The Mexican Moment,
An opportunity for attracting the automotive sector to the State of Hidalgo.

by

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1 Introduction

This paper is result of the research developed during Minerva´s Program at the George Washington University. It is base on public official information, besides academic journals and books. The content of this document does not reflect the position of the State of Hidalgo government.

Countries are really interested in automotive sector investments, because the industry is one of the most structured sector with a high value-added production. Federal and local governments make their best promotion efforts and dispose great amounts of resources to attract Original Equipment Manufacturers (OEMs).

The automotive sector had been studied for decades. However, the number of studies, reports, journals, specialized web sites, had increased recently, based on the positive impact of automotive sector growth. Particularly, academics and consultants had been publishing a considerable number of analyses of the automotive industry and countries briefs, related with connections between foreign direct investment, growth and incentives. Many of these studies or journals are based on surveys or current reports. For the purpose of this document, I will refer to them with a descriptive approach to understand and justify the recommendations for a new public policy of promotion and incentives for the State of Hidalgo, Mexico.

The moderated economic recovery presented in several countries after the 2009 crisis, had generated a bigger demand for new vehicles. So, automobile companies are realigning their strategies in logistics, production, technology and foreign expansion. The main objectives for firms, were to reduce cost and respond effectively to new market opportunities particularly in the USA and China. OEM’s are looking to reduce costs and increase productivity. Korean, German, American and Japanese companies are looking for new investment locations sites, close to market demand and with quality infrastructure, talent, low labor cost, high quality of life, R&D, and logistics that contribute to productivity and competitiveness.

Attracting an automotive company is an economic and political goal for many governments in Mexico. Federal and state’s government are focus on promoting their competitive advantages for the global automotive industry. They participate frequently in international fairs, produced specialized promotional materials, and lobby with the national and sectorial agencies that represent the automotive sector interests, such as the National Automotive Industry Association and Automotive Parts Industry.

One of the strategies that automotive companies are using for their expansion plans, are request to federal and local governments a formal and integral offer of incentives, infrastructure and their competitive advantages. This process is conducted by companies such a beauty contest, with only one winner.

This paper also referred to the Complexity Economic Index that shows the Mexican exports´ transition from a basic oil economy to a more diversified production in the vehicle manufacturing and technology sectors.

The descriptive approach of the Federal and Selected States Incentives chapter explains its scope and effectiveness. Additionally, we presented the general factors and local economic growth on states with an automotive plant.

Finally this paper, will propose alternatives for the state of Hidalgo to improve its industrial offer, focusing on companies priorities, including incentives, the business environment, infrastructure and workforce.

2. Mexico: attracting the automotive sector

Consequence of institutional transformation, deregulation and economic liberalization, Mexico has gradually transferred in the last 20 years in a more efficient economy. Had promoted the implementation of 12 free trade agreements with 44 countries, with a special mention of North Free Trade agreement with USA and Canada that represented a real driver for Mexican exports and economy development.

The manufacturing sector has presented important growths in the last 10 years. However, the automotive industry is one of the most dynamic and sustainable sector in México.

For 2014 there were a total of 24 plants located in 14 states. Proximately BMW will start operations in San Luis Potosí and KIA in Nuevo Leon States´, increasing the presence of automobile manufacturers that should contribute to increase production and exports in the sector.

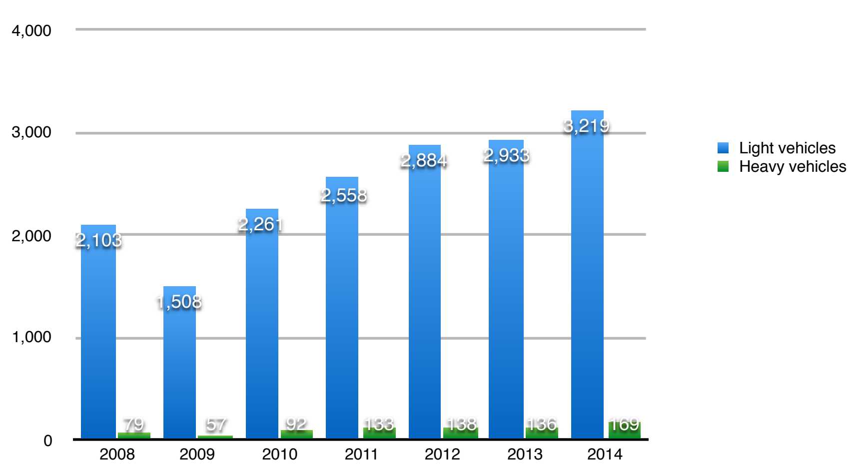
Exhibit 1. Automotive plants located in Mexico
Source: Mexican Automotive Industry Association

Exhibit 1, shows the main clusters that has consolidated in different regions of the country. Bajío region integrated by Guanajuato, San Luis Potosí, Aguascalientes and Querétaro. Central region with Morelos, Puebla and Mexico states. And in the North region composed by Nuevo Leon, Sonora, Chihuahua, Coahuila and Baja California. These clusters has contributed with a positive impact in the creation of world class industrial parks, universities, R&D centers, new roads, strategic infrastructure, railroads, energy lines , substations, natural gas and telecommunications.

According to public information in mass media, several automotive companies such as Land Rover, Toyota, Ford, Renault, Mini Cooper are still looking a site location to establish a plant in Mexico. This represents probably the last opportunity for Hidalgo, for having an automotive plant.

From 2008 to 2014 the vehicle units production, growth 53% as a result of installation of new plants. By 2014 Mexico was the 7th producer of automobiles in the world overcoming to Brazil. Since 2012 is the 4th exporter over United States, France, Canada and Spain, countries with an historic car manufacturing tradition.

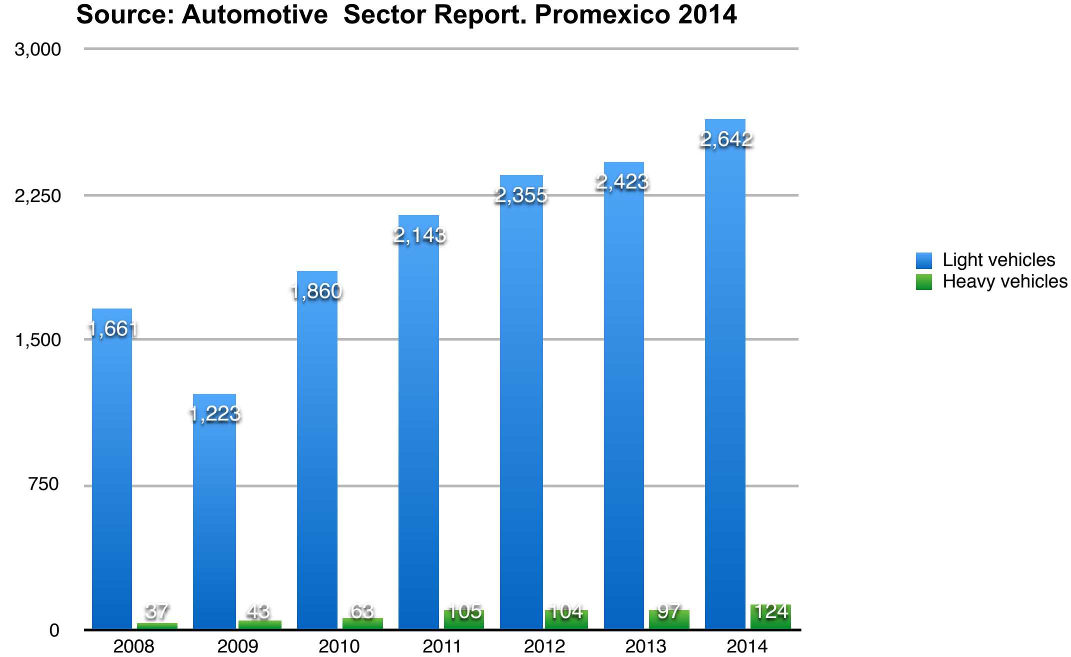
Exhibit 2. Production of vehicles in México 2008-2014
(thousands of units)



This production capacity is supported for a full integrated chain supply located in productive agglomerations in Bajío, Centro, and Northeast regions. The type of processes has demanded an specialized workforce, besides a qualified and robust infrastructure. This 35% sustained production growth, reflected the effort of private and public sector to create a new economic vocation with good quality jobs.

