

New Economic Model and Spatial changes in Labor Relations after NAFTA in Mexico

Enrique de la Garza Toledo

Abstract

In this essay we will describe the change in the labor relations model in Mexico toward flexibility and managerial unilaterality, as a result of the economic opening in the 1980s, and especially with the introduction of NAFTA, that is the labor relations model originated in the new zones of recent industrialization in the northern part of the country, and later extended throughout the entire territory. In the North the maquila industry and the new final-assembly automobile industry served as laboratories for experimenting with this new labor relations model. The new model did not involve any questioning of the corporative relationships, but rather signified a reediting of the pact with a lower level of protections for workers offered by labor unions (Carrillo, 1990). Nevertheless, the new export-oriented manufacturing model and its labor relations seemed to have reached their limit in the early part of the 21st century, in permitting substantial increases in productivity. This was the crisis of “precarious Toyotism” (De la Garza, 2006), a production and labor relations model that was characterized by low wages, high voluntary external turnover of workers, minimal worker identity with the company, and labor unions that existed more as a formality than as an organization for protection of workers.

Introduction

The Mexican economy experienced a period of import substitution (1940-1982) characterized by State intervention and regulation of the economy, with the State as a direct producer of goods and services, and as a driving force for the aggregate demand stemming from public spending. In addition, economic policies protected national industry through tax policies, soft credits and favorable on prices of raw materials. In spatial terms, three major manufacturing poles were developed—Mexico City, Monterrey in northern, and Guadalajara in centralwestern Mexico—coinciding with urban concentration and a national

industry focused on the domestic market. During that period the economy experienced high growth rates, up until the State's fiscal crisis in the early 1980s—that took the shape of a foreign debt crisis—which demonstrated the weaknesses of this model. Then, beginning in the mid-1980s, the neoliberal economic model was established in Mexico. This involved the State's withdrawal from production-oriented investment, as well as priority given to controlling inflation over economic growth, and in addition, the opening of the economy. The latter was officially initiated when Mexico joined GATT in 1987, and it was given a fundamental boost when the North American Free Trade Agreement (NAFTA) went into effect in 1994. During the most recent period of economic opening (1994-), the economy has experienced years marked by profound crisis (1995), followed by recuperation (1996-2000), and then, once again, economic deceleration at the beginning of the 21st century. In productive terms, the new economic model has been characterized by the manufacturing export sector becoming the engine of the economy, and in the opinion of many analysts, it has given rise to an export manufacturing model (De la Garza, 1993^a).

With the new economic model, a conflict arose among companies, the State, and corporative and independent labor union organizations over the way a new system of labor relations would take shape. As we will see, this dispute has signified notable territorial connotations. The prevailing system of work relations in Mexico was constituted during the 1920s and 1930s—after the Mexican Revolution—and involved a corporative pact between the State, private enterprise and the new labor organizations at that time. Through this pact, the State guaranteed the monopolization of representation, through legal and extral-legal mechanisms for recognizing labor unions, the extension of the closed shop, State control over collective bargaining and strikes, and the eradication of any labor leadership other than corporative leadership. The pact also established a mechanism for consulting with labor unions regarding economic, wage and social security policies. It established labor union representation in labor courts, in social security institutions and in the commission that define minimum wages. Workers's control over workers was guarantee for these organizations, in order to guarantee labor peace, they assure support for the State's economic policies, and assure that workers would vote for the Institutional Revolutionary Party (*Partido Revolucionario Institucional*—PRI). Worker leaders have participated in this pact also through elected positions and as public functionaries (De la Garza, 1990).

This labor relations model involved the State continuous mediation as part of the corporative pact, and this translated into the politicization of labor relations. What was offered in exchange included wage and job protections, increased job benefits and social security for the top of the working class. In contracts and bargaining, for the hard-core nucleus of the workers of industry, included significant rules for working and for hiring, and considerable limitations on firing, internal mobility, multi-skilling, and employment by temporary worker and subcontractors. The formalization of the rules of work was complemented by the clientelistic orientation of labor union leaderships, which with the support of labor courts, handed out rewards and punishments, depending on workers' loyalty to them. It is important to clarify that this model of labor relations did not function equally for all workers during the import substitution period. The hard-core nucleus of workers was in large private and State owned companies, and fewer protections were offered in small and medium-sized companies, plus there had always been an enormous informal labor sector at the bottom of the pyramid. The central focus of the labor relations system that emerged from the Mexican Revolution got its perfection form in the import substitution period (1940-1982), specifically the State owned and major private industry oriented toward the domestic market protected by the State, and geographically concentrated in three key areas (Mexico City, Guadalajara and Monterrey), in addition to the electricity and petroleum plants in the southeast of Mexico. In this geographic distribution of industrialization, Mexico's northern border area remained excluded (De la Garza and Bouzas, 1998).

