

# **The role of FDI in Mexican industrial restructuring and its impact on regional development : The case of Japanese FDI, 2006-2014**

Salvador Carrillo Regalado<sup>1)</sup>

This study focuses on Foreign Direct Investment (FDI) in the manufacturing sector of Mexico with the aim of analyzing their regional location through recent history after the World War II (WWII) which modern industrialization was encouraged. In particular, this study delves into the factors of attracting Japanese FDI in Mexico and in some states of the West Central Region.

The quantitative importance of FDI in Mexico, is shown in the following data: the total FDI which Mexico received from 2006 to 2014, was 239.572 billion dollars, whose average represents only 0.6% of GDP in Mexico; moreover it tends to focus on manufacturing activities<sup>2)</sup>. Namely, although the average of these activities accounts for 48% of the total of FDI, percentage in the period of 2013 and 2014 were 66% and 56%.

Specific objective is to verify whether the Japanese manufacturing FDI also plays host to the dominant locational trend of long-term manufacturing FDI. In general, an appreciation of the study indicates that the manufacturing locations of FDI obey a double causality: i) seek to have access to the US market, so the border region with the United States has an important role in receiving these investments;

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1) Research Professor at the University Center for Economic and Administrative Sciences of the University of Guadalajara.

2) For this calculation, it is used the values of GDP based on 2008, in original series and values in pesos at current prices (Instituto Nacional de Estadística y Geografía (INEGI), Banco de Información Económica (BIE)), and an average exchange rate of 12.3076 pesos per US dollar.

and ii) is subject to a logic of centrality around Mexico City, and two states in Central West, such as the state of Guanajuato and Aguascalientes, which currently make up an industrial corridor up to the state of Queretaro, have played an important role since the early nineties of the twentieth century. Also an important part of Japanese automaker FDI has concentrated on these states.

In order to consider the role of FDI in the context of modern, industrial and urban development of Mexico, it is appropriate to offer a brief mention of some historical background on the period of import substitution industrialization (ISI), especially, from WWII to the early eighties of the twentieth century. Similarly, there is the mention of the subsequent industrial restructuring in this period, circumscribed by a neoliberal development model and an open economy model to foreign competition, gestated model from 1982.

## **1. Background of the industrialization of Mexico in the twentieth century: the model of Import Substitution Industrialization (ISI)**

In general, the implementation of ISI model shows the following characteristics:

- 1) ISI consists of a model of economic growth and development basically to promote industrialization for the domestic market. In the first two decades, although in more limited way, the production was specialized in the consumer goods, and subsequently the production chain to the intermediate goods and capital was expanded. This situation induced a relative break-down of inter industrial chains and increase of dependence on imports of intermediate and capital goods (Guillen, 2013) and which has not been overcome until now.
- 2) The execution of a protectionist economic policy towards foreign competition for manufacturing branches. Ultimately which incubated an propitious environment to inefficiency of this sector in terms of poor quality, high cost, and therefore poorly prepared for external competition

would happen in the next stage.

- 3) A stability of exchange policy (peso / dollar) and price level<sup>3)</sup>. However this stability generated a persistent overvaluation of the peso which proved favorable for imports and unfavorable for exports, which meant generating trade deficits throughout the period ISI (Annual Reports of the Bank of Mexico, [www.banxico.org.mx](http://www.banxico.org.mx)).
- 4) ISI generated an average annual GDP growth rate of 6.2% between 1940 and 1979 (Annual Report of the Bank of Mexico)<sup>4)</sup>. This rate is much higher than that of 3% in the period of 1980-2014; the new neoliberal model and open economy (Annual Report of the Bank of Mexico and INEGI, BIE). This growth of the economy in ISI period was achieved by extensive use of production factors with limited contribution to productivity growth, therefore, a weak technological development was obtained. (Solimano, 1998, cited by Guillen, op. Cit.).

The ISI model primarily oriented to satisfy the domestic market, led industries to tend to be located in big cities of Mexico, particularly in the metropolitan area of the capital. In general, major cities in each state, became targets of massive flows of investment and rural-urban migration. The capital of Mexico attracts great attention for this activity, and at the regional level, the cities of Guadalajara in western Mexico and Monterrey in the Northeast do. This migratory phenomenon strongly gave influence to population growth of cities, in the period 1940-1970, and this period coincides with the highest rates of population growth in Mexico (Unikel, 1978,

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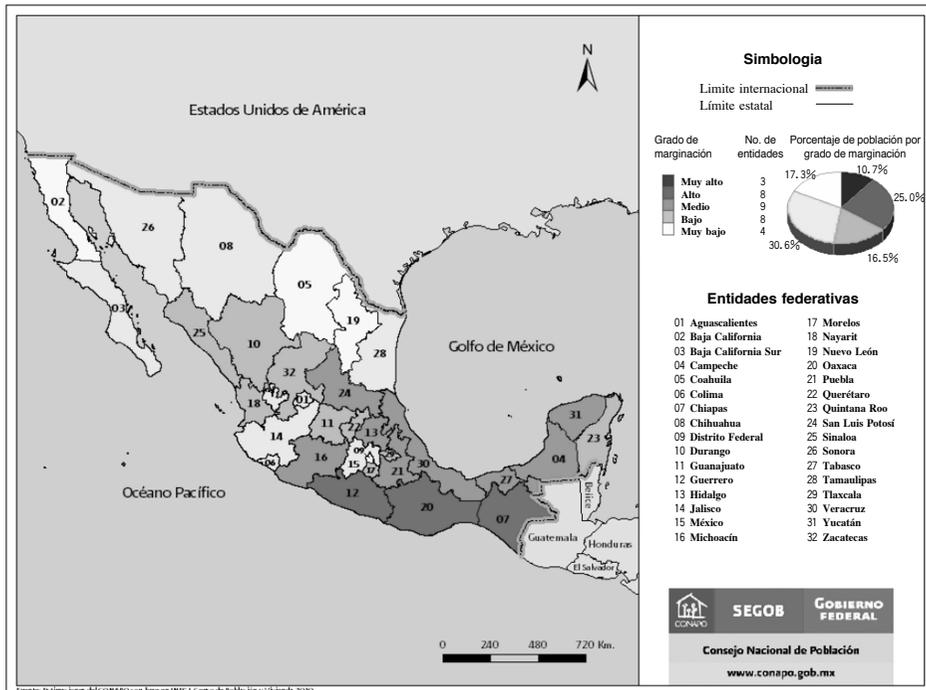
3) According to the annual reports of the Bank of Mexico ([www.banxico.org.mx](http://www.banxico.org.mx)), a fixed exchange rate remained at 12.50 pesos per dollar between May 1954 and August 1975; and the average of annual controlled inflation was 2.7 percent between 1956 and 1972. From last year of this period, inflation rose double-digit, accompanied by a devaluation of the peso in 1975, because of the imbalance of public finances and high accumulated trade deficits.