Also, there is also a great platform to produce heavy weight vehicles with the presence of brands such as Mercedes Benz, Volvo, Scania and International. The production of buses in Mexico is limited and doesn't presents mayor growths. In the State of Hidalgo, there are 4 bus companies -Dina, American Coach, King and Faw- that are contributing to induce the rise to the automotive sector.

Exhibit 3. Mexican exports of vehicles 2008-2014
(thousands of units)
Source: Automotive Sector Report. Promexico 2014



During the period 2008-2014 vehicle exports had observed a 37% growth, mostly resulted of an increase car´s american demand. In fact, the 82% of the total production of cars in Mexico are exported to the United States.

The expansion of automotive sector is a result of the confidence of companies to Mexico´s stability and capabilities. One factor that is determinant for automotive manufactures is logistics, which permits to send the final products by train and ship and receive the cars in US market in less than 24 hours. This is a competitive advantage of Mexico against other producers such as Brazil, Spain and China.

Regard to the production costs, Mexico have a comparative advantage with US and Canada, fact that explain why some american plants are relocating to Mexico such as the Focus Ford plant in Detroit that announced they are evaluating the possibility to move operations to that country[1].

The establishment of these companies is generating leadership in the public economic agenda. The weight of the automotive industry has had an effect on federal government decisions such as infrastructure, fiscal reforms, and recent trade agreement negotiations (ACE 66 and TPP p. eg).

There is a justified expectation in the public and private sectors that Mexico is considered to receive new automotive plants in the next years.

[1] Usa Today news, july 97th, 2015. website usatoday.com

3. The role of Promexico

Promexico is the official agency that promotes foreign direct investments. It´s a parastatal institution founded in 2007 by the federal government that has been spearheading in efforts for promoting and attracting new FDI. Usually, this office is the initial and key contact for strategic investment projects. In fact, Promexico had a leading role during negotiations and agreements for attracting new investments. The announcements of many of these investments are shown as a federal achievement. Even the states are responsible for affording the incentives and stimulus.

Promexico was part of the promotion area of BANCOMEXT (Foreign trade commerce bank). The main purpose of BANCOMEXT is to promote exports through credits and technical aid. The premise of the creation of a specialized promotion FDI agency was to create a professional and autonomous public organism that boosts efforts into attracting FDI.

What empirical experience says is that countries typically carry out their promotion through investment promotion agencies, which generally have three **major roles:**

- To communicate and disseminate information about the general business environment and specific investment opportunities among prospective investors.
- To co-ordinate activities to improve the business environment
- To create investment leads and generate investments by identifying investors and targeting specific sectors and companies (Piontkivska and Segura 2003, pp 79)

Promexico is a very proactive and professional institution. Its members of central areas have great experience in trade and new investment promotion. A weakness for this organization is that many of its members overseas do not have a deep and current vision of the transformation and evolution of emergent states in Mexico, like Hidalgo, and they mainly focus on the most developed industrial states like Querétaro or Guanajuato. This is a very serious issue because it represents a barrier to the regional development.

This organization has conducted an study of the real and potential sectors for the states of Mexico. The result of this information is a great opportunity to increase possibilities to attract substantial foreign direct investments in high value industries. For the case of Hidalgo the reflected vocations in that study are logistics, metal mechanic, mining, textile or current sectors and automotive sector as a prospective vocation.

In the first contact with Promexico, the automotive companies that are on a site location process, receive an input and a "short list" of the states that have the capacity to receive big size projects. The critical issue at this point is, the non transparent and equity criteria to conduct the investment prospect to some states. Political interests could influence the orientation of the future site location. To illustrate this situation, the former president of Mexico and governor of Guanajuato state, Vicente Fox, provided a great amount of public resources to strengthen the infrastructure and widen the capacity for receiving automotive companies in his state.

Promexico has an effective web site, that offers interactive and comparative information of the country and its states related with labor costs, infrastructure, quality of life and productive sectors that facilitate a preliminary analysis for companies looking to invest in the country. This platform additionally offers the possibility to receive alerts of potential investors to Promexico state´s delegations,. Formally, these local offices must work with the state Economic Secretaries to coordinate promotion and attract efforts.

Some companies oriented their investment to those states with presence of similar plants in particular for the same country, based on acquired experience and confidence on proven locations. That is the case of Japanese companies - Mazda, Honda and Nissan- that allocated in Guanajuato and Aguascalientes creating relevant clusters that established synergies in many productive fields. Also, for the federal government, it is more effective to conduct investment prospects to those sites where the infrastructure and ecosystem is already built. Notwithstanding, this situation has generated increasing labor costs and a high turnover. This facts has a negative impact on overheating local productive factor, as a result of a great demand of highly qualified technicians. According to the general director of Auto Parts Industry Association, this issue can represent the difference and opportunity to a state to attract an automobile plant.

As we will show in chapter 7, one of the most important challenges for this institution are to create a more solid offer for incentives and strength the cooperation and coordination with local governments to facilitate companies establishment.

4. Results in direct foreign investment

Mexico is a country that recently has received a remarkable amount of new foreign direct investments. Its logistic capacity, infrastructure and workforce are positioning the country as a strategic logistic manufacture hub in North America.

Notwithstanding, Mexico is facing a complex situation with organized delinquency in some areas of the country, the industrial areas has a safe environment. The country is also measured for its social and labor stability. In fact, the state of Hidalgo is considered one of the safest states in the country. Additionally, the State has not presented any strike in the last 15 years.

In the last 10 years, the federal government has offered special attention to maximize the efficiency of industrial infrastructure and logistics. With the support of the Inter American Development Bank, the Economy Secretary carried out the National Logistic Platform System. Its main objectives were:

- Promote the logistic infrastructure competitiveness.
- Innovate in the supply chain competitiveness.
- Establish a competitive logistic and industrial land planning.
- Finance the infrastructure and logistic services construction.

The mentioned study presents a strategic vision of the regional and national cargo flows and the main logistic aggregations. This study, considered the North and Central Economic Corridors that could improve Pacific and Atlantic oceans connectivity between markets. Clearly the most important corridor is *NAFTA highway* that goes from the center of the country to the US boarder. Hidalgo is located in a strategic location to enhance this competitive advantage.

Exhibit 4. Cargo flows and logistic hubs in Mexico.
National Logistic Platforms System Study. Economy Secretary, Federal Government. 2012.

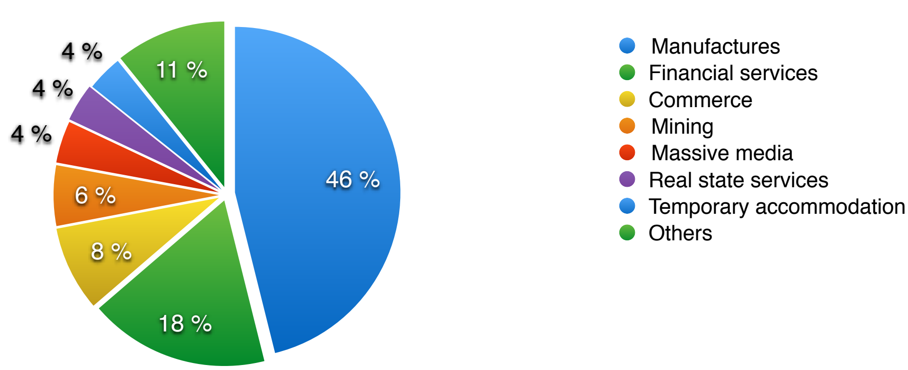
This national platform system´s study, is the base of the public policy to guide federal and local governments´decisions in terms of investment infrastructure through the National Infrastructure Plan. The objective of this plan is to develop new infrastructure connected with industrial aggregation and consume centers. In other words, the rationale of the initiative is to connect sea ports, highways, railroads, industrial parks, airports, and inland ports to maximize strategic infrastructure and create value synergies. All the automotive plants that had been invested in Mexico had appreciated this infrastructure and logistic potential of Mexico to become a platform to manufacture cars with a systemic high standard.