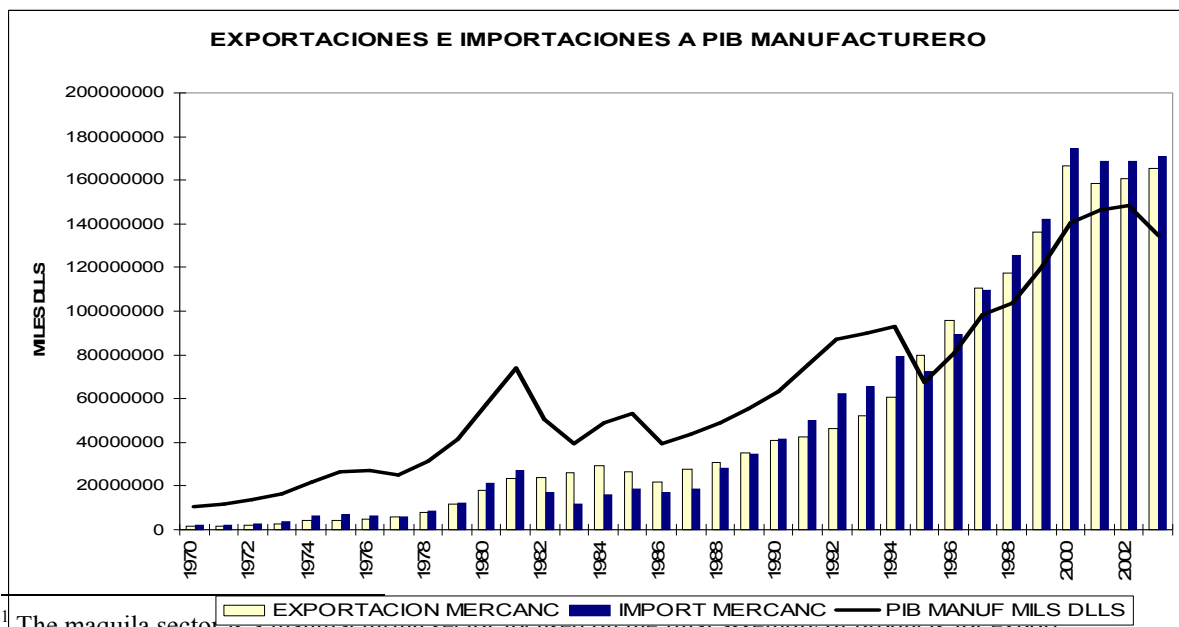
We will analyze the pros and cons of the export manufacturing model and the new labor relations model associated with it. Beginning in 1985, the export manufacturing model took the place of the import substitution model. However, it was particularly after NAFTA (1994) went into effect that the new model actually began to take shape, in terms of its capacity for sparking economic growth and creating jobs, and particularly in the conformation of new geographic spaces with labor relations models that were different to the old model at the beginning and then converged in the end.

1. The Export Manufacturing Model

The importance of the manufacturing GDP from the eighty years, with respect to the national GDP, increased during the NAFTA years, and reached a level of 21.5% of the total GDP in the year 2000. While it did not reach the highest percentage with respect to services but these latter are manly precarious. Especially noteworthy is the importance of manufacturing exports in relation to total exports, at 88.7% of the total in 2001. While this percentage has decreased in the last years, manufacturing exports have continued to represent the majority of total exports. Most manufacturing exports correspond to the maquila industry (55.4% in 2005).¹

The economic opening favored growth in manufacturing production. The value of manufacturing production increased between 1995 and 2004 by 43%, at prices of 1993, and the maquila industry increased the value of its production by 308% between 1993 and 2000, and it favored growth in exports (Graphic 1), manufacturing increased its exports in dollars between 1994 and 2005 by 358%, and growth in foreign direct investment in this sector which increased by 311.1% between 1993 and 2000. Nevertheless, this manufacturing boom decelerated beginning in the year 2000 and has led to problems that can be seen in negative trade balances, and the minimal or negative increase in productivity.

Graphic. 1:



¹The maquila sector is a manufacturing sector focused on the final assembly of products for export, especially to the United States. It imports most of its inputs and is subject to a legal system with exemption from import, export and added value taxes.

Source: (Ortiz, 2006)

However, labor productivity during the period of economic opening, from 1988 to 2002, increased by an annual average rate of only 0.3%, and the total productivity of factors by minus 1.7%. In terms of capital intensity (fix capital/total employees), while this factor increased in the 1990s with respect to the previous decade, it was below its level during the import substitution period. The impact on employment has not been significant, with total employed personnel in manufacturing between 1994 and 2005 decreasing by 13.8% (Hernández Laos, 2006)(Table 1).

Table 1: Rate of yearly growing of labor productivity and index of real remunerations of employees in manufacturing sector (1993=100)

	Rate of growing productivity in manufacturing sector	Index of remunerations in manufacturing sector	Rate of growing productivity in maquila sector
1993	7.1	100	0.0
1994	9.5	104	3.7
1995	3.7	90.9	0.4
1996	10.0	81.9	-0.4
1997	5.0	81.4	-0.5
1998	4.0	83.7	-0.7
1999	2.6	85.0	-0.4
2000	4.9	90.0	0.9
2001	0.4	96.3	-2.8
2002	4.6	98.1	1.7
2003	3.1	99.4	-0.1
2004	6.1	99.5	Nd
2005	-0.1	95.9	Nd

Source: Ibid

The low increase in manufacturing productivity has taken place in a similar way to the increase in productivity in the economy in the years of NAFTA, with the difference of having previously obtained very high growth rates up until 1994, then after the 1995 crisis productivity growth but did not recuperate until the year 2000. And since that year rates have fluctuated greatly, however they are not very satisfactorily on the average. Productivity growth rates in the maquila industry have been much lower than for manufacturing, with problems in this sector beginning in the early 1990s. This is reflected in the gross profitability index for capital, which has demonstrated a downward trend (Ortiz, 2006). The same trend is found in the manufacturing profit rate since 2000 (De la Garza, 2006). And all of these has been reflected in the impact on manufacturing employment growth, since despite a growth pattern observed up until 1994, it has dropped since then and has not recuperated.

