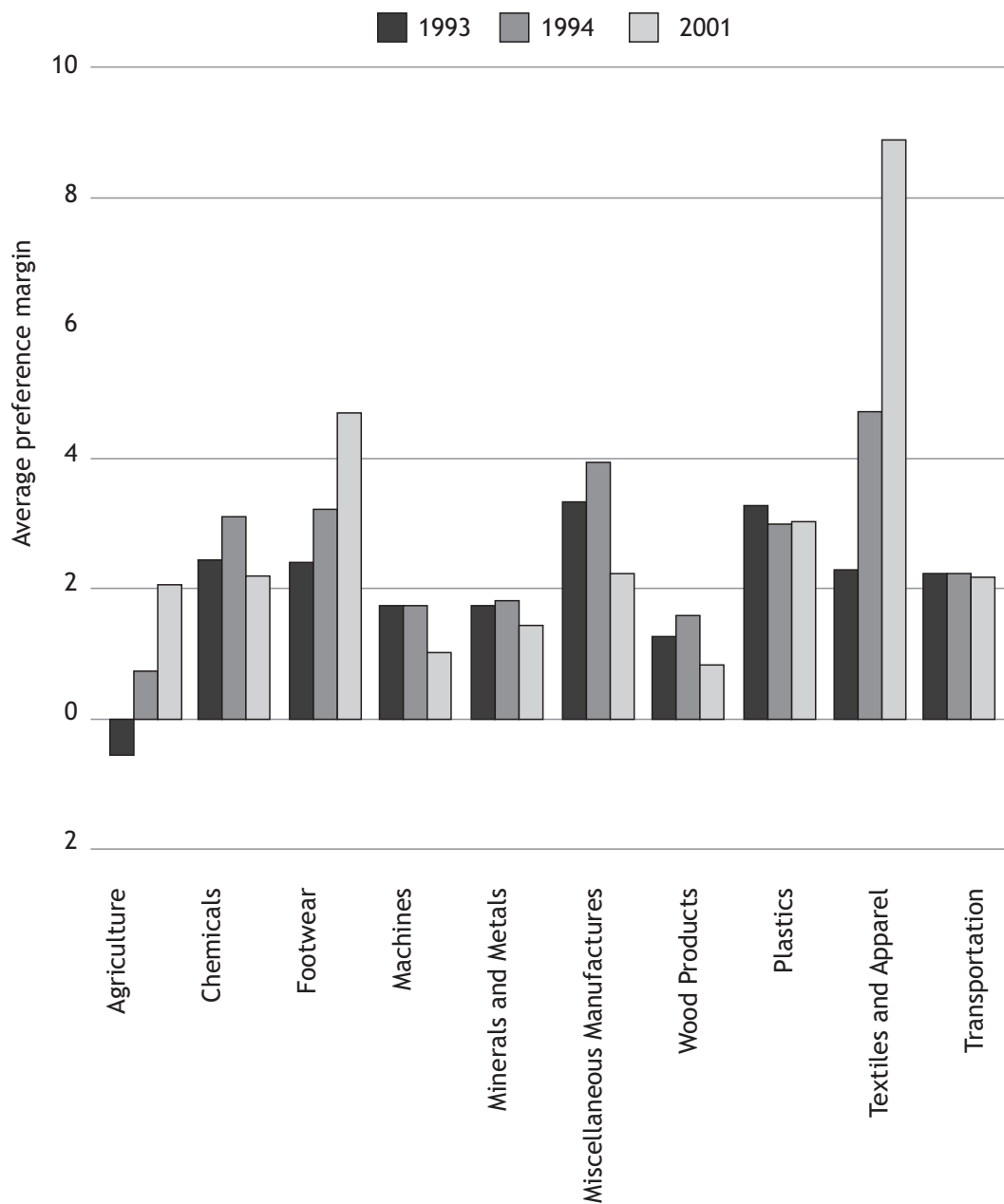
Source: Author's calculations based on World Bank, WDI, CDR 2006

Figure 28. Agricultural GDP Per Worker in Mexico and the US (in constant 2000 dollars)