Unfortunately in the last months (2015) the budget for projects had been reduced by the recent falling in petroleum prices, canceling strategic projects like the Mexico - Querétaro speed train and several highway improvements. Hidalgo had faced several cuttings of federal resources to build infrastructure for the industrial areas planned to automotive sector.

Mexico had been highly attractive in last 20 years in aerospace, automotive, textile and metal mechanic sectors. These investments had been located in world class private industrial parks or greenfield projects adjacent to industrial facilities. The combination of USA economy recovery, Mexican economy stability, specialized workforce, efficient logistic and an aggressive international promotion campaign, permitted Mexico to received $22, 568.4 billion dollars (BD) in 2014.

The registered investment flows were led by the manufacturing industry (12,869.9 BD), financial services (5,556.6 BD) mining (2,215.2 BD) commerce (1,954.3 BD) and construction (872.6 BD) according to the National Commission of Foreign Investment, Statistic Report January - December 2014.

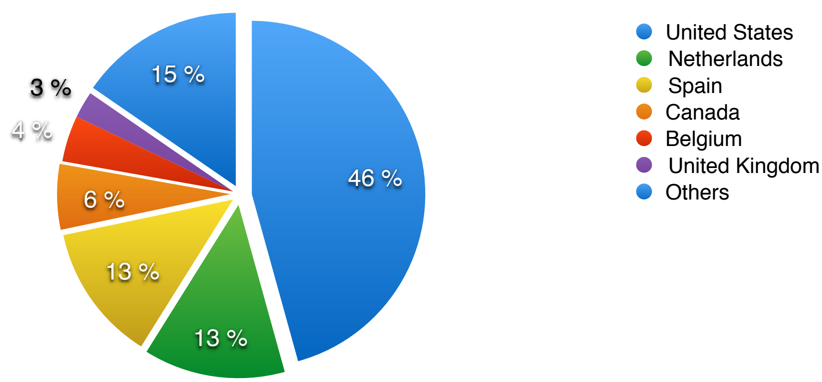
Exhibit 5. Accumulated sector destiny FDI in Mexico 2000-2014.
Source: Annual FDI report. Promexico 2014



The main investment origin in 2014 was the United States 28.9%; Spain 18.1%, Canada 10.7% Germany 6.9%, Netherlands 6.6, Japan 6.4% and other 79 countries 22.4 %. Again the US economy renaissance allows a increase of activity in industrial sectors.

For the period 2000 - 2014, the United States provided 46% of the FDI in Mexico, followed by the Netherland and Spain with 13% each.

Exhibit 6. Accumulated Country origin FDI 2000-2014. Percentage
Source: Annual FDI report. Promexico 2014



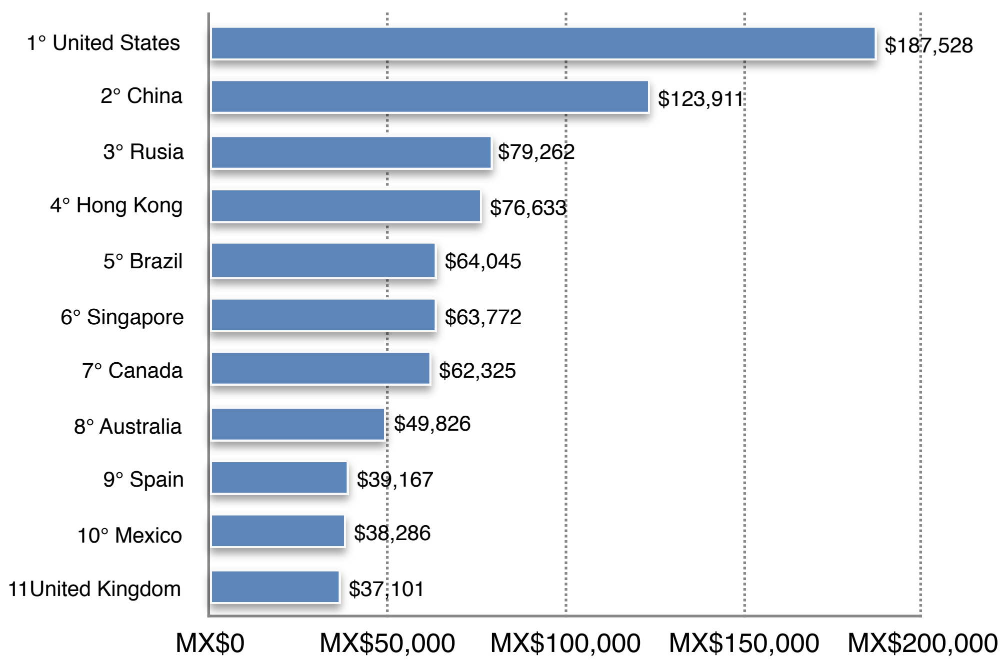
As shown in exhibit 6.1 in the last 5 years, Mexico has achieved a great stability in FDI flows, which during the period 2010-2015 in average represents $27,057 billion of dollars.

Exhibit 6.1 Foreign Direct Investment in Mexico 2010-2015
(Billion of dollar)
Source: Promexico. FDI Report 2015

Year	Total
2010	25,961.5
2011	23,559.9
2012	18,997.9
2013	44,198.8
2014	22,568.4

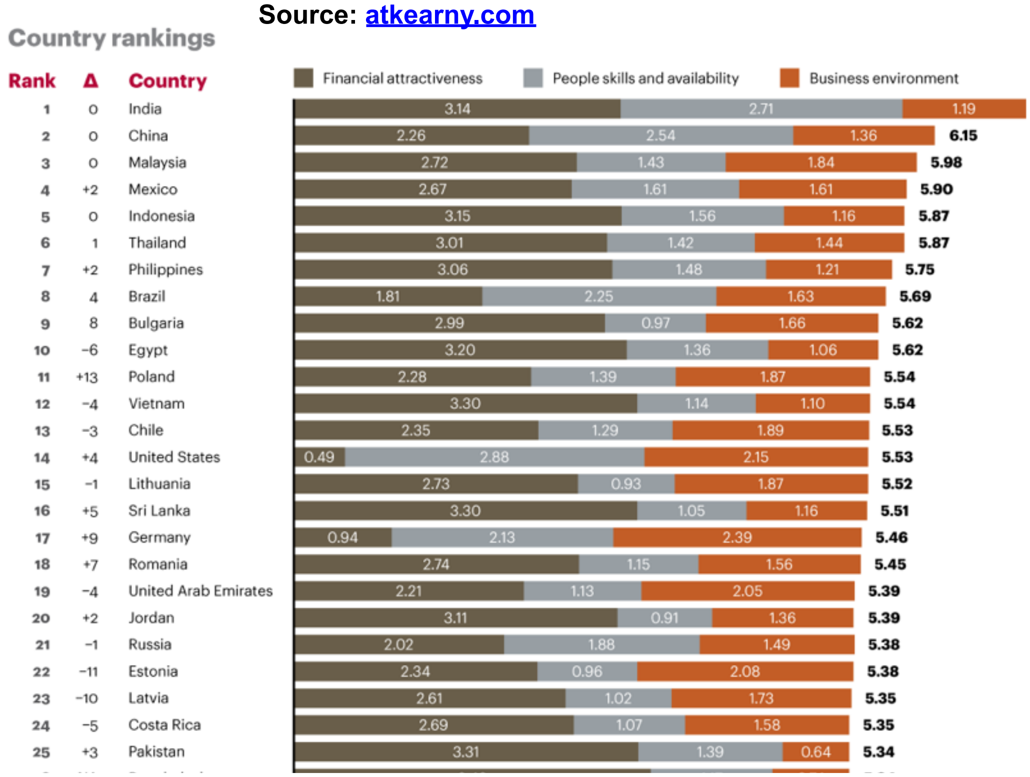
This tendency set up Mexico as the 10th FDI receptor country in the world, according with the United Nations Conference on Trade and Development 2014 . This historic fact confirms Mexico´s great potential to receive more value investment in several sectors. The results of the federal and states promotion strategy has presented favorable results in attracting new companies. According to the World Investment Projects Survey 2014-2016, Mexico is considered the 13th most attractive country in the Foreign Direct Investment receptor country ranking.