In general, working and living conditions for waged workers have not improved during the period of economic opening: 44.5% of these workers do not have a written labor contract; the number of these workers who have no labor benefits at all has increased; the percentage of waged workers without health services remains at the same level of 57.9%, and the proportion of waged workers in micro-businesses with less than 5 workers (jobs that are generally precarious) has also remained the same.

During NAFTA (1993-2005), the minimum wage deteriorated by 21.9%, wages considered in labor contracts by 20.8%, and total remunerations for manufacturing personnel by 4.2% (Table 2).

Table 2: Index of minimum wage, wages in labor contracts and average real remunerations in manufacturing sector (prices of 1993)

Año	Minimum Wage	Wages in labor contracts	Average remunerations for person in manufacturing sector
1990	116	99.3	94.1
1993	100	100	100
2000	74.9	76.1	90.4

2001	76.9	78.0	96.2
2002	76.1	78.6	98.1
2003	76.3	78.7	99.4
2004	74.7	78.3	99.5
2005	78.1	79.2	95.8

Source: STPS (2005) Estadísticas Laborales

The unionization rate (unionized population / EAP) has also suffered negative effects during the opening. Between 1992 and 2002 the national rate decreased from 14.5% to 10%, and this tendency was especially noted in the manufacturing sector, with a drop from 25.1% to 15% (Table 3).

Table 3: Unionized workers/EAP

	1992	2002
	Percent of unionized	Percent of unionized
Agropecuarian	0.57	0.29
Mines, electricity, water and supply of gas	42.17	52.95
Manufacturing	21.57	15.02
Building	4.36	1.42
Trade	4.24	1.37
Transport, communication and storage	25.34	8.73
Restaurants and hotels	7.54	3.00
Finances and administration	18.46	9.96
Communal and social services	28.23	22.47
Total	14.54	10.00

Source: Marco Tulio Esquinca (2006) "Afilación Sindical y Premio Salarial en México" en E. de la garza y C. Salas, La Situación del Trabajo en México, Plaza y Valdés-UAM, México, D.F.

The collective responses from workers also diminished, with the number of strikes decreasing from 629 in 1993 to 243 in 2003, and collective conflicts without strikes decreasing from 3,150 in 1993 to 1,693 in 2003.

2. Territorial restructuring of Mexican manufacturing

Industrial restructuring in Mexico was initiated at the beginning of the 1980s in coincidence with new economic model, when the maquila sector was expanded and automotive plants for export (not maquila) were established in the country's northern region, in contrast with old plants that were located in the central region and oriented toward the domestic market (De la Garza, 1992). During those years we witnessed the beginning of the automatization and informatization of productive processes, new forms of work organization, flexibilization of labor relations, and the formation of clusters among clients and suppliers, together with strategic alliances between large corporations, subcontracting, and the territorial restructuring of industrial production. Nevertheless, while part of the manufacturing sector was modernized, industry in Mexico became polarized between a majority of companies that are unable to make changes, and those that are becoming more productive and more competitive (De la Garza, 1998). The industrial restructuring process is, in part, associated with the economic opening, however it also has its own internal dynamics. In fact, this process began before the opening, in line with strategies of large manufacturing corporations, especially those in the United States, aimed at converting Mexico into a platform for exporting products from the maquila industry and the final-assembly automotive industry, among others (De la Garza, 1990).

After 20 years of restructuring of manufacturing results are:

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- a). Only a few companies have a high level of technology (in the year 2000 only 0.69% income of manufacturing sector was dedicated to research and development).
 - b). Most companies have made simple changes in work organization.
 - c). Most large companies (primarily export companies) are unionized, and workers have certain protection through labor contracts, working time and full-time employment, although they receive low wages (65.6% of large manufacturing establishments had labor unions in 2001; 94.9% of the workers had regular, full-time employment; in 1999 remuneration per hour, including benefits, for workers in manufacturing was US \$2.00) (De la Garza, coord., 2007).
 - d). Most of the labor force is unskilled, has little seniority in the company, and has a low level of schooling (in 2001 63.2% of workers in manufacturing were unskilled).

We can conclude that progress has been made in productive restructuring in Mexico, especially in the 1990s, however the main path followed was not technological change at its highest level, but instead, changes in work organization. The latter was not characterized by numerical flexibility or significant increase in wages (De la Garza and Bouzas, 1998) coming from the implementation of productivity bonuses, which represented only a small proportion of total remunerations (De la Garza, coord., 2006). Progress in flexibility was mainly at the level of collective bargaining agreements in functional terms, allowing for internal mobility, multi-skilled labor and promotion based on skills against seniority.

Of the six Mexican states that border the United States and in which this stage of industrialization for export began in the 1980s, two of them were already industrialized (Coahuila and Nuevo Leon), with companies from the import substitution period (Map 1), but some of these companies were restructured for production, to switch over to the export model. The installation of maquila and automotive plants in northern Mexico responded to regional considerations such as: proximity to the US market, local promotion policies of state governments (tax exemption, donation of land plots, free infrastructure), but there was also a focus on finding regions with low wages and labor peace without unionization traditions. Consequently, first of all, maquilas were established in cities along Mexico's northern border, and without industrial or labor union history, with the exception of Matamoros in the Gulf region. The most complex automotive plants were established in medium-sized cities such as Hermosillo, Chihuahua and Saltillo, however not in Monterrey, city of old industrial tradition (Map 1).