4) In this achievement, it would also have to consider other complementary factors to the rapid growth of import substitution industrialization, as were oil exports and goods and raw materials from the mining and agricultural sectors; as well as remittances from migrants in the United States. Importantly, this financed trade deficits generated by this industrialization (Annual Reports of the Bank of Mexico, several periods between 1955 and 1982).

William, 1984).

Therefore in academia, the priority is in the study of migration of labor force and the territorial dimension of regional markets to the extent that they represented the fundamental basis for economic growth in central cities (Pozos, 1996). Thus, ISI development model strengthens national integration of a concurrent highly concentrated urban-regional system with the growth of the domestic closed economy market (Unikel, 1978; Sánchez, 2016). Another implication of the ISI model led to a socio territorial inequality, according to integration of the regions, or not being industrial and urban development of the twentieth century. In particular, the most marginalized regions in the Mexican southeast, that even with the change to the new development model implemented since the eighties of the twentieth century, are kept in the same condition (see **Map 1**).

**Map 1.** Degree of marginality by state in Mexico, 2010



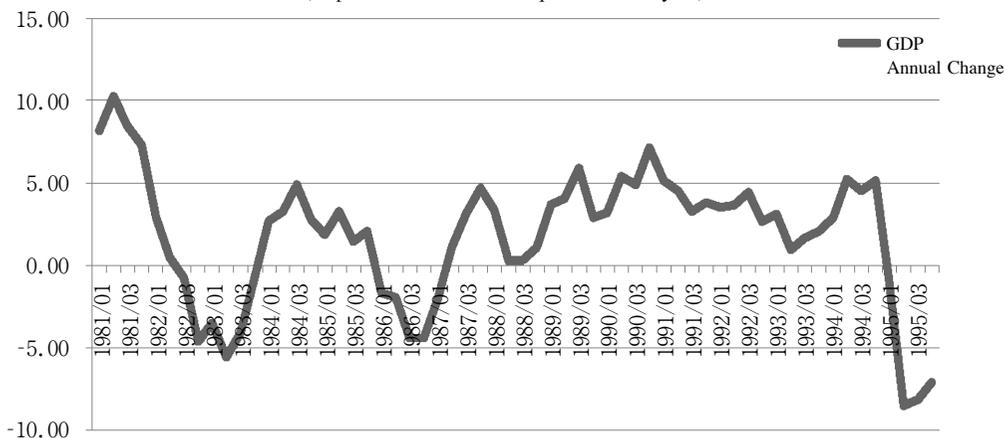
Source: CONAPO, Índices de marginalidad, 2010

## 2. Industrial restructuring in the new model of open economy and its regional effects

Presidential terms of Miguel de la Madrid Hurtado and Carlos Salinas de Gortari (1982-1988 and 1988-1994) were key to move ISI model to a neoliberal model and model of openness to trade and foreign capital, required by the IMF (Guillen, 2013). In a first stage, it carried out indiscriminate unilateral trade liberalization for Mexican economy to prepare for entry into the GATT in 1986; in the second, it was possible to sign the North American Free Trade Agreement (NAFTA) in 1994. Then in the third stage, it was triggered consolidation and diversification of trade relations, until the present, covering other bilateral and multilateral free trade agreements with forty-five countries, according to the Ministry of Economy (SE, Federal Government). In short, this new model led to a restructuring of industrial activities that favored a growing presence of transnational corporations in the manufacturing of high technological requirements and the dynamism of foreign trade in manufactures.

First, the economic context in which this transformation begins was not entirely favorable because Mexican industrial enterprises resolve the demands of trade liberalization. On the one hand, while prices of exported oil had risen more than double by the year 1980 (31 dollar a barrel) and remained relatively high level until 1985, then they underwent a sharp decline to 12 and 15 dollars a barrel until the year 1995 (Economic Information, INEGI). On the other hand, particularly the level of economic activity in the early years of the implementation of the model for trade liberalization, was suffered severe and continuous economic crises in 1982, 1983, 1986 and 1988 (**Figure 1**), accompanied by hyperinflation up to three digits, which weakened political support for Mexican industrial companies to face foreign competition. While, during the subsequent four years it is able to stabilize the economy, in late 1994, it began a fast devaluation of the Mexican currency that brings another economic crisis during 1995, and the first quarter of 1996, even deeper than the long-suffering in the eighties, the situation got worse by a more lasting financial and mortgage crisis (**Figure 1**). In short, this context was

**Figure 1.** Quarterly rate of annual change in GDP of Mexico, 1981-1995  
(In percent over the same quarter of last year)



Source: Author based on information of BIE, INEGI, Dirección General de Contabilidad Nacional y Estadísticas

particularly severe for the integration of the Mexican manufacturing sector to foreign competition and to the new demands of costs and quality of global manufacturing output. Consequently, before the national economic outlook, the industrial restructuring of the new model of economic development in Mexico, meant the collapse of several branches of the Mexican manufacturing industry, which yielded to intense competition from imported goods, and hindered their modernization and even survival of a significant part of them (for example, food companies, shoes, textiles and clothing, toys and many other consumer goods, manufactured components and inputs: Guillen, 2013).