Exhibit 7 Main FDI receptor countries 2013 (Billion of dollars)
Source: World Investment Report 2014 UNTACD



The 2014 A.T. Kearney global location service presented the ranking for more than 50 potential destinations[2]. Asia continues to dominate. Mexico located its highest level ever, four, reinforcing the advances it is making in the industry and a nearshore option for U.S. companies. As a premier destination in Latin America, Mexico benefits from reasonable costs and a large, well-educated labor force that is feeding the growing industry, according to the relocating companies´ analysis . These studies are very valuable for Mexican public efforts, considering that many companies looking for expansion abroad use services for overseas consultant companies for site location. As show India and China are the two top ranked companies for this index.

Exhibit 8.A.T. Kearney's Global Services Location Index™ (GSLI) 2014.
Source: atkearny.com



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[2]A.T. Kearney's Global Services Location Index™ (GSLI) offers a snapshot for business leaders who must choose among a growing number of offshore locations, and the policymakers who seek to influence their decisions. Established in 2004, the GSLI analyzes and ranks the top 50 countries worldwide as the best destinations for providing outsourcing activities, including IT services and support, contact centers and back-office support.

Despite that Mexico has received these amounts of FDI and increased the bulk of exports, economic growth is a challenge for the country. The Mexican economy continues to expand at a moderate annual rate of growth of 2.4 percent, as the economic recovery lost steam during the first half of 2015. Moderate growth during the first semester of 2015 in Mexico has been attributed to the weakness of industrial production in the U.S., and a further drop in the volume of oil production, reducing annual GDP growth by about 0.4 percent and creating financial market volatility. A gradual recovery of economic activity is expected to continue, with economic growth strengthening from 2.3 percent in 2015 to 3.0 percent in 2017[3].

[3] The World Bank Overview 2015. website worldbank.org

5. Complexity index: transition of Mexican economy

This chapter presents an alternative vision of economic transformation, based on *The Atlas of Economic Complexity Index,* created by the Center for International Development at Harvard University[4].

In Mexico, foreign direct investment has represented a substantial impact to the productive structure. The country experimented a transition from a centralized oil producer to a diversified qualified manufacturer and exporter. This transformation has contributed to consolidate a seriously and sustainable exports growth that goes from $17.3B USD in 1980 to $361B USD in 2013.

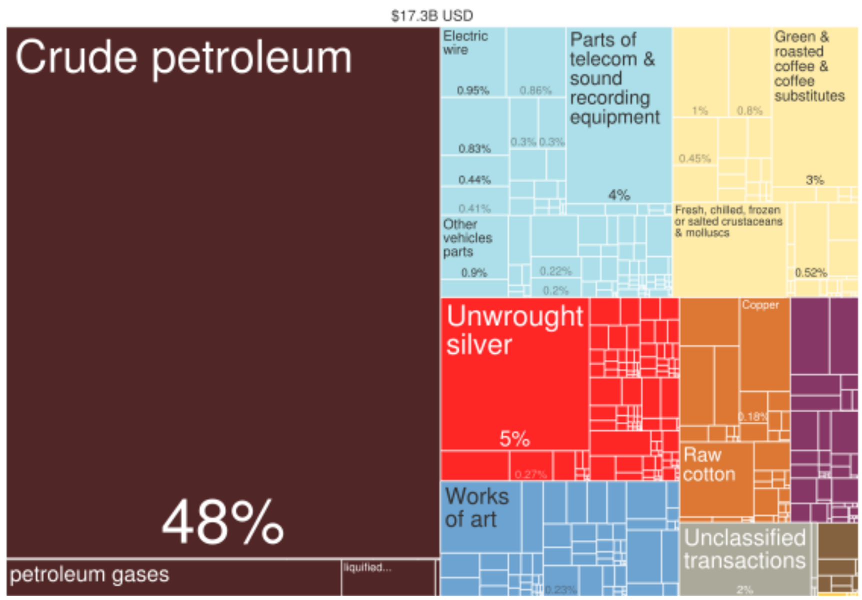
This economic evolution is the result of several factors. First, since 1990 Mexico implemented a deep transformation of its economic policy. Former president Carlos Salinas drove a deregulatory transformation of the economy and institutions with a strict discipline of public finance. At that time, many state companies like Teléfonos de México, Mexicana de Aviación, Ferrocarriles Nacionales, Banamex, Dina Camiones among others, were privatized and represented an income of $32B USD for the federal government (source: SHCP). Second, the North America Free Trade Agreement (NAFTA) had clearly succeeded in stimulating trade and investment among the United States, Mexico and Canada. Two way goods trade grew a remarkable 279% between

[4] *A measure of how many different products are near a country's current set of productive capabilities. Countries with a high complexity outlook have an abundance of nearby products due to the make-up of their current export basket. These countries will therefore find it easier to develop new industries and acquire the necessary missing capabilities to do so. Countries with a low complexity outlook have few nearby products and will find it difficult to acquired new capabilities and increase their economic complexity".* Source: web site *atlas.cid.harvard.edu*

1993 and 2012 (Source: International Trade Administration (Report: NAFTA, 20 year

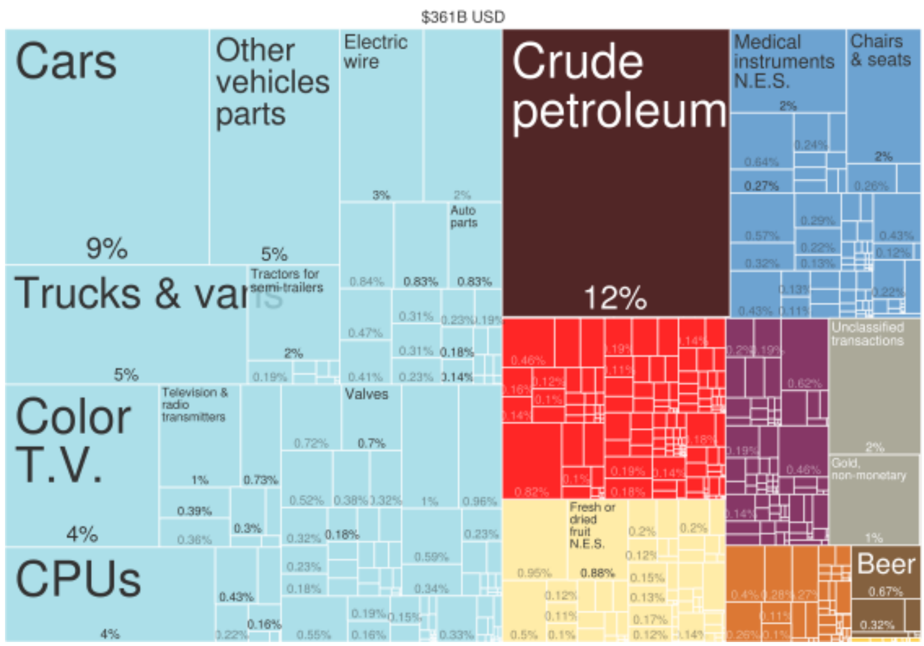
Exhibit 9. Economic complexity index Mexico. Exports 1980.
Source: The Atlas of economic complexity.
Center for International Development. Harvard University.

later overview).



As shown in exhibit 9, in 1980 Mexico exported 17.3B USD, where crude petroleum represented 48%. At that moment, the economic sector was concentrated in elementary sectors with a low productivity. During the 1970s and 80s, the economy orbited around petroleum prizes and production. The main component of federal income was derived from hydrocarbon duties, which results were anchored to the stability or instability of this commodity. Additionally the state owned Mexican Petroleum Company (PEMEX) was managed inefficiently, resulting in losses. The company lacked of a strategy to improve processes, transparency, efficacy and technology. The oil production had been reduced because of the over exploitation of traditional platforms and the technical complexity of extracting oil in deep waters. Crude petroleum reduced 128% from 1980s to 1990s and started the emerging of new manufacturing sectors in particular car manufacturing.