In the second stage of the opening, toward the mid-1990s, a new emerging zone with new industry appeared in Mexico's north central region: Durango, San Luis Potosi, Aguascalientes, Guanajuato and Queretaro. Both maquilas and non-maquila manufacturing establishments were installed in these states, however the export factor became key in both cases. The search for low wages and labor tranquility also influenced the installation of plants in these states, as well as in the maquilas in Puebla and the Yucatan (South and Southeast), which are exceptions in the country's south-southern region .

In other words, industrial restructuring has also been spatial in nature, with the forming of a highly industrialized new export region in the states bordering with the United States (a

particular exception is Nuevo Leon, which already had significant industrial development) plus the new emerging zone in the northern central region. These old industrial areas continue to be important: Monterrey with non-maquila development through the restructuring of companies that are coming from the import substitution period; Guadalajara with a new maquila development; and Mexico City with industry particularly focused on the domestic market. This is reaffirmed by the state-based distribution of the GNP in 1993 and in 2000 (the latter being the year with the highest peak in the manufacturing boom), as well as in the state-based distribution of personnel employed in manufacturing, with the observation that this percentage is rising in the Metropolitan Mexico City area, probably as a result of a large number of small and medium-sized manufacturing establishments that are non-export and traditional in technology and organization (Ruiz Durán and Dussel, 1999).

The growth in manufacturing production and employment that we can observe in certain zones correlates positively to an increase in foreign direct investment in this industrial sector in the northern and northern central zones of the country—although this investment also remains high in Jalisco, and metropolitan zone of Mexico City (Map 2).

In terms of capital intensity (1992-2002), it diminished in the northern states due to the expansion of maquilas, intensive in labor force, while it increased only in Nuevo Leon and Coahuila, where industry is more diversified. Also with respect to increase of labor productivity, in the North only in these two states increased. In the states in the emerging northern central region, labor productivity increased, while an increase in capital intensity is not clear in this region.

Maquilas are at the core of the export sector. It is clear from Map No. 3 that most maquilas continue to be located in the north and in Jalisco, although since the early 1990s, a portion of these maquilas were transferred to the second emerging zone in the northern central region, and also to Puebla and the Yucatan. In contrast, personnel employed in maquilas are eminently northern in nature, with Jalisco having reduced importance.

In the 1980s the new industrial sector in the North became the paradigm for the country's new flexible labor relations.

Before territorial restructuring, the country's northern zones, especially at the Mexico-US border, were characterized by very little industrialization (reduced to only few mining

enclaves), the predominance of low added value services and agriculture in Tamaulipas, and very minimal presence of labor unions (with the exception of agricultural unions in the northern Gulf area and in mining enclaves). The search for greater labor peace and lower pay for the labor force in the new industry in the North signified avoiding the “corporative protections” granted to workers in the major industries of the import substitution model. Nevertheless, the re-territorialization of the maquila and the final-assembly automotive industry toward the North, beginning in the 1980s—with the establishment of the new flexible model of labor relations that later expanded to the rest of the country, with different results—took place within, and not in confrontation with, the corporative system. In other words, the neoliberal economic model has not signified, nor does it currently signify, an end to the pact between the State and corporative labor unions, although perhaps the pact has been weakened (some authors have referred to neoliberal corporativism)². Therefore, the old corporative labor unions continue to have nearly unlimited prerogative in the unionization of new plants in the North, and any collective resistance has been minimal. While the latter has received attention abroad, it has been almost totally ineffective in practice (De la Garza, 1993). The complaints filed with the NAFTA labor office (NALCA) regarding violations of union freedoms, as well as the struggles waged by the Authentic Labor Front (*Frente Auténtico del Trabajo*) have had practically no impact on the nearly absolute control of corporative labor unions over the new worker class in the North. In any case, the rigid corporative labor unions in the major companies of the import substitution period were willing to accept new flexible labor relations, with a radical change in the contractual model—in exchange for a monopoly over representation of the new labor force, with State support and the consent of companies. The new contractual model for labor relations was introduced in the maquila industry in the North and the automotive industry that had been installed in the same region in the 1980s. It was characterized by flexibility in internal mobility and multi-skilling, in allowing temporary workers and subcontracting, in changing the criteria for moving up the job scale from seniority to capabilities, by

² In the Mexican neoliberal model, 82% of labor unions belong to traditional corporative organizations. Although the pact with the State has not been broken, labor unions have increasingly less influence in designing economic and labor policies, and they are increasingly less able to maintain real wages without decreases, to assure job stability, and to keep the same levels of flexibility in the old collective bargaining contracts. In addition, the political force of corporative leaders in the PRI is constantly diminishing, with fewer legislative representatives, senators and governors from this faction.

eliminating obstacles for management to hire and fire personnel, by decreasing benefits in relation to those received at the old plants in central Mexico, through managerial unilaterality in determining technological changes and work organization, by extending workdays with respect to central Mexico, and by lowering wages (maquilas pay 40% of what is paid in manufacturing in general). The key words in this restructuring of the labor relations model that began in the North and extended to central Mexico were flexibility and managerial unilaterality in decisions regarding the labor force, in addition to very low costs per worker (De la Garza, 1993^a).

This restructuring process—undertaken by subsidiaries of major multinational corporations as well as by establishments with restructured or new Mexican capital—was supported by the State and by corporative labor union leaders (Map 4) Support from the State came not only in the form of promotion policies, but also through pressure on labor unions to maintain low wages and flexibility in labor relations. Leaders of corporative labor unions also contributed by maintaining strikes and collective demands to a minimum (De la Garza, 1990). The model of flexibility and managerial unilaterality extended toward the country's central and southern regions, not only including the new industry in the central region, but also exerting pressure on the nucleus of companies from the import substitution period—the very core of labor union corporativism. This model made advances in labor relations in this nucleus, however it was met with collective resistance, unlike in the new industrialization zones. It was sometimes led by independent labor union leaders and at times, even by corporative union leaders. However, the flexibilization and unilateralization of collective bargaining contracts have not been as extreme as in the new industrialization zones (De la Garza, 2006).