Second, in the point, industrial restructuring meant, to the present, the intensification of the global production of manufacturing transnational companies located in Mexico (particularly the automotive industry and electrical and electronic industry), that have chosen mainly to cater to foreign markets. This restructuring has focused on objectives of quality, innovation, more efficient administrative procedure, minimize costs and better use of external economies of industrial and accumulation which depend on regional urban location. In particular, the new requirements of quality, cost and production flexibility of multinational companies, prevented a majority of domestic manufacturers continue to supply parts, components and inputs to these companies. In this way, links between suppliers that had been created

throughout the sixties and seventies of the twentieth century were reduced (in the case of the automotive industry, see Hoshino, 2014).

Third, in the territory, under the new development model the Mexican economy accelerated the presence of maquiladoras and assemblers, particularly from the United States in the last five years of the twentieth century. Although the number of these establishments has decreased in the twenty one century<sup>5)</sup> because of the displacement in Southeast Asia, which constitute an important economic base of the Mexican economy, and its location has historically favored the Northern Mexico Border region (Baja California , Nuevo Leon, Chihuahua, Coahuila and Tamaulipas), where relevantly the maquiladora electronics industry pre-existed since the sixties and seventies (except for the state of Nuevo León). In addition, maquiladoras and assemblers, also turned to the large regional cities, as Monterrey and Guadalajara, and other cities in the states of Guanajuato, Queretaro and Sonora (INEGI, BIE).

The current result of the Mexican model of liberalism and economic liberalization implemented since the last three decades, has been the continuation of uneven regional development in both economic and social terms. While the Mexican economy, particularly the manufacturing sector, continues to modernize technologically through a base provided by transnational companies, also most non-oil exports is responsible for carrying out<sup>6)</sup>, but the impact on economic growth was limited.

Moreover, the continuation of the dynamic regional inter inequality of Mexico, can hypothesize that direct foreign investment for industrial implementation, involves a regional dynamic that contributes to greater urban concentration and regional inequality. There exist a favor to select regions with a relative geographical location of greater access to US markets and major metropolitan areas of Mexico. The latter

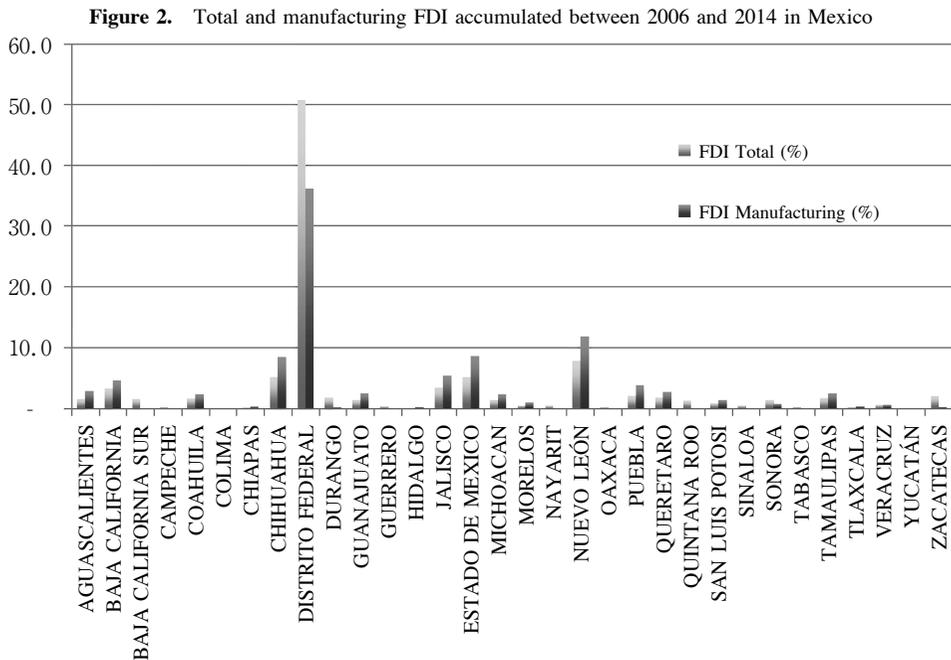
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5) In the past nine years, from 2007 to 2015, the number of establishment decreased in average from 5,111 to 5,025. (INEGI. Estadística Integral del Programa de la Industria Manufacturera, Maquiladora y de Servicios de Exportación).

6) For example, the automotive industry in Mexico has become one of the eight largest exporters of cars in the world, and it represented 30.8% in the merchandise trade balance of the total value of non-oil exports in 2014 (INEGI, La industria automotriz en México, 2013; y el Boletín de prensa 19/15 del INEGI, 27/01/2015; AMIA, [www.amia.com.mx](http://www.amia.com.mx)).

is also holder of industrial economy and agglomeration economies which provide strong location incentives to large multinational companies.