Exhibit 10. Economic complexity index Mexico. Exports 2013.
Source: The Atlas of economic complexity.
Center for International Development. Harvard University.



In 2013, exhibit 10 reflects that crude petroleum decreased to 12% from total exports. Oppositely, added value exports such as cars manufacturing represented 9%, trucks and vans 5%, CPUs 4%, vehicle parts 4%. This emergent sector boosts new employments, growth and a more modern and robust economy structure. Now, Mexico is the first producer of TV screens and gradually is consolidating the aerospace sector with the presence of high technology clusters with companies such as Bombardier located in Querétaro.

This transition to a more complex economy should represent a driver for future economic growth and the attraction of new companies that offer more added value to the supply chain.

A challenge for Mexico is to diversify trade with more countries, besides the United States and Canada. There is an opportunity to increase trade with China and Europe Union, with the perspective to also open the possibility to locate more FDI. Finally, the Trans Pacific Partnership is a great opportunity to continue the diversity of commerce and manufacturing.

6. LOCAL ECONOMY

The industry is representing a key driver to improve the economy. As we have shown, Mexico has received a great amount of new foreign direct investment in different sectors and that circumstance is reflected in local growth.

During the 2003-2013 period, local GDP in states with automotive plants presented the following grows: Guanajuato 52%, Puebla 51%, San Luis Potosi 44% and Aguascalientes 56.2%. This relevant evolution is consistent with the arriving to the expansion of the automotive sector in the local sphere.

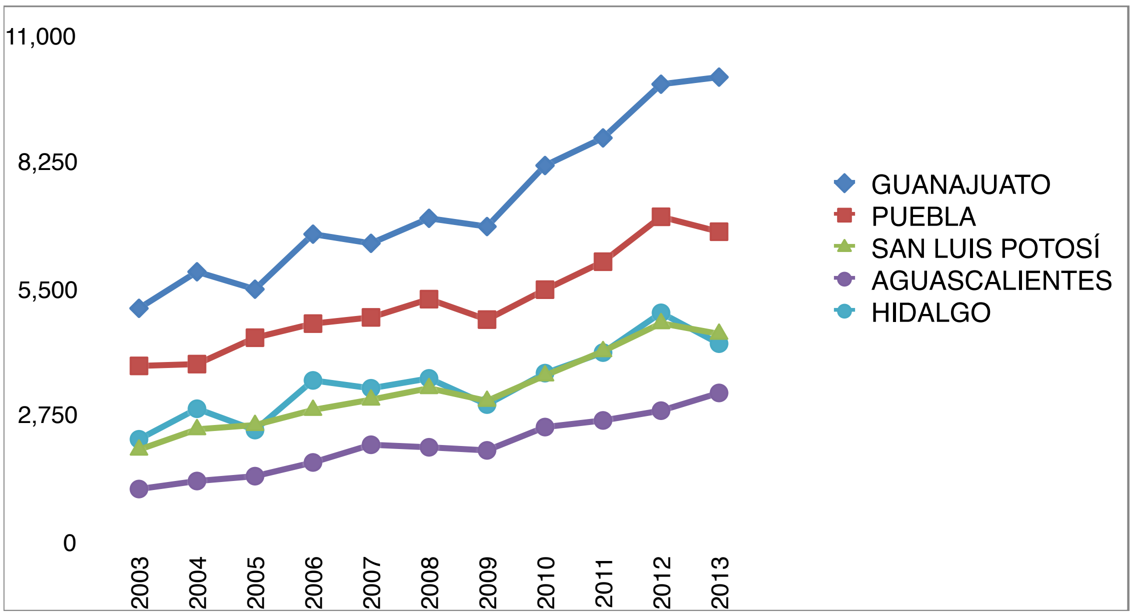
Exhibit 11. Local GDP Selected States of Mexico
Billion of dollars 2003-2013
Source: INEGI National Statistic and Geography Institute 2013

BILLION OF DOLAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
GUANAJUATO	17,218	19,228	19,738	22,883	23,755	26,312	25,687	28,410	31,508	34,485	36,202
PUEBLA	14,241	15,501	17,157	18,838	20,116	21,967	21,555	23,688	26,055	28,888	29,347
SAN LUIS POTOSÍ	7,752	8,980	9,788	11,028	11,831	12,969	12,951	14,353	15,846	17,371	17,702
HIDALGO	6,667	7,945	7,880	9,533	10,007	11,076	10,533	12,061	13,230	14,876	14,923
AGUASCALIENTES	4,557	5,144	5,551	6,321	7,160	7,496	7,535	8,285	8,881	9,603	10,186

The State of Hidalgo presented a 55.3% increment which is related with the metal mechanic sector. Nevertheless, Guanajuato represents 4% of Mexico´s GDP with 36,202 US billion dollar, compare with 1.6% of Hidalgo that contributes with 14,923 US billion dollar.

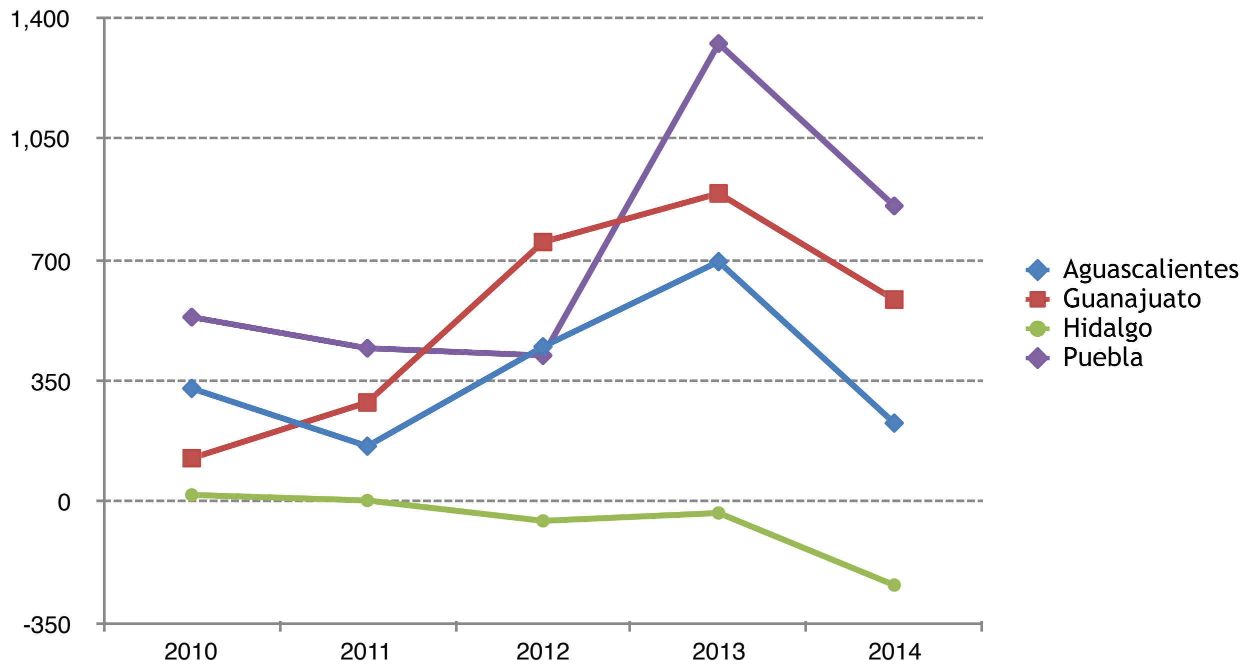
Historically, Guanajuato had a consolidated leather - footwear industry. However, the automotive industry had represented the possibility to maximize growing for its economy. As shown in exhibit 11.1 this state had registered and exponentially growth in the manufacturing sector, as a consequence of automotive industry.