At the beginning of the XXI century, the crisis in maquila employment affected all the regions, although not equally. On the one hand, the emerging region in northern central Mexico was the most affected in relative terms by the loss of jobs for workers. Nearly 42% (165 000 job positions) of the jobs in this region were lost between mid-2000 and the end of 2003. In the central northern region, the job loss rate was much lower, although there was a significant reduction in employment maquila.

At the beginning of this century, the regions least affected by de-unionization in general were the central, southern Pacific, and Yucatan peninsular regions, and relatively, Mexico

City as well. In contrast the regions most affected by a decrease in the rate of unionization were the northeastern, northwestern, western, central Gulf and northern regions. These are the new zones of industrialization, with the exception of Veracruz (Map 5). The most affected in the industrial sector were the northeastern, northwestern, northern, western and central Gulf regions, plus the capital city. That means, crisis of the beginning of XXIth century is mostly of new industry y new zones of industrialization (De la Garza, 2006).

Table 4: Unionized workers/EAP in industry for region

	1992		2002	
	Percent unionized	of Distribution of unionized	Percent unionized	of Distribution of unionized
Northwest	14.00	3.74	9.64	5.61
North	22.02	6.83	14.54	9.07
Northeast	42.47	16.58	35.97	23.30
Central North	12.26	6.36	14.86	10.32
West	22.16	10.77	7.90	5.61
Central	16.14	5.98	12.12	7.28
Central Golf	36.14	15.85	17.53	8.56
Pacific South	3.63	0.72	3.51	1.04
Yuacatan	15.50	2.11	13.82	2.78
Capital	25.22	31.05	14.72	26.43
Total	23	100	15.06	100

Source Fuente: Marco Tulio Esquinca, Op. Cit.

In terms of worker resistance to the new flexible, unilateral model of labor relations, we have mentioned that the most important examples have occurred in labor unions located in companies from the import substitution period, however in general the number of strikes and collective conflicts has diminished since NAFTA went into effect (De la Garza, 1993^a). In Mexico worker resistance has not followed the path of strikes, due to corporative control in both old industry, as well as particularly in new industry. The most important presence of independent unionism is found in public services (telephone, electricity in the central zone, social security, universities), while it is nearly non-existent in the areas of new industrialization, particularly in the maquila industry. In contrast, worker resistance has particularly taken the form of voluntary individual decisions to leave jobs, considering the poor working conditions and low wages. This voluntary external turnover has especially

affected new industry in the northern and central regions of the country (Carrillo and Santibáñez, 1993). The other form of worker resistance has been the elevated number of individual conflicts in the tribunals initiated by workers against companies—however without any intervention by labor unions in their favor (De la Garza, coord., 2005).

In terms of individual conflicts or demands, they are cropping up in the northern and the emerging northern central regions, while they also continue in the traditional states (*Map 6 and 6a*).

In short, about industrial restructuring, first in spatial meaning we can see that two new zones are being formed around NAFTA, a new maquila zone in the North, with two states (Coahuila and Nuevo León) where were superimposed over an older industrial zone and the northern central region; secondly, there is a productivity crisis especially in the maquila zones in the northern region, with the exception of Nuevo Leon and Coahuila, where industrial development is more diversified; and finally, that “maquilization” does not translate in the zones where expanded into an increase in capital intensity.

3. North-South restructuring

There are differences within the export maquila sector depending on the branch (the main branches are autoparts and metalworking, garments and electronics), the region, type of capital, size of establishment, etc. In the beginning maquilas were located in Mexico’s northern border states, however since then they have been relocated to nearly all of the country’s states, possibly due to the search for lower wages and other regional advantages. In this section we will first analyze the maquila sector in the northern central region (including Puebla) and Yucatan. A field study with a sample of 200 maquila establishments in non-border regions of Mexico provides us with a more precise image of the problem in maquila production models, on the basis of a Maquila Production Models Survey (*Encuesta Modelos de Producción en la Maquila—EMIM*)³

³ The primary instrument was a survey of maquila establishments divided by size, in the states of Zacatecas, Aguascalientes, Michoacan, Guanajuato, Queretaro, the state of Mexico, Tlaxcala, Puebla and Yucatan. In each state a minimum of 20% of the registered establishments were used (in states with only a few maquilas, a census was

If we consider the type of machinery and equipment used for manufacturing in the productive process, it is especially noteworthy that most of the operations (60%) are carried out with non-automated equipment and machinery. Operations carried out with computerized devices, some integrated in networks and others, are clearly a minority (15%). This reaffirms that independently of the location where technology is developed, maquilas generally do not use the highest level of technology in the manufacturing process, but instead, they use the technology intensive in work. In a complementary way, most maquilas viewed themselves as having outdated technology, and reported that visual quality control predominates, while Just-In-Time is not very used, and their own technology is not developed, they do not carry out Research and Development, and they acquire technology from their matrix or they purchase it from other companies.