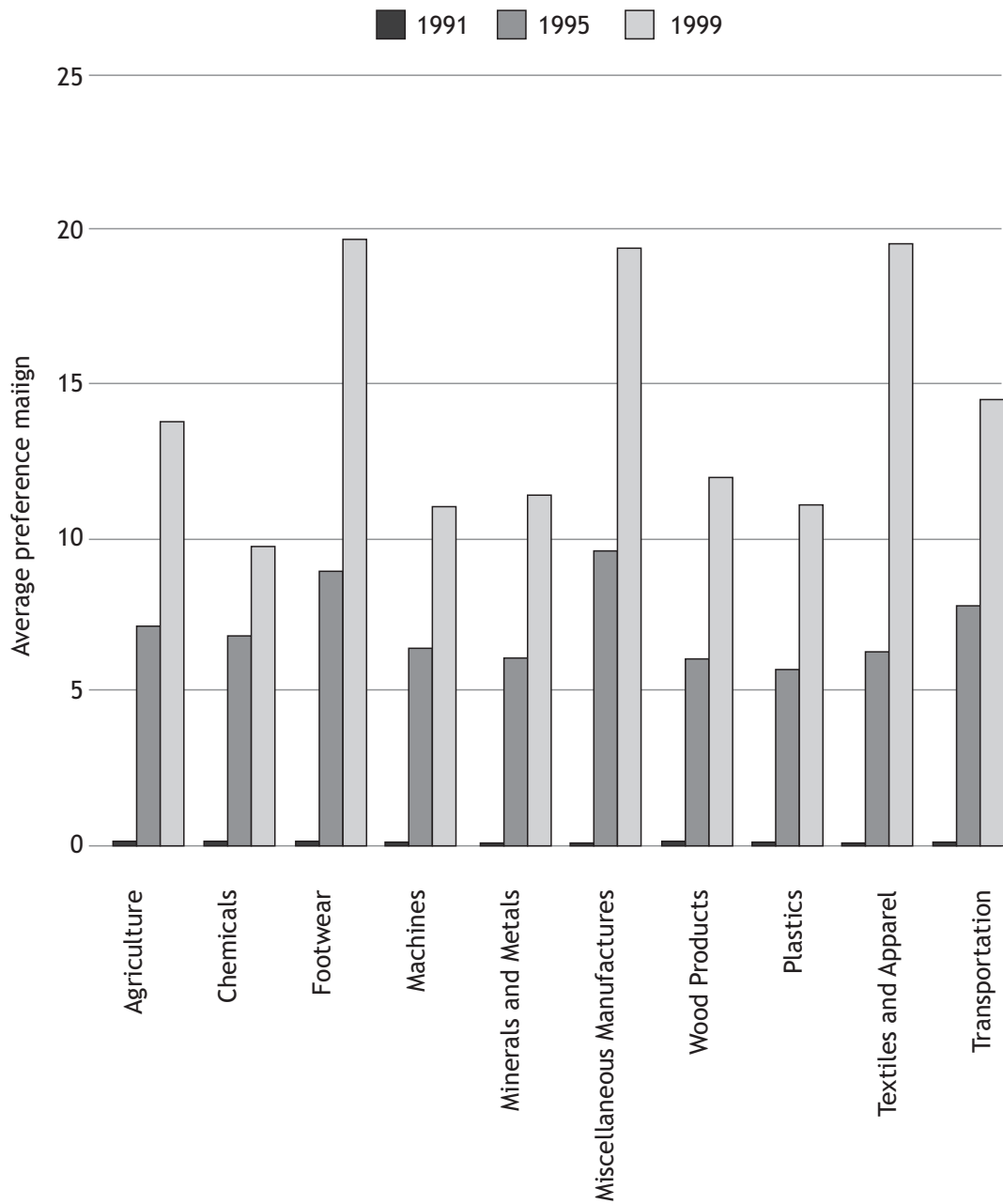
Source: Author's calculations based on World Bank, WDI, CDR 2006

Figure 29. Average US Tariff Preference Toward Mexico Pre- and Post-NAFTA



Source: US International Trade Commission N. T.A.-2111-1, Publication Number: 3621/August 2003