**Figure 2** exhibits the participation of states in total FDI and manufacturing FDI accumulated between 2006 and 2014<sup>7)</sup>. The concentration of FDI in Mexico City (Federal District) is clear: 51% of total FDI and 36% of manufacturing FDI. Second, it is the state of Nuevo Leon, whose capital city (Monterrey) has historically excelled in the industrialization of basic inputs and capital and headquarters of large companies. Then, the State of Mexico (which provides 26 municipalities in the metropolitan area of Mexico City) accounts for 8% of total FDI and 12% of manufacturing FDI. The fourth place is Chihuahua where locates in the border with the United States; then Jalisco, where Guadalajara metropolitan area has concentrated industry in the state, is positioned. For other states, those located on the northern border are emphasized,



Source: Author based on data of INEGI, Secretaría de Economía, Dirección General de Inversión Extranjera

7) Manufacturing FDI reaches approximately accumulative value of 114,666.4 million dollars between 2006 and 2014, representing 46% of total FDI received by Mexico in this period. Meanwhile, services recorded 43%, highlighting the financial services and insurance, trade, telecommunications, real estate and hospitality.

particularly Baja California where Tijuana locates, as most important city in attracting maquiladoras; and also other states surrounding the Federal District and two more states located in the Central West; Aguascalientes and Guanajuato. These latter states have intensified their modern industrialization since 1995, thanks to Japanese automaker deployment; but particularly the state of Guanajuato has had the best position to receive the recent Japanese automotive investment due to several factors as: its central location, possessor of a wide valley (known as Bajío) which has developed a regional hub with major urban centers that link to Queretaro, state of Mexico and the capital of Mexico.

In general, the favored states by FDI, are highlighted by containing greater degree of urbanization and development that have adequate urban infrastructure and accessibility to agglomeration economies of large cities; and also, the location of FDI abounds in the area of about 350 kilometers from the capital of Mexico or the northern border states, because of its favorable access to the US market. On the other hand, about twelve states that collectively received only 2.8% of total FDI in Mexico in the period 2006-2014, are marginalized.

### **3. Theoretical and empirical background about the location decision of manufacturing companies**

One of the main reasons why one seeks to attract FDI comes from the possible linkages with local suppliers. Javorcik (2004 and 2008) mentions that multinational companies can benefit even transferring technology and knowledge to local suppliers, hereby looking for reducing costs and increasing the quality of inputs and products which they buy. According to The Pacific Economic Cooperation Council & The APEC Business Advisory Council (ABAC, 2006), one of the main reasons for Japanese multinationals to increase FDI in developing countries is to compete in international markets. Thus, they seek to strengthen the global competitiveness of Japan through the location of their businesses where they can combine their technological advances, achieving recognition of their brand, and taking advantage of global distribution systems with low production costs in host countries. Urata

(2002), based on a survey of the “Ministry of Economy, Trade and Industry (METI)”, notes that Japanese companies which invest abroad seeking to expand their local sales, in the case of suppliers, follow the location of the leading companies as big automotive assembler.

By the experience in recent years, for example, in the case of automotive assembler in Mexico, its location has dispensed with the advantages of meeting Mexican supplier companies of parts, components and consumables that meet their demands for quality, price, volume and delivery services; but they have found a accessible workforce, relatively inexpensive and a large local market (direct interviews to the director of supplier level Tier 1 in Guanajuato, May 2015).

In short, among the factors of location of FDI, most Japanese companies seek domestic markets for their investment; following the presence of other national company, and seeking adequate infrastructure and urban facilities in the target areas. But definitely, Japanese companies also decide to invest in Mexico to take advantage of the Agreements and FTA (including NAFTA) and the strategic location of Mexico, which allows preferential and efficient access to markets of Latin, particularly with U.S.

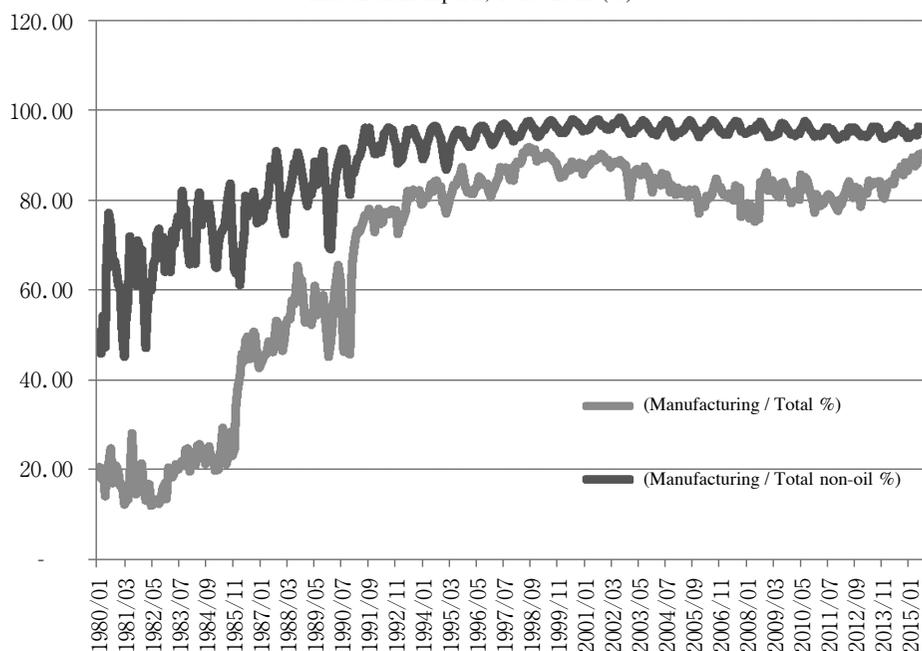
On the other hand, it can be concluded that one of the main impediments to increase Japanese FDI in Mexico is the lack of a modern and efficient local manufacturing industry, and of ability to compete with global suppliers of Tier 2 and 3 (Japan Institute of International Affairs, 2005). This also means to depend on the import of a large number of parts and components, the degree of generating trade deficits in manufacturing scale (INEGI, BIE).

In general, there are several economic advantages that are available for multinationals, varied and determinants companies, and also are the reasons why domestic companies have not been integrated into industrial value chains of these companies, particularly the Japanese company, this is because Mexico has been neglected in the implementation of a policy under the modern industrial development, which is necessarily long term by its nature, despite they show respect to industrial experience since WWII; also it is being overtaken by several emerging Asia Pacific countries. Today, for example, China is significantly taking the place of Mexico in

industrial links with main partner for Mexico in the North.