Table 5: Percent of operations in production depending of type of machinery and equipment in Maquila

	Percent of operations in production
Handly tools	22.88
Machinery and equipment not automatic	37.12
Machinery and equipment automatic but not computer assisted	20.01
Automatic and computer assisted	11.81
Integrated systems of manufacturing	3.27

Source: EMIM (the difference of 100% correspond to others) (2003)

Table 6: Indicators of technological level in maquila

Indicator of technological level	Percent of establishments
Autoevaluation of to have back technology	51.0
With quality control in visual form	76.9

taken) and they were distributed proportionately according to three sizes: large (with more than 250 workers), medium (with between 100 and 250 workers) and small (with from 15 to 99 workers) (De la Garza, coord, 2005).

No use Just in Time	61.5
Develop technology by itself	14.3
Not develop research and development	82.7
Get technology of matrix	69.4

Source: Own elaboration from survey EMIM (2003)

We have developed an integrated index of the type of work organization that coincides with our considerations regarding the predominance of a Taylorist-Fordist model (non-automated technology; routine, standardized, measured work; unskilled labor force) in 76.9% of maquila establishments. This predominant form of organization is consistent with the intensive use of unskilled labor and with between low and medium technology, generally non-automated.

We have also developed a flexibility index that considers forms that are numeric (capacity of companies to hire or fire workers in accordance with production needs), functional (capacity of companies to move or use of multi-skilled workers within the productive process) and bonuses for productivity and performance, three factor weighed through factorial analysis (see methodological appendix). The results indicate a predominance of medium levels of work flexibility (85.3% of establishments). A high level of flexibility can also be associated with new forms of work organization (Rankin, 1990), however Taylorist forms—in which each job position has a specialized operator who, preferably, is not moved—do not favor multi-skilled labor, and also the predominance of regular, full-time employees in maquilas and the limited importance of bonuses within income received.

National tendencies that offer a profile of the labor force employed in maquilas confirm the following characteristics for the southeastern and central zone: there is nearly an equal number of male as female workers (42.6% of general workers are male), they are young (most general workers are between 18 and 26 years of age), they have little seniority (most general workers have less than one year of seniority), they have a low level of schooling (most general workers have not continued beyond elementary school, and some have not finished elementary school), personnel turnover is high (80.5% of workers who left the

companies did so voluntarily), and lastly, there is a predominant perception among these workers that their wages are low.

In terms of the connections between maquilas and other companies within national territory, the data collected from the EMIM survey indicates that the great majority of maquilas do not conduct market and sales research, personnel hiring, training, research and development, publicity, purchase of raw materials, acquisition of machinery and equipment, shared use of machinery and equipment, or any other activity in collaboration with other national establishments. Of these activities, the shared purchase of machinery, equipment and raw materials is at the highest level, although far from 50%. This data is, first of all, consistent with the frequency with which raw materials, machinery and equipment are imported from abroad—and this is one of the aspects of their identity as maquilas, in relation to tax exemptions. Nevertheless, fiscal implications do not explain at all the limited occurrence of other types of chaining and cooperation between maquilas and other companies located within national territory. The percentage of production value that these maquilas subcontract with other companies in Mexico was only 3.7% in 2003, and at the same time, the percentage of income that maquilas obtain from being subcontracted by other establishments was only 15.6% in that same year. Once again, the policies of matrix may be key in explaining this situation, with their global vision of the segmentation of the productive process in the international arena.

To summarize our analysis of the prevailing productive models in the maquila sector in Mexico's emerging zones (in regions other than the northern region), based on the micro-data on establishments collected in the EMIM survey, we can say that the profiles predominating in the southeastern central region are characterized by, first, a combination of Fordist organization, low or medium level technology, low or medium flexibility, and low or medium skilled labor (47.2% of establishments), followed by "precarious Toyotism" with a combination of Toyotaist organization, (team work, multi-skilled labor, internal mobility) with low or medium skilled labor, without extensive delegating of decision-making to workers and with low or medium technology and flexibility. In other words, we can confirm that the dominant production models are first of all, the Taylorist-Fordist, followed by "precarious Toyotism," both of which are characterized by skill level and

technologies that are medium or low, with minimal delegating of decision-making to workers, and with low wages.

For a comparison with data on maquilas in the northern border zone—which is the oldest and allegedly most developed zone—information is available from a recent study directed by Jorge Carrillo and covering approximately 200 plants in the cities of Tijuana, Mexicali and Ciudad Juarez (Carrillo and Gomis, 2004). Some of the key data follows a tendency similar to that of the southeastern central zone: 64.5% of the plants do not have a technical center for research and development; 75.3% do not carry out research and development; 81.5% do not design new products; the majority reported that the most important changes made in the last two years are related to final assembly and process engineering; in 88.8% of the plants, technology is transferred from matrix located in other countries; on the average they considered 40% of their productive processes to be automated; and 70.2% of purchases are imported. With regard to the labor force: 50% are women; 75.1% are workers and 11.8% are technicians; 69.4% have other labor experience; on the average they have worked in 3.1 maquilas during their lifetimes; average seniority is 3.6 years; average age is 26 years; average monthly turnover is 9.1%; and the primary labor problem is identified by management as workers' lack of responsibility. Although it would seem that maquilas in the northern border zone have more sophisticated production models than those in the southeastern central zone, the minority percentages that differ from general tendencies do not demonstrate clear ways toward processes with greater aggregate value.

It is possible that the expansion of the maquila industry into the north-central area of the country has been caused by, first of all, the high external turnover of workers in the North and the difficulty in finding workers, despite the problems to get a formal employment in Mexico. Workers have preferred to emigrate to the United States or join the informal sector, where they get more money than in maquila. Secondly, due to pressure from turnover occurring at an individual level, and resistance by workers to maquilas, there was a relative increase in wages and benefits in the North during the 1990s. Maquila wages in general have increased since the 1990s from 50% to 60% of what is paid in the overall manufacturing sector (De la Garza, coord., 2005).