Exhibit 11.1 Local GDP Selected States of Mexico
Manufacturing industry Sector
Source: INEGI. National Statistic and Geographic Institute
Billion of dollars



Respect to FDI flows, during the period 2010- 2014 Guanajuato received $2,641 billion dollars and Puebla $3,582 billion dollars, which are basically related with the automotive and manufacturing sectors. The amount of investment, explain the local growth that these states had presented in the same period. As exhibit 11.2 shows the state of Hidalgo presented a negative tendency, that confirms the urgency to review the industrial promotion offer.

Exhibit 11.2 FDI Flows Selected States in Mexico 2010-2014
(billion of dollars)



During last 10 years, Guanajuato and Puebla has improved significantly their quality of life and infrastructure of their main cities. Guanajuato presented serious transformations of the city with an international airport, new hotels, hospitals, restaurants and highways. Puebla is also a great example of growing; the capital city has been transformed in recent, years with the Angelopolis project, in a new premium level zone with a great offer of services and housing. VW is the most important company in Puebla, with 20,900 employees, that annually produces 411,000 vehicles and contributes with 26% of the local GDP.

Exhibit 12. Infrastructure.Comparative selected States of Mexico. 2014
Source: Demographic Yearbook. INEGI National Statistic

STATES OF MEXICO	Airports	National	Internacional s	Railroads (Km)	
Aguascalientes	1	0	1	222.6	
Guanajuato	2	1	1	1,085	
Hidalgo	**1**	**1**	**0**	**864.7**	
Puebla	2	1	1	1,057	
San Luis Potosí	2	1	1	1,235	
	Medical units	**Publics**	**Privates**	**Accommodation establishments**	**Accommodation rooms**
Aguascalientes	157	138	19	132	5095
Guanajuato	943	714	229	715	22,591
Hidalgo	**1,041**	**930**	**111**	**567**	**11,493**
Puebla	1,350	1,198	152	582	17,244
San Luis Potosí	674	629	45	366	11,374

Hidalgo has presented a moderated economic growth, primarily in the south part of the state, where there are medium cities such as Pachuca, Tulancingo, Tula, Tepeji del Rio, and Tizayuca, that have a satisfactory infrastructure, which offers a potential quality of life. However, in the northern region of the state, there are poverty conditions that demand a regional development with agroindustrial and mining projects.

Exhibit 13 shows a comparative table of selected concepts from the state competitive index. Industrial modernization with an automotive plant presence helps to improve the index position. Hidalgo compared with other states as positioned in 24 of 32 states in competitiveness and 22 in precursor sectors. Surprisingly, Guanajuato was in 27th place of labor market competitiveness, because as we mentioned before, the labor market is overheating because of saturation of too many plants.

Exhibit 13. Position according to State Competitive Index 2014.
Source IMCO. Mexican Competitiveness Institute.

STATES OF MEXICO	Competitiveness	Reliable rule of law system	Sustainable environment management	Inclusive society Preparer and wellness	Stable and functional political system	Efficient governments
Aguascalientes	3	4	6	4	4	4
Guanajuato	15	7	26	17	16	20
Hidalgo	**24**	5	14	27	12	27
Puebla	20	12	30	28	27	6
San Luis Potosí	17	11	24	24	10	19
	Labor market	Stable economy	Precursor sectors	Maximization of international relations	Innovation of economic sectors	
Aguascalientes	8	11	15	6	6	
Guanajuato	**27**	13	10	17	7	
Hidalgo	10	**19**	**24**	32	24	
Puebla	7	6	22	15	9	
San Luis Potosí	28	15	13	18	8	

The labor market shows the differences of economic sizes and the effect of industrial development. Hidalgo is the state with the least amount of workers occupied in the manufacturing sector from selected states. In 2014, as exhibit 14 shows, Guanajuato had 177,707 workers among 27.2% that were occupied in transport manufacturing sector. Aguascalientes had concentrated its economy in Nissan automotive plant that contributed 41% of the manufacturing workers.

Exhibit 14. Occupied workers manufacturing sector 2014.
Source: INEGI. ENIM SCIAN Monthly Manufacturing Industry

STATE	TOTAL WORKERS IN MANUFACTURING SECTOR (A)	OCCUPIED WORKERS IN TRANSPORT MANUFACTURING SECTOR (B)	PERCENTAGE B/ A
Aguascalientes	64707	26655	41.19%
Guanajuato	177707	48357	27.21%
Hidalgo	**49287**	**5072**	**10.29%**
Puebla	99750	35807	35.90%
San Luis Potosi	83202	31306	37.63%

The preliminary conclusion indicates that there is a positive effect of FDI, location of massive automotive plants in the states with growth, new jobs creation and competitiveness variables.

These economic and labor asymmetries between the selected states has to be reduced, considering the industrial potential of the state of Hidalgo. The saturation and increase in labor costs in other states open a opportunity for Hidalgo to increase the amount of new investments. However, this must be accompanied by an aggressive promotion campaign and an effective incentive strategy.

7. Federal and state Incentives

Most of the companies that plan to establish in any country, considers its competitive advantages and location. In their internal analysis, car manufacturers evaluate pros and cons for several site locations. Additionally, companies and their consultant firms evaluate the specific scope of the incentives packages. To understand this issue, we will refer to the institutional and administrative regulations for federal and state incentive offers. Incentives are “theoretically" non-determinant for site location, but it is important to contextualize frameworks for negotiations. Besides, automotive companies negotiate special incentives above the law, that are protected from transparency requests through trusts or other bureaucracy mechanisms. These are beyond the formal parameters we are going to refer.

In the federal government level, the following list contained in Promexico´s web site is concerned with investment offers. Many of these incentives represents a general benefit for established industries, rather than an real incentive to attract FDI. In real terms, these are benefits for all kinds of companies already established in the country. The real effect of federal incentives are the bunch of public resources that are allocated to states to build infrastructure demanded and agreed with the companies.

Federal policies

Foreign trade incentives programs

- **Import Tax Refund to Exporters (DRAWBACK):** Offers the possibility of paying back a duty previously paid on exporting excisable articles or on re-exporting foreign goods.
- **Manufacturing, Maquila and Export Service Industry (IMMEX):** The IMMEX Program is an instrument which allows the temporary importation of goods that are used in an industrial process or service to produce, transform or repair foreign goods imported temporarily for subsequent export or provision of export services, without covering the payment of general import tax, value added tax and, where appropriate, countervailing duties.
- **Sectorial Promotion Programs (PROSEC):** These programs are aimed at legal entities that produce certain goods, allowing them to import diverse goods for use in the development of specific products at preferential ad-valorem tariffs (General Import Tax), regardless of whether the goods to be produced are for export or the domestic market.

Tax incentives programs

- **Immediate deduction:** It is a deduction that applies to encourage investment in the country, except in the metropolitan areas of Mexico City, Monterrey and Guadalajara. However, this deduction applies to projects that require the use of labor-intensive, non-polluting and does not need to make an intensive use of water.

- **Federal tax incentives for companies that do not have established residence in Mexico:** Eligible maquila companies (now IMMEX) under certain conditions are granted a significant reduction in the payment of income tax.
- **Tax credit for federal tax on R&D:** Eligible companies can receive a tax credit of 30% of total spending on research and development activities (R&D), including process and design.

Technological development and innovation programs

- **Innovation incentives programs:** Supporting programs for companies that invest in research, technology development, and innovation aimed to develop new products, processes, or services.
- **International Fund:** It is an International Cooperation Fund for the promotion of scientific and technological research between Mexico and the European Union which supports projects in the following formats: joint research projects and the creation and strengthening of research networks.

Some programs and resources offered by federal government are subjected to rules of operations and government budget availability, which have slow and complex procedures and with some risks of losing the benefits offered.There is no evidence of direct tax brakes or cash incentives provided by the federal government.

Regarding to local incentives offered, each state define their legal and financial incentive platform. Opposite to federal government, incentives are more explicit considering cash incentives and concrete supports. Puebla and Guanajuato States, had acquired public debt to comply to these agreements with new companies. which contains penalties and international disputes in case of non-fulfillment. In fact, several critics who have presented in different *mass medias* have referred to the scope and amount of those incentives for automotive plants. For some social and political actors, it is not ethical, legal, or just to give those quantities of money to a foreign company.