Moreover, apart from the endogenous production linkages with multinational manufacturing companies, their relevance has been fundamental in the volume of foreign trade in Mexico. According to the data of **Figure 3**, during the initial period 1980-1985, when the Mexican government still has not applied significant measures of external openness, as to the participation rates in manufacturing exports, they remained below 30% of total exports (including oil exports); however, after the crisis of 1986, sharp increases were presented in these participation rates. And for successive years since 1990, its rate was estimated, with a clear regularity, above 80% of total export including oil exports by Mexico, and over 90% of total non-oil exports. In other words, if the specialization of a country is qualified by export, Mexico is undoubtedly a manufacturing country, even if dependent on the outside. In the next section, we consider this aspect in the case of the automotive industry, focused on regional impacts.

**Figure 3.** Participation rate of manufactured exports in total exports and non-oil total exports, 1980–2015 (%)



Source: Author based on data of INEGI, BIE

Note: Exports of the maquiladora industry are included from 1991. This affects comparability before or after this year.

#### 4. Automotive manufacturing activity and its regional location in Mexico.

According to the Mexican Association of Automotive Industry (AMIA), Mexico produced respectively 3.2 and 3.4 million cars and pickup trucks in 2014 and 2015. Production ranks the eighth as car manufacturing country in the world, exporting about 82 percent of these volumes<sup>8)</sup>.

In their long national history seventy years, the automotive subsector has demonstrated that the regional location of this subsector companies is generally held in two territorial accessibility factors: the US market and the main centers of the domestic market, thus favoring the regions of North Border, Central and West Central of Mexico.

More in particular, **Map 2** and **Table 1**, indicate the location of 10 automakers with 20 leading assembly plants for the production of car, engine and pickup cargo truck. The states where more assembly plants concentrate are: the State of Mexico (in two locations of old industrial tradition, annexed to the capital: Toluca and Cuautitlán), Guanajuato (offers the newest plant location in the urban corridor linking Queretaro, comprising the cities of Silao, Salamanca and Celaya) and Coahuila (Saltillo and Ramos Arizpe, which are cities near the large industrial city of Monterrey).

In chronological order, the states that have some automotive plant established in the first third of the twentieth century, are in the central region of Mexico: the State of Mexico (Ford established in 1932, GM in Mexico City in 1937; then moved to Toluca in 1965); Puebla (WW plant was established in the capital city of the state, since 1954); and the state of Morelos (CIVAC plant of NISSAN in the city of Cuernavaca, since 1966 - nissannews.com); finally, the Renault car plant, which is associated with DINA in the town of Tulancingo (Sahagún city), state of Hidalgo, was established in 1960<sup>9)</sup>. In

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8) See AMIA ; [www.amia.com.mx](http://www.amia.com.mx), and PROMEXICO ; [http://mim.promexico.gob.mx/wb/mim/auto\\_perfil\\_del\\_sector](http://mim.promexico.gob.mx/wb/mim/auto_perfil_del_sector)

9) Renault entitled National Diesel (DINA) Mexican public manufacturer of heavy truck company to produce auto from 1960 to 1983, then Renault resumed their manufacture until 1986 ([renault.com.mx](http://renault.com.mx)). There are currently only a few statements of returning to Mexico in partnership with NISSAN.

**Map 2.** Location of light vehicle assembly plant by states in Mexico, 2015



Source: PROMEXICO, Secretaría de Economía, Data of AMIA 2015  
[http://mim.promexico.gob.mx/wb/mim/auto\\_perfil\\_del\\_sector](http://mim.promexico.gob.mx/wb/mim/auto_perfil_del_sector)

short, this clearly indicates that the locations obeyed the criteria to pay attention to the most important regional market of Mexico, therefore during the replacement period of import (approximately between 1940 and 1982) there was no interest in exporting vehicle by assembly company.

Subsequently, in a second series of deployment, light vehicles assembler in Mexico generously started their operation in the eighties, and this carried out the deconcentration of the location toward the states of the Northern Border Region. This occurred in response to the new phase of economic growth that favored manufacturing export onwards, also taking advantage of workforce less demand of unionization than that of the center of the country. Chrysler began their operating with Fiat in 1981, manufacturing engines in Saltillo Coahuila; and expanded their production into light truck and car in 1995, 2010 and 2013; Ford assembly plant opened in 1986, a car plant in Hermosillo, Sonora and other engine manufacturer in

**Table 1.** Regional distribution of light vehicle assembly plants in Mexico, 2013

State	City (plants)	Company	Product
<b>1. CENTRAL REGION OF MEXICO</b>			
ESTADO DE MEXICO	Toluca (2) y Cuautitlan (1)	Chrysler, Ford y GM	Car and engine
PUEBLA	Puebla (2)	WW	Car and truck
MORELOS	Cuautla (1)	NISSAN	Car and pickup truck
<b>2. NORTHERN BORDER REGION</b>			
NUEVO LEÓN	Monterrey (1)	KIA*	Car
CHIHUAHUA	Chihuahua (1)	Ford	Engine
BAJA CALIFORNIA	Tecate (1)	Toyota	Pickup truck
COAHUILA	Saltillo (2) y Ramos Arizpe (1)	Chrysler-Fiat y GM	Engine, pickup truck and car
SONORA	Hermosillo (1)	Ford	Car
<b>3. WEST CENTRAL REGION</b>			
JALISCO	El Salto (1)	Honda	Car
GUANAJUATO	Silao (2), Celaya (1), Salamanca (1)	GM, Honda, Mazda y WW	Pickup truck, car y engine
AGUASCALIENTES	Aguascalientes (2)	NISSAN	Car and engine
<b>4. NORTH CENTRAL REGION</b>			
SAN LUIS POTOSI	San Luis Potosí (1)	GM	Car

\* Plant will start their operations in the second half of 2016

Source: PROMEXICO, Secretaría de Economía, Data of AMIA.