Conclusions

In the early 1980s, it was systematically proposed by the new management doctrines, some academics (Ozaki, 1999; Novick and Gallart, 1997; Piore, 1988; Pollert, 1989; Pruijt, 1997), by governments and international organizations that the way to resolve the productivity crisis of the 1970s was the implementation of Toyotism with its principles of task reintegration vs. the segmentation of Taylorism; multi-skilled labor vs. simplified, routine work; internal mobility among job positions, categories and departments vs. fix job position for each person; the participation and involvement of workers in placing their tacit, accumulated know-how at the company's disposal vs. workers who simply obey the rules; and the creation of a specific organizational culture, or in other words, one shared by managers and workers, and workers' identity with the company and their work vs. an instrumental attitude on the part of workers (Boyer, 1988; Boyer, 1989). Nevertheless, as one finds with all abstract formulas, this one also had the defect of having ignored the fact that management doctrines are always based on specific territories and with local actors who provide the content, and consequently, the forms and results of their application may differ (Anfossi, 1968).

In other words, the new Toyotism, just as Taylorism before it, was inevitably established in national and regional territories with their specific particularities (Castillo, coord, 1991). In countries like Mexico, this implied:

- 1). An abundant labor force in search of employment, however unskilled, with a low educational level, young, and lacking job experience.
- 2). Willing to accept low wages.
- 3). Corporative labor unions that do little to represent interest of workers, and that are willing to accept poor labor conditions.
- 4). A government that controls labor relations in favor of companies, and that endorses, protects, and together with labor unions, contributes to eradicating dissent.
- 5). "Virgin" zones of unionization and of tradition in collective bargaining.

This "territorialization" of Toyotism (Kochan, Lansbury and Duffie, 1997) contributed, together with the decisions of key actors, the State, companies, labor unions and workers, toward giving shape to a "precarious Toyotism," as the dominant form of productive restructuring in Mexico, particularly in the new emerging zones. This involved: the partial application of Just-In-Time and Total Quality Control, which in most companies was

reduced to their simplest aspects such as quality control circles; a form of Toyotism that in Mexico involved the continuation of segmentation between operation of labor process for workers and conception for technicians, engineers and managers, with a predominance of unskilled workers; the flattening of wage scales for workers, with the consequent lack of a professional career, and especially the persistence of the barrier between workers and technician and engineers; extensive wage productivity agreements that mostly award punctuality and attendance, and with amounts unattractive as bonuses; persistence of rigidity in employment in the structured sector of the economy (a result of the corporative labor monopoly over representation, endorsed by the State), general rules on how to dismiss workers have not changed and are contained in the Federal Labor Law; functional flexibility that is broader than numerical flexibility; low wages and a majority of workers living on the borders of poverty (De la Garza, 1990; De la Garza, 1993). “Precarious Toyotism” was combined with the flexibilization of collective bargaining agreements, beginning in the second half of the 1980s in maquila and new automovil plants in the north (ACLAN, 1997; ACLAN, 1998). This form of Toyotism translated into high voluntary external turnover, and numerous individual demands (not filed through labor unions) presented individually for workers before Labor Relations Boards, claiming violations of labor rights (Middlebrook and Quintero, 1998).

“Precarious Toyotism” was made more widespread with certain success during the 1990s, especially in manufacturing, the “star” sector of the neoliberal model in Mexico. However at the beginning of the current century—just as in the second half of the 1970s for the Taylorism-Fordism model—the economic recession in the United States lowered the demand for Mexican manufactured products, and new competition for foreign direct investments and manufacturing exports to USA from countries like China, plunged Mexico into its own recession. This crisis did not occur without a contributing internal factors, specifically for the expansion of “precarious Toyotism” in the maquila sector, and at the same time, the “maquilization” of a segment of non-maquila manufacturing companies in the emerging zones, or in other words, the expansion of the dominant productive models in the maquila sector to other sectors; the dismantling of long-standing productive chains, not substituted by the minimal chaining promoted by the maquila model, and reflected in the persistent deficit in the manufacturing balance of payments; the almost complete lack of

Research and Development in the country's companies, correlated with an increasing trend toward importing their machinery and equipment; the disaster for productive companies caused by the privatization of banks, with increasingly expensive and decreasingly available credit; and finally, the lack of an industrial promotion policy that might compensate for a time for the disadvantages affecting those subjected to international competition both within and outside the country (Dombois and Pries, 1998).

In short, it was not the financial sector at the core of Mexico's economic crisis in the early years of this century—as in the prior crisis of 1995—but instead the country's productive apparatus, especially the axis of the manufacturing model, particularly the model that emerged in the 1980s and especially in the emerging northern zones (excluding Monterrey) and in the northern central region, with Puebla, Guadalajara and Yucatan. It has not yet been possible to completely leave this crisis behind, and factors external to companies have had an impact, such as those already mentioned here, plus other internal factors that have contributed to the crisis becoming one of productivity, at least in the part in which “precarious Toyotatism” predominate.