Figure 30. Mexican Tariff Preference Margin Toward the United States



Source: US International Trade Commission N. T.A.-2111-1, Publication Number: 3621/August 2003

**Table 23. Latin American Countries: Some Growth Variables**  
 Summary of regression exercises\*  
 Dependent variable: GDP per capita growth 1970 - 2002

Independent variables	Argentina		Brazil **		Chile		Colombia		Mexico	
	Statistic. significant	Not statistic. significant	Statistic. significant	Not statistic. significant	Statistic. significant	Not statistic. significant	Statistic. significant	Not statistic. significant	Statistic. significant	Not statistic. significant
GDP growth United States		0.052 (0.745)		-0.756 (0.184)	0.942 (0.009)		0.345 (0.006)		0.507 (0.007)	
Gross fixed capital formation (% GDP)		-0.187 (0.313)		0.178 (0.637)	0.702 (0.000)		0.268 (0.008)		1.178 (0.000)	
Population growth		-0.402 (0.055)		-31.662 (0.005)		0.203 (0.950)		0.045 (0.213)		0.041 (0.788)
Consumer price index (1995=100)	-0.003 (0.022)			0.0005 (0.591)		-0.268 (0.904)		-0.153 (0.001)		-0.039 (0.003)
Opening coefficient	-0.454 (0.014)			-0.102 (0.579)		-0.076 (0.650)		0.360 (0.000)		-0.081 (0.549)
Government expenditure (% GDP)		0.020 (0.901)		-2.597 (0.009)		-0.093 (0.481)		-0.776 (0.000)		-0.632 (0.034)
Constant	9.153 (0.008)		92.837 (0.008)		-14.609 (0.000)		-2.382 (0.395)		-19.157 (0.001)	

\* Linear regression, stepwise method

\*\* Linear regression, enter method (by stepwise method all variables was removed)

Note: For each predictor appears the estimated coefficient (above) and the level of significance of t-statistic in parentheses (down)

Source: Puyana and Romero. (2005a)



Table 24. Structure of GDP by Sectors 1960-2008 (in percentages)

Year	Agriculture	Mining	Manufactures	Construcction	Services
1960	15.5	3.3	20.2	5.2	55.7
1961	15.1	3.3	20.4	5.0	56.3
1962	15.0	3.3	20.2	5.0	56.5
1963	14.5	3.2	20.6	5.4	56.4
1964	14.1	3.0	21.6	5.7	55.7
1965	13.6	2.8	21.9	5.2	56.5
1966	13.1	2.7	22.2	5.7	56.3
1967	12.5	2.7	22.2	6.0	56.6
1968	11.6	2.6	21.9	5.9	58.0
1969	11.4	2.7	22.6	6.3	57.1
1970	11.1	2.6	22.8	6.2	57.3
1971	11.3	2.5	22.6	5.7	57.9
1972	10.5	2.4	22.7	5.9	58.5
1973	10.2	2.4	22.9	6.3	58.3
1974	9.8	2.5	22.8	6.3	58.5
1975	9.5	2.5	22.4	6.3	59.2
1976	9.2	2.6	22.4	6.4	59.5
1977	9.6	2.6	22.3	5.8	59.6
1978	9.3	2.8	22.5	6.0	59.4
1979	8.3	2.9	22.6	6.2	60.1
1980	8.1	4.1	21.7	6.3	59.8
1981	7.9	3.4	21.4	6.7	60.6
1982	7.8	3.7	20.9	6.2	61.3
1983	8.3	3.8	20.1	5.3	62.5
1984	8.3	3.7	20.4	5.4	62.3
1985	8.4	3.6	21.1	5.4	61.6
1986	8.4	3.6	20.7	5.0	62.2
1987	8.4	3.8	21.0	5.0	61.8
1988	7.9	3.7	21.4	4.9	62.0
1989	7.5	3.6	22.2	4.9	61.8
1990	7.6	3.5	22.5	5.0	61.3
1991	7.6	3.4	22.5	5.1	61.5
1992	7.3	3.3	22.6	5.2	61.6
1993	7.4	3.3	22.1	5.3	61.9
1994	7.0	3.3	21.9	5.5	62.3
1995	7.7	3.5	22.4	4.5	61.9
1996	7.5	3.5	23.5	4.7	60.7
1997	7.0	3.5	24.0	4.8	60.7
1998	6.8	3.4	25.0	4.7	60.2
1999	6.6	3.1	25.2	4.7	60.3
2000	6.2	3.0	25.2	4.6	60.9
2001	6.6	3.1	24.4	4.4	61.6
2002	6.5	3.0	23.9	4.4	62.1