Chihuahua in 1983; GM inaugurated the assembly plant in Ramos Arizpe, Coahuila, in 1981; and NISSAN also inaugurated their second plant (A1) in Aguascalientes in 1982.

In the next run of the decade of the nineties and until today, the assembly company of light vehicle and engine, stopped favoring location in northern border states (except Toyota that initiated the assembly of pickup truck “Tacoma” in Tecate, Baja California in 2004) and were preferred the states of the West Centre region, where the location is relatively central for access to domestic consumption markets and ensures high external economies of industrial and urbanization, namely: GM got a leg up locating a large assembly plant in Silao, Guanajuato in 1995; also, Honda did in El Salto, Jalisco in 1995 and GM extended their car production plant in San Luis Potosi, in 2007; for the year 2003, WW accompanied GM with another high tech engine plant in Silao. In the state of Guanajuato also two assembly plants of

Japanese brands were established; Mazda in Salamanca in 2013 and Honda established their second plant in Celaya in 2014; meanwhile, Nissan began operation with a second plant in Aguascalientes (and third in Mexico) in 2013. Finally, the incursion of Korean automotive industry in Mexico will start by their activities in mid-2016 with a Kia plant in the city of Monterrey.

In short, assembly companies in Mexico have gone through three phases or location patterns, depending on their priorities in terms of accessibility to local consumer markets, to labor, to the proximity to the US market or territorial areas which guarantee them greater external economies, among other factors. In the first phase, auto assemblers were positioned predominantly in the Central Region of Mexico, where began with US companies in the thirties and extended with the arrival of companies from other countries until the late seventies. This phase or localization pattern are indisputable the result responded to the need for achieving access to major domestic market and to major agglomeration of goods and services in the country, that is to say, of the national capital. The second phase is defined by the eighties of the twentieth century, where the same companies guide the location of new plants toward the states of the Northern Region of Mexico, seeking very possibly areas less congested, labor without strong union tradition and better access to the US market.

In the third identified pattern, new plants that add to this industry prioritized the states of West Central Mexico, particularly in the urban corridor of the city of Aguascalientes, which is linked to the southwest with Guadalajara (the main metropolis of this region) to the north with San Luis Potosi and to the east with major cities of the Bajio in the state of Guanajuato, Leon - Silao - Salamanca - Celaya; continuing to Queretaro and Mexico City. It is at this stage that recent investments of WW, GM and Japanese firms Nissan, Honda, Mazda are located and possibly concentrate more in the near future (as Toyota that plan to produce "Corolla" model 2019 and plant expansions to accommodate the manufacture of other brands or models of cars). In general, because most car models manufactured in plants erected in this phase are the highest demand for each brand in the domestic market, it deduces that the proximity to local markets largely determines their establishment in this region,

which also falls within a context of consolidation of the more liberal model in labor matter, of permissibility of foreign investment and opening to foreign trade; and in another dimension of better land and aerial communication, and good accessibility to the capital.

This automotive boom in Mexico has generated the attraction and development of a support industry or supplies of parts, components and raw materials to assembly plants. **Table 2** presents the location of 898 supplier companies in different levels (Tier) or blocks. These companies generate a network of supplier where Tier 1 is linking directly with brand assembler, while Tier 2 provides to Tier 1 and so on; although it is possible that a supplier has more than one level of two or more customers. So, in this way, the links that a company would have within the supplier's network, will be an important factor in the decision of their specific location. In this sense, it is expected that at least the auto parts supplier companies in the first two levels (Tier 1 and 2) intend to be located as close to assembly plants that they supply, forming automotive cluster, thus guaranteeing more efficient technical requirements, quality and "just in time".

Whereas the available information about the auto parts industry presented in **Table 2**, which is for both light and heavy vehicle without distinction, it is necessary to add the location analysis by states of heavy vehicle assembler. This will identify the total states of Mexico that exist automotive producers and verify the localization pattern of suppliers in Mexico, also correspond to the states where the leading assembler companies of both types of vehicles locate. **Map 3** provides the location of the 13 plants producing trucks, engines and passenger buses by states, including plants of two Japanese companies, ISUZU in the state of Puebla and HINO in Guanajuato. By comparing **Map 2** and **3**, it states that 6 states of Mexico of the 8 marked on the **Map 3**, are both producer of light and heavy vehicle and 2 states (Queretaro and Hidalgo) are for only heavy vehicles; therefore, the latter are included to complete producers of motor vehicle of all the 14 states of Mexico in general.

For the year 2014, Mexico ranked sixth among the principal 10 auto producing countries in the world, and ranked fifth among the world exporters of these goods;

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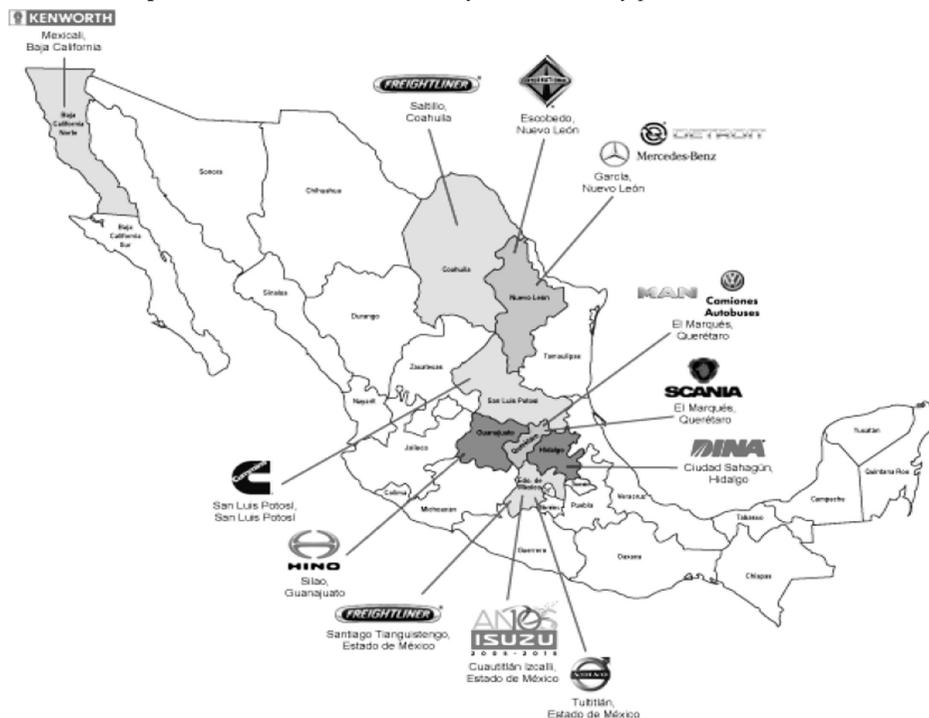
**Table 2.** Automotive supplier companies by region and capital origin, 2015 (Percentages)