In the following table we refer to the local level formal incentives to attract FDI, that are established in their economic development state´s laws:

STATE	MAIN INCENTIVES
PUEBLA	Advisory and technical assistance Local tax reduction Grants for scholarships **Resources or aid for infrastructure construction or services Improvement of public services** Use of public real state properties with industrial profile
SAN LUIS POTOSÍ	Financial support: Facilitating agreements with the public sector. Benefits and fiscal and administrative stimulus Real state transfer **Support for construction and improvement on construction of regions and industrial parks.** In terms of legal, administrative and training: Handle with municipality, state, and federal authorities financial aids, advisory and facilities for government procedures. Agreements for training and research grants Facilitate the link with legal, administrative, financial an legal services. Promote the industry relationship with the Competitive Entrepreneur Center. Provide the industry relationship with universities and educational services to promote administrative, technology and sustainable development projects. Financial support on relevant projects for the economic state development.

GUANAJUATO	**Policy 1** **Cash incentives by direct job committed** **Policy 2** **Cash incentives by investment committed.** Applied concepts for policy 1 and 2: Electric connection Natural gas connection Potable water supply and sewage construction Telephone service lines Rail spur construction Plant access from highway Lease support for real state Improvement of the real state Machinery, equipment, and technology acquisition Others that support the start of operation **Policy 3** Cash incentives for land or warehouse acquisition **Policy 4** Cash incentives for training **Policy 5** Cash incentives for abroad training **Policy 6** Cash incentives for payment of taxes and permissions **Policy 7** Cash incentives for professional services hiring. **Policy 8** Cash incentives for local investment **Policy 9** Cash incentives for warehouse construction investment **Policy 10** Cash incentives for real state lease temporal payment and/or industrial projects. **Policy 11** Cash incentives for studies

HIDALGO	Regulatory improvement Financial Economic promotion Productive infrastructure Consultancy, technical assistance and training Recognition awards Those who the Governing Commission decides The above supports will be given base on: New created direct employments Amount of productive investments Municipality size Estimate wages Investment contribution to innovation and technological development and scientific research Investment´s permanence commitment Environmental impact, considering water and energy consumption Commitment to create supplies chains. Volume of exports Training programs Social benefits Companies tax residence

Puebla, San Luis Potosi and Guanajuato states, openly offered cash incentives to attract FDI. In particular, Guanajuato has a very clear and structured list of economic benefits that could be more attractive to investment prospects because they are more selective and aggressive. Hidalgo´s offer is less clear and more ambiguous containing topics with low relevance to negotiations between State and companies. The mentioned states are aligned with grants for scholarships, tax incentives, advisory support, accompaniment during soft landing phase and real states benefits. Guanajuato, is the only state that refers in its local law punctually to cash incentives.

The government of State of Hidalgo, used to offer fiscal incentives to payroll tax. However, the current administration eliminated tax brakes and increase the amount of cash incentives to companies through a institutional fund.

8. The empirical experience of attracting incentives.

To have an idea of the empirical experience of the role of incentives to attract foreign investment, this chapter would refer to negotiations with automotive plants. This chapter is a substantial part of our document, considering what can be adjusted to the promotion and attracting strategy of the state of Hidalgo.

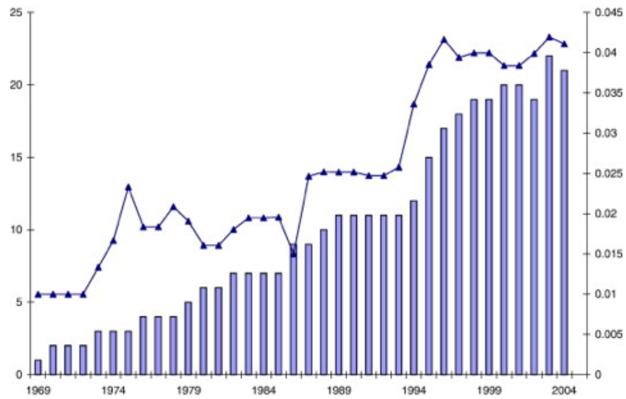
Attracting an automotive plant, represents the *crown jewel* for any country or government state. From the institutional side, this kind of achievement will bring new jobs, growth and business opportunities.

There is an interesting discussion about the role of incentives for attracting an automotive plant. In one side, there are different surveys that reflect that incentives are "not" a determinant factor for site location. However, the experience shows that states and federal governments had provided high amounts of public resources to influence the decision making process to locate an industrial plant.

Exhibit 15, presents how in the last four decades the amount of tax credits incentives had grown in a spectacular form local government of the United States [5]:

[5]Source: State investment tax incentives: A zero sum game Robert S. Chirinko, Daniel J. Wilson Journal of public economics. July 2008. Note: Average credit rate is the average statutory investment tax credit rate among those states in a given year that have an investment tax credit.

Exhibit 15. State investment tax credits: number of states with a credit (left vertical axis) and average credit rate (right vertical axis) 1969 to 2004.



This increment is reflective of the competition between states to locate or relocate a industry in their states, using the tax credits as a promotional industrial hook.

Incentive negotiations and agreements are not a clear, rational and transparent issue. In fact, there is a practice in Canada, promoting a **code of conduct to** regulate how local states subsidies are offered, through establishing government parameters for investment attraction between federal and state´s governments. The objective is to prevent an abuse or corruption using public resources that must affect the local public finances and to set up a “level floor” for all competitors.

There is evidence that state governments offered huge packages of incentives to automotive companies. In 1970 Pennsylvania´s state offer Volkswagen´s first United States assembly plant $100 millions USD. In the 1980s Ontario, Canada, gave a $68 million grant to Ford Motor Company to induce the company to locate a proposed $535 million engine plant in Ontario, rather than in the United States. This facts practically determined the rational and parameters for attracting automotive plants worldwide. As evidence show, further projects in the USA requested economic incentives to be established:

Exhibit 16. Automotive incentives and investment received during 1980´s in US
Source: Research and practice, State incentive packages and industrial location decision
H. Brinton Milward, Heidi Mosbach Newman. pp 213

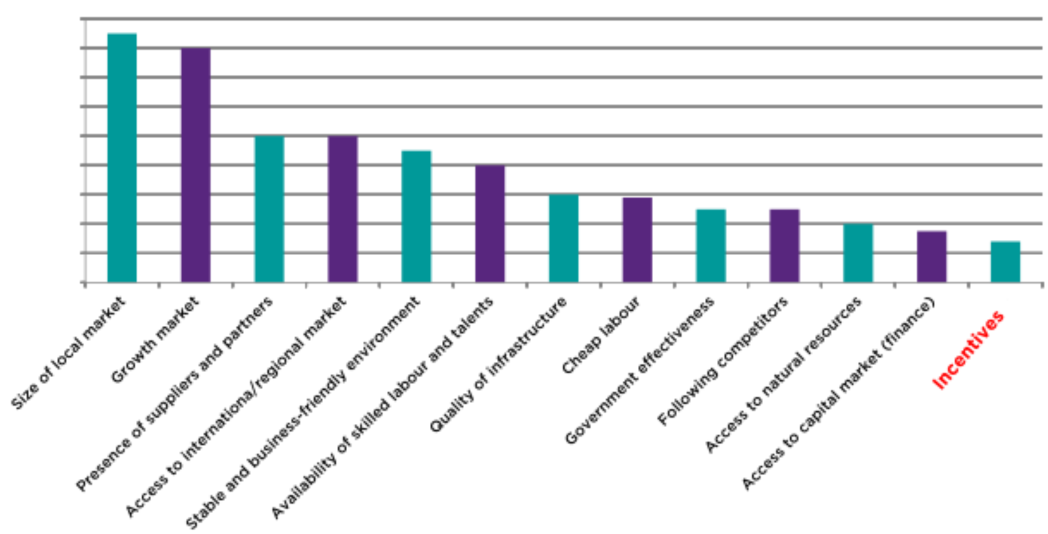
Company	Location	Investment	State incentive	Percentage of incentives from total investment	Type of incentive	Employees
Nissan	Tennessee	$848 million	$33 million	3.9 %	Road access Worker training	3,000
Mazda	Michigan	$750 million	$48.5 million	6.5 %	Worker training Road improvement On site improvement Grant loan Water system	3,500
General motors	Tennessee	$4.79 billion	$80 million	1.67 %	Worker training Road improvement	6,000
Chrysler and Mitsubishi	Illinois	$700 million	$83.3 million	**11.9 %**	Road improvement Site acquisition Water system improvement Worker training	2,500
Toyota	Kentucky	$823.9 million	$149.7 million	**18.2 %**	Land purchase Site preparation Road improvement Worker training Toyota families education	3,000

As exhibit 16 shows, in several site location processes of automotive plants there were huge grants transfers from the governments to the companies, in particular for Chrysler, Mitsubushi and Toyota. This precedent provided the fundamentals for further site

There is no consensus about the precise weight of the local incentives for attracting an automotive company. To understand the process for site location, it is necessary to consider a systemic vision. For example, in most expansion processes, industries hire consultant companies to make a professional due diligence, considering multiple evaluation variables. This requested information is related to workforce, infrastructure, quality of life, supply chain and formal incentives. Each concept receive a different weight according to the specific interest of the given industrial project.