Table 24. *Continued*

Year	Agriculture	Mining	Manufactures	Construcction	Services
2003	6.7	3.1	23.2	4.5	62.5
2004	6.6	3.0	23.1	4.6	62.7
2005	6.2	2.9	23.2	4.6	63.1
2006	6.2	2.8	23.2	4.7	63.0
2007	6.1	2.7	23.0	4.7	63.4
2008	6.3	2.6	22.6	4.6	63.9

Source: INEGI, *Sistema de cuentas Nacionales de México (several years)*

Table 25. **Average Productivity Per Worker 1960-2008 (Millions of 1993 pesos)**

Year	Total	Agriculture	Mining	Manufactures	Construc.	Services
1960	9841	2826	25148	14434	14226	20080
1961	10057	2903	25178	14528	13467	19865
1962	10243	3018	25749	14400	13612	19411
1963	10777	3188	26118	15095	14870	1950
1964	11737	3485	26712	16879	17041	20250
1965	12149	3597	25957	17429	15946	20477
1966	12504	3705	26136	17803	17269	20244
1967	12839	3774	26747	17933	18460	20169
1968	13629	3883	25140	18301	18769	21186
1969	13672	3961	25906	18644	19449	20276
1970	14092	4509	30597	23980	13774	18197
1971	13873	4526	28787	23578	13319	17896
1972	14245	4520	28633	24118	12941	18224
1973	14578	4488	28874	25145	13051	18665
1974	14630	4692	31007	24512	12691	18168
1975	14574	4552	30569	24975	12319	18088
1976	14598	4655	31172	24825	12046	17676
1977	14478	4589	31953	25676	11709	17685
1978	15050	4835	34530	26880	11441	18140
1979	15562	4822	37109	27054	11316	18507
1980	15986	4940	51029	26854	11177	18826
1981	16818	4930	56492	30261	10704	20549
1982	16164	4832	53946	28932	9898	19508
1983	15419	4588	53189	27964	9660	18742
1984	15327	4569	47790	28161	9322	18601
1985	14987	4503	45545	28196	9028	18093
1986	13978	4287	42276	26121	8018	16884
1987	13754	4188	43029	26037	7971	16534
1988	13453	4108	62330	22831	8219	15863
1989	13514	4113	69047	23431	7519	15755
1990	13714	4371	68922	24515	7085	15892
1991	13826	4488	66737	25082	6983	15837
1992	13998	4474	93039	25505	7218	15884

Table 25. *Continued*

Year	Total	Agriculture	Mining	Manufactures	Construc.	Services
1993	14055	4563	93541	25855	7211	16004
1994	14278	4488	116024	27186	7252	16239
1995	13654	4627	95541	27335	6338	15098
1996	13800	4630	122470	28015	6024	15242
1997	13932	4687	121259	27430	5673	15442
1998	14241	4668	119680	28951	5521	15748
1990	14630	4764	113888	29467	5681	16195
2000	15283	4770	115277	30131	5783	17043
2001	15250	5029	117248	30518	5631	16885
2002	15031	4919	114121	31269	5538	16611
2003	15125	5009	116529	31658	5577	16858
2004	15212	5216	102988	31690	5695	16796
2005	15610	5405	101876	33717	4694	17387
2006	15817	5823	111516	34505	4732	17381
2007	16054	5817	108814	36534	4928	17639
2008	15976	5886	104367	37684	4929	17588