REGION / STATES	TOTAL OF COMPANY	COMPANY WITH SHARE OF CAPITAL**		
		MEXICAN	JAPANESE	OTHER COUNTRY
<b>1. REGIONAL CENTER OF MEXICO</b>				
Querétaro (0+2)*	22.61	25.61	10.71	23.85
Estado de México (3+3)*	8.57	8.29	7.86	9.20
Distrito Federal	4.79	6.34	5.00	2.87
Puebla (1+1)*	3.12	1.46	8.57	2.87
Tlaxcala	1.45	1.22	0.71	2.01
Hidalgo (0+1)*	1.34	1.46	1.43	1.15
Morelos (1)*	0.45	0.49	–	0.57
<b>SUBTOTAL</b>	<b>42.33</b>	<b>44.87</b>	<b>34.28</b>	<b>42.52</b>
<b>2. WEST CENTRAL REGION</b>				
Guanajuato (4+1)*	13.25	12.68	10.71	14.94
Jalisco (1)*	3.01	2.93	4.29	2.59
Aguascalientes (2)*	1.89	1.71	3.57	1.44
Michoacán	0.11	–	0.71	–
Zacatecas	0.11	–	0.71	–
<b>SUBTOTAL</b>	<b>18.37</b>	<b>17.32</b>	<b>19.99</b>	<b>18.97</b>
<b>3. NORTHERN BORDER REGION</b>				
Nuevo León (1+2)*	22.49	22.68	15.71	25.00
Coahuila (3+1)*	5.46	5.85	7.86	4.02
Baja California (1+1)*	2.67	1.71	7.14	2.01
Chihuahua (1)*	1.45	0.98	2.14	1.72
Tamaulipas	1.00	0.73	1.43	1.15
Sonora (1)*	0.56	–	2.14	0.57
<b>SUBTOTAL</b>	<b>33.63</b>	<b>31.95</b>	<b>36.42</b>	<b>34.47</b>
<b>NORTH CENTRAL REGION</b>				
San Luis Potosí (1+1)*	4.57	4.39	6.43	4.02
Durango	0.89	1.46	1.43	–
Veracruz	0.11	–	0.71	–
<b>SUBTOTAL</b>	<b>5.57</b>	<b>5.85</b>	<b>8.57</b>	<b>4.02</b>
<b>SOUTH AND SOUTHEAST REGIONS</b>				
Yucatán	0.11	–	0.71	–
<b>SUBTOTAL</b>	<b>0.11</b>	<b>–</b>	<b>0.71</b>	<b>–</b>
<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Total states of more than 4%	81.74	85.85	84.29	81.03
Total of 3 major states	58.35	60.98	37.14	63.79
Total number of company	898	410	140	348

\* It refers to the number of plants of vehicle (light + heavy); \*\* Indefinite participation

Source: Author based on the information of auto parts companies, data of PROMEXICO, INA, JETRO, JICA, ANPACT, 2015 and reports of Secretaria de Economía.

Map 3. States for the location of heavy vehicle assembly plant in Mexico, 2015



Source: Asociación Nacional de Productores de Autobuses, Camiones y Tractocamiones, A.C. (ANPACT), 2015.  
<http://www.anpact.com.mx/ubicacion.php>

also in this year, it was announced that investment was agreed by 2,382 million dollar (PROMEXICO)<sup>10)</sup>. This gives an idea of the magnitude of this additional activity to conduct leading vehicle assembler companies in Mexico. **Table 2** provides an approach to the distribution of auto parts companies, by states and origin of the capital share; states are ordered within each region, according to the number of auto parts companies that exist. Unfortunately, **Table 2** does not distinguish the block (Tier) the companies belong to, being a factor affecting the degree of closeness to the assembly companies.

The information base of **Table 2** consists of 898 companies, and 45% of these are located in two states that are not distinguished by agglomerating automotive assemblers, Queretaro and Nuevo Leon; however, these two states are adjacent to other state which has several assembly plants. In the third and fourth in the

10) [http://mim.promexico.gob.mx/JS/MIM/PerfilDelSector/Automotriz/150707\\_FC\\_Autopartes\\_ES.pdf](http://mim.promexico.gob.mx/JS/MIM/PerfilDelSector/Automotriz/150707_FC_Autopartes_ES.pdf)

concentration of auto parts companies, Guanajuato and Mexico City are two states with strong presence of assembly plants with 13.3 and 8.6%, respectively of total auto parts companies in Mexico. Both states have managed to generate large automotive clusters through early installation of GM and the historic automotive tradition of the State of Mexico, and in the case of Guanajuato by the recent receipt of two major Japanese plants (Mazda and Honda). On the contrary, the state of Aguascalientes, although has two assembly plants of Nissan, with a capacity of outstanding worldwide production, existe less than 2% of the national total auto parts companies and only 3.6% of Japanese auto parts companies. Overall, these data allow us to conclude that most of these companies do not cohabit in the same cities and states where the assembly companies encounter with the companies which produce the parts and components. Rather, the concentration is presented in few cities in four states of Mexico that locate centrally and are close to the states where the aforementioned assemblers locate; except in the states of Guanajuato and Mexico State, whose cities have created large clusters of the automotive industry.