In its most abstract aspect, Toyotatism can also reach its limit for permitting the increase in productivity in certain contexts (Schuldt, 1998). Toyotatism, just like Taylorism, is also a labor system based on the intensification of work, not on the high automation of productive processes, and in this sense, it can have physical and social limitations. The physical limitations are evident, although workers are more motivated than in Taylorism and their work is more creative. There is a limit to physical capacity and to workers' capacity for increasing productivity, in terms of not being able to use up their strength for working more quickly, at the risk of biological or psychological crisis. The legal recognition of death from excess work in Japanese legislation is an indicator of these limitations (Boyer and Yamada, 2000). We can also imagine what the social limitations might be in Mexico strikes have not been the primary form used, due to control by corporative labor unions, although they are dominant in the emerging zones. Instead, most common is voluntary turnover, which is frequent in Mexico's export maquila sector, as well as dissatisfaction and lack of identity with work, company and productivity that leads to more individual demands than collective demands, due to the corporative control mentioned here earlier. The crisis of Toyotatism can also be viewed as a crisis in family relationships—since families are forgotten in the face of

long workdays, which are necessary to comply with productivity goals, and when working on days off, for the same reason (Maurice, 1991). Finally, the crisis can be viewed as a crisis of identity with the company, with a choice between living or working (Berggren, 1994), or as a crisis of personal realization (Kumazawa, 1996), which can lead to a rejection of this work—that takes over one's entire life and reduces the worlds in one's life to only the world of work. And it is the crisis of continuous improvement that has no limits in consuming all the integrity of workers in order to promote productivity.

Other specific aspects contributing to the crisis of Toyotism in Mexico have included the contradiction between low profitability in the economy, especially in maquila during the first years of this century, and the real although limited wage increases in this sector may be caused for the very high turn over, which contributed to turning the crisis of productivity into one of profitability. Nor do these real increases manage to recuperate the purchasing power of manufacturing wages from the beginning of the 1990s, nor do they lead to the conclusion that the unions or current government promoted a transition to a higher path to development, since it did not have an industrial policy in line with this goal, and because it preferred to restore traditional corporative labor union relationships.

Mexican corporativism has always been part of the State (Cook, 1999). For long periods of time, it was confused with a political party (corporative labor unions in Mexico belong to the PRI political party), however the change to a government under a different political party in the year 2000 demonstrated that the roots of corporativism can be found in the labor arena more than the political party system. What we find now are corporatist unions connected to government policies of a party different of PRI, but not necessarily to the electoral system. And thus, labor union corporations are increasingly less important in electoral terms, however there is no substitute for them in the current control over the labor relations system. This system, built over a long period of time, involves the Labor Department and Labor Relations Boards, in which once again employers and labor union leaders come together, and in which corporativism is reproduced primarily as a relationship in which labor peace through labor union control is offered in exchange for maintaining quotas of power in labor union leadership (Bronstein, 1997).

In spatial terms, corporativism is more predominant in the new than in the old industrial zones, however what we find now is a type of corporativism that has lost its capacity to

mediate exchanges among workers, companies and the State. It has also been revealed as an instrument of control for the benefit of companies and labor union leaders (Carrillo and Ramírez, 1990). Nevertheless, the agreement among labor union leaderships, private enterprise and government officials in the Ministry of Labor that are aimed at maintaining control over workers appears to be an omnipotent system in practice and in the subjectivity of actors at the base level. In these conditions, resistance by the new working class in the North has not, in general, followed the labor union path, but instead has led to turnover, individual struggles, dissatisfaction with work, and migration to the United States.

In Mexico there is a new working class that has emerged from the new industrialization zones in the northern and central-northern regions of the country. It is different from the old working class in that it is younger, there are more women, and working and living conditions are precarious, however it is especially different due to its high labor and spatial mobility. The new working class is nomadic—and it is so by its “own choice”. Unlike what is theorized in developed countries, this working class is not fired from employment, except in years of crisis, and also this is not the result of hedonism in terms of having free time. Instead, the workers in this class leave employment due to an accelerated wearing down process, a lack of identity and poor working conditions. The escape valves for this worker class consist of the informal sector and international migration. This working class is affiliated with corporative labor unions, as most in the old worker class were, however the new worker class has never enjoyed the corporative protections that workers in large companies in the import substitution period did. Therefore, their loyalty to worker leaders is nominal at best. This worker class is “more free” from clientelistic ties and corporative traditions, however to date it has not initiated important labor movements and has instead opted for individual or family solutions to the precarious conditions experienced.

The crisis of “precarious Toyotism” contributed to the stagnation or slow growth of the economy, especially the manufacturing sector, and including the export maquila sector. Only macro-corporations—such as the 500 largest in Mexico, which in general are not part of “precarious Toyotism” —seem not to recognize some of the limitations mentioned, and have recently initiated another restructuring process based more on hard technology and on the “informatization” of administration and of the actual productive and distributive

process. Some academic will surely point to the economy of knowledge, however in simpler terms, we would emphasize the purchase of technology and computer systems, with some innovations in the companies themselves, which do not eliminate the difference between the knowledge required for the creation of new equipment controlled by computer or software, and the operation of such equipment. In any case, the way in which this possible change is conceptualized in Mexico's gigantic companies, located in the old industrial zones of Mexico City, Monterrey and Guadalajara, makes it possible to predict new polarization with other major zones (Dussel, 1997). And it poses the question of which production models will present alternatives to "precarious Toyotism" in the 21st century which ideal form is in the emergent industrial zones of north and central part of the country.

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Enrique de la Garza Toledo: Ph. D. in Sociology, Titular Professor of the Department of Sociology of the Metropolitan University in Mexico City (UAM); publisher of Work Journal of the International Labor Organization and the UAM; Visiting Professor of the Universities of Warwick in England and Berkeley in California; national award in Economics and in Labor Research: publisher of the Latin American Handbook of Work Sociology (Fondo de Cultura Económica, 2000) and State of Working in México, 2006 (Plaza y valdés, 2006)