Source: Author's calculations based on *Nacional Financiera* (1978), *La Economía Mexicana en Cifras*; INEGI (1999), *Estadísticas Históricas de México*; INEGI *Sistema de Cuentas Nacionales y Presidencia de la República, Informe de Gobierno* (several years)

Table 26. **Structure of Employment by Sectors in Mexico 1960-2008 (in percentages)**

Year	Agriculture	Mining	Manufactures	Construc.	Services
1960	54.1	1.3	13.8	3.6	27.3
1961	52.4	1.3	14.1	3.7	28.5
1962	50.8	1.3	14.4	3.8	29.8
1963	49.1	1.3	14.7	3.9	31.0
1964	47.4	1.3	15.0	3.9	32.3
1965	45.8	1.3	15.3	4.0	33.5
1966	44.1	1.3	15.6	4.1	34.8
1967	42.5	1.3	15.9	4.2	36.0
1968	40.8	1.4	16.3	4.3	37.3
1969	39.2	1.4	16.6	4.4	38.5
1970	34.7	1.2	13.4	6.3	44.4
1971	34.7	1.2	13.3	5.9	44.9
1972	33.2	1.2	13.4	6.5	45.7
1973	33.0	1.2	13.3	7.0	45.5
1974	30.7	1.2	13.6	7.3	47.1
1975	30.4	1.2	13.1	7.5	47.7
1976	28.8	1.2	13.2	7.7	49.1
1977	30.2	1.2	12.6	7.2	48.8
1978	29.0	1.2	12.6	7.9	49.3
1979	26.8	1.2	13.0	8.5	50.5
1980	26.1	1.3	12.9	9.0	50.8
1981	27.1	1.0	11.9	10.5	49.6
1982	26.2	1.1	11.7	10.2	50.8

Table 26. *Continued*

Year	Agriculture	Mining	Manufactures	Construc.	Services
1983	28.0	1.1	11.1	8.4	51.4
1984	27.7	1.2	11.1	8.8	51.3
1985	27.8	1.2	11.2	8.9	51.0
1986	27.5	1.2	11.1	8.7	51.5
1987	27.6	1.2	11.1	8.7	51.4
1988	26.0	0.8	12.6	8.1	52.6
1989	24.8	0.7	12.8	8.8	53.0
1990	24.0	0.7	12.6	9.7	52.9
1991	23.3	0.7	12.4	10.0	53.7
1992	22.7	0.5	12.4	10.1	54.3
1993	22.7	0.5	12.0	10.3	54.4
1994	22.4	0.4	11.5	10.8	54.8
1995	22.6	0.5	11.2	9.7	56.0
1996	22.3	0.4	11.6	10.7	55.0
1997	20.8	0.4	12.2	11.7	54.8
1998	20.7	0.4	12.3	12.1	54.4
1990	20.4	0.4	12.5	12.2	54.5
2000	20.0	0.4	12.8	12.2	54.6
2001	20.0	0.4	12.2	11.8	55.6
2002	19.9	0.4	11.5	12.0	56.2
2003	20.1	0.4	11.1	12.2	56.1
2004	19.2	0.5	11.1	12.2	56.8
2005	17.9	0.5	10.7	15.3	56.7
2006	16.9	0.4	10.7	15.6	57.4
2007	17.0	0.4	10.7	15.3	57.7
2008	17.0	0.4	9.6	15.0	58.0

New Classification INEGI					
Year	Agriculture	Mining and electric.	Manufactures	Construc.	Services
2000	18.2	0.9	19.5	6.2	55.3
2001	18.2	0.9	18.6	6.1	56.1
2002	18.1	0.8	17.7	6.3	57.0
2003	17.3	0.9	17.4	6.4	58.1
2004	16.4	0.9	17.3	6.5	58.9
2005	15.1	0.9	16.9	8.0	59.2
2006	14.3	0.9	16.9	8.2	59.8
2007	13.7	0.9	16.6	8.4	60.4
2008	13.4	0.9	16.1	8.3	61.3
2009	13.4	0.9	15.2	8.0	62.6
2010	12.9	0.8	15.7	8.0	62.6

Source: INEGI, *Sistema de Cuentas Nacionales de México (several years)*

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