In the particular case of the Japanese auto parts companies, although they follow the general pattern of greater concentration observed in the states of Nuevo Leon, Queretaro, Guanajuato and the state of Mexico, they differ from domestic enterprises and that of other countries for their major territorial dispersion (see last column of **Table 3**), providing greater relative presence (in respect of non-Japanese auto parts companies) in the states where Japanese automakers exist, such as Baja California (7.1%) and Jalisco (4.3%) and lesser extent in Aguascalientes (3.6%). In addition, these Japanese companies stand out in Puebla (8.6%) and San Luis Potosi (6.4%).

## **5. Main factors of Japanese companies for locating in two states in the West Central Region of Mexico (Jalisco and Guanajuato)**

Japanese investment in Mexico is concentrated mainly in the manufacturing sector, which the automotive industry accounts for almost 70% of this sector,

followed by the electronics industry with less than 10%. Other sectors, such as services to the production and of distribution or marketing, have also attracted Japanese investment. Japanese industry has observed preference for locations in the country such as those discussed in the previous section, among the states of Aguascalientes, Guanajuato and Jalisco, corresponding to the region of West Central Mexico. This region accounted for 86% of total Japanese investment made in 2013 and almost 70% in 2014 (DGIE, Ministry of Economy and the National Registry of Foreign Investment -RNIE).

According to the information gathered from field research (Table 3), Japanese companies have a variety of incentives to settle in Mexico, particularly in the West Central Region. Among the main motivation, it is recognized that an attractive domestic market and the convenient geographical location to export their production are main factor. Third, there are other reasons that influenced this location, such as integration as subcontractors of Japanese automotive suppliers, low labor costs and use of the benefits provided by the Mexico Japan Economic Partnership Agreement (EPA); also by recommendations of other Japanese companies already established in the region, to strengthen relationships with customers, to have favorable access to raw materials and to supply parts to other Japanese companies.

**Table 3.** Motivation of location for Japanese companies in Jalisco, 2012

Motivation	Percentage of response
Attractive domestic market	17
Geographical location to export their production	16
Pre-existence of large companies subsidiaries or companies that joined as a supplier of subcontractor	11
Attractive salaries (cheap labor salary)	11
Advantage of the Mexico-Japan EPA	11
Good experiences of other pre-existing Japanese companies in Mexico	11
Availability of skilled labor	6
Convenient access to good quality inputs and materials	6
Other motivation	11
TOTAL	100

Source: Questionnaire research, PROMEX, 2012.

## **Conclusion**

From what analyzed and as a current result of the Mexican model of liberalism and economic liberalization implemented since the last three decades, on the one hand, has been the modernization of part of the manufacturing sector created by FDI and high potential of export, but also import of raw materials, industrial parts and components and capital goods, resulted in deficits of manufacturing trade balance, conditioning of the low levels of economic growth. On the other hand, the industrial location of FDI contributes to the continuation of uneven regional development in both economic and social terms, by favoring regions with a relative geographical location of better access to the United States and the markets of large metropolitan areas of Mexico. Also the latter holder of industrial economies and agglomeration provide strong incentive for the location to large multinational companies, marginalizing approximately 12 states that, as a whole, received only 2.8% of total FDI in Mexico in the period of 2006-2014.

Instead, the favored regions with the highest proportions of manufacturing FDI modified or expanded their core business structure of growth, accommodating to maquiladora industry branch of electric and electronic, of equipment, components and accessories of computing and of communication; as well as automotive assemblers, suppliers and other high-tech industries. In this regard, several medium and even large cities in Mexico, at least until the seventies, did not manifest a clear industrial vocation, and now have established itself as important headquarters of transnational corporations that form or tend to form industrial clusters, offering considerable external industrial economy and industrial agglomeration to these companies, as is the case of several cities in the West Central Region of Mexico, particularly, Guanajuato and Aguascalientes, with Japanese investment.

The investment by Japanese companies in Mexico, depends not only on the local presence of other Japanese companies, which tend to be linked (either customers or suppliers) as is the case of many auto parts companies, but also on the prospects of increasing both domestic demand and that of the United States. Definitely, Japanese

FDI has been the economic factor that has responded to the incentives created by the Mexico Japan EPA, mainly concentrated investment in the manufacturing sector, which the automotive industry accounts for almost 70%. In particular the Japanese automotive industry (including auto parts) has observed the preference for 10 states of Mexico, among which are strong presence in Aguascalientes and Guanajuato and Jalisco. However, in 2013, 86% of the total Japanese investment concentrated in this broad region of West Central Mexico, and almost 70% in 2014. Despite this enormous flow, the state of Jalisco has not had a significant participation until today, because of the influence of the closeness to the capital of Mexico than other states. Faced with this situation, the Government of Jalisco is promoting for Japanese companies, to form the part of the locations for hub automaker of Aguascalientes, San Luis Potosi, Guanajuato and Queretaro.

In particular, major incentives to settle in the West Central Region are the local market and the convenient geographical location to export and to integrate subcontractors and suppliers, low labor costs and to take advantage of the Mexico Japan EPA.

Moreover, Mexico is missing the opportunity to take advantage of the automotive boom to intensify growing integration of supplier and to lower high import requirements of parts, components and raw materials. For this, it is necessary for the Mexican entrepreneurs to improve their technology. Both PROMEXICO and JETRO Mexico already operate this and also the Mexico Japan EPA contains clauses that provide for bilateral cooperation in this matter.

Finally, it is important for future research to analyze the processes and features that promote the integration of Mexican companies into the operation of Japanese supplier companies that has been very limited to date.

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