To measure the specific weight of each concept, some studies and surveys, have been done some important contributions. The most acceptable and probably representative survey for general industry, is the World Investment Survey done by United Nations Conference on Trade and Development with a sample of 2,272 transnational corporations.

Exhibit 17. Importance of location factors by order of importance 2009-2011. Percentage of Companies responses.
Source:World Investment Prospects Survey (UNCTAD, 2009)



As shown in Exhibit 17, the size of the local market and growth market are the most important variables for location. This chart reflects companies´ priorities are guaranteed by a potential market, low cost of operation, trained workforce and an efficient infrastructure. The presence of suppliers, which is positioned in fourth place, normally is a consequence of the establishment of an anchor company. Another relevant variable is the availability of skilled labour and talents. However, the most relevant aspect of this survey, for the purpose of this paper, is found in the bottom position, namely **incentives, that it supposed to be a more determinant location factor in manufacturing industry, from the perspective of the State of Hidalgo Government.**

Other authors suggest a list of factors that may be important in attracting FDI[6]:

- Economic distance/transport cost
- Size of the host market (reduces the cost of supplying the market)
- Economics of scale and lower (fixed cost per unit of output)
- Agglomeration effects (clustering attractive)
- Factor cost (the net impact of lower factor cost on FDI is positive)
- Fiscal incentives (fiscal incentives in the host country can increase the country´s location advantage).
- Business/ investment climate (a friendlier business/investment climate lowers the additional cost of doing business in a foreign country)
- Trade barriers/ openness

[6]Ewe-Ghee Lim, Determinants of and the relation between foreign direct investment and growth: A summary of recent literature.

From these factors, we can see that operation costs and agglomeration effects are additional variables that contribute to attracting FDI. In our opinion, Mexico is a country that has created a balanced formula with a qualified workforce, low operations costs, a cluster functionality and an effective supply chain.

Exhibit 18. Importance of locations factors by industry.
% of companies responses.
Source:World Investment Prospects Survey (UNCTAD, 2009)

Sector/Industry	Presence of suppliers and partners	Follow your competitors	Availability of skilled labour and talents	Cheap labour	Size of local market	Access to international/ regional market	Growth of market	Access to natural resources	Access to capital market (finance)	Access to effectiveness	Incentives	Quality of infrastructure	Stable and business-friendly environment
Primary	8.8	2.9	9.4	4.1	10.5	7.6	9.9	19.3	1.8	7.0	0.6	7.0	11.1
Manufacturing	10.1	5.0	8.1	6.5	17.5	10.0	15.8	3.4	2.4	4.0	2.9	6.1	8.1
Chemicals and chemical products [a]	9.5	2.9	5.1	5.5	18.2	12.4	18.6	6.2	0.7	4.4	1.5	5.1	9.9
Electrical and electronic equipment	10.9	6.3	8.9	7.6	17.1	10.9	19.1	1.0	2.0	2.6	2.6	5.3	5.9
Food, beverages and tobacco	12.6	7.3	6.6	4.6	18.5	9.9	16.6	0.7	6.6	2.6	2.6	4.6	6.6
Motor vehicles and transportation equipment	9.8	7.0	6.0	7.4	17.7	8.8	12.6	2.8	2.8	3.7	**6.5**	7.4	7.4
Other heavy industry [b]	9.5	2.5	6.9	7.9	16.7	8.8	13.9	8.8	2.5	5.4	0.9	6.3	9.8
Other manufacturing	8.8	8.8	8.8	7.7	17.6	6.6	6.6	---	4.4	8.8	3.3	7.7	11.0
Pharmaceuticals	9.6	9.6	9.6	2.7	17.8	15.1	16.4	---	2.7	6.8	1.4	4.1	4.1
Professional equipment goods	10.2	3.3	13.5	5.8	17.5	8.8	16.8	1.1	0.7	2.2	4.4	7.7	8.0
Services	9.5	3.7	8.6	3.7	17.5	9.2	17.5	1.5	5.1	5.8	1.8	6.8	9.2
Business services	10.3	2.6	12.1	10.3	15.5	12.9	16.4	---	2.6	4.3	3.4	4.3	5.2
Electricity, gas and water	11.9	---	5.2	2.2	13.3	5.2	11.1	5.9	8.9	8.1	---	13.3	14.8
Other services	11.6	1.4	10.9	2.2	19.6	6.5	19.6	0.7	4.3	8.7	4.3	2.2	8.0
Trade	11.7	8.1	9.0	2.7	17.1	9.9	19.8	0.9	3.6	3.6	1.8	5.4	6.3
Telecomunications	5.4	2.7	6.8	2.7	25.7	10.8	27.0	---	6.8	4.1	---	2.7	5.4
Transportation	1.3	10.4	6.5	1.3	16.9	13.0	14.3	---	3.9	3.9	---	13.0	15.6
Total	9.9	4.5	8.3	5.6	17.1	9.6	15.9	4.0	3.0	4.7	2.5	6.3	8.6

Regarding to sectorial location factors, there are relevant differences. Comparative with other sectors motor vehicles and transportation equipment had the greatest incentives of 6.5%, comparing with 2.9% of manufacturing and 1.5% from Chemicals products. So, the treatment of automotive sector incentives had to be approached with an specific consideration. In particular, because is a very complex industry with high standards of quality and reliability services demand.

For Hidalgo´s state purpose industrial promotion public policy, must create a selective incentive offer for each sector, recognizing the importance of economic incentives for automotive sector, in particular those related with improving quality infrastructure.

9. Alternatives to improve the effectiveness of attracting automotive plants

Attracting companies is one of the most certain routes boosting local economy growth. New investments result in direct and indirect new high quality jobs, and the possibility to increase fiscal incomes. The recognition of a fierce competition between local governments for attracting FDI, demands a systemic, concrete and efficient promotion offer. The efforts have to be further than a well design brochure or and enthusiastic fair participation.

According UNCTAD´s investment survey results, industries location factors prioritize size and growth market. This condition is favored with Mexico´s vicinity to the United States, which is powered by the North America Free Trade Agreement. This connection to business cycle has a risk and a opportunity. While US has a steady growth, exports in automotive sector will have a promising perspective. However, an economic deceleration or recession, will have a negative impact in production and jobs in the Mexican automotive sector. A first recommendation, is to diversify in many sectors and vocations as possible. An ideal example is Querétaro´s State, which does not have an automotive plant, but has attracted many high added value companies in many sectors in the last 10 years, consolidating their position as one of the largest local economies. An efficient promotion strategy must consider several productive sectors such as pharmaceutical, food products, electrical and electronic equipment, chemical, transportation, logistic, electricity gas and power. In other words, expanding the target industry will maximize the possibility for attracting more volumes of FDI.

Workforce can make the difference in increasing FDI location. The effort consists of enhancing engineering and technical graduates skills in quality and processes certification, industrial software, robotic operation and english. Instead of promoting a massive public education, technologic and polytechnic universities must adapt their programs to manufacturing standards and invest more money in state-of-the-art laboratories. Educational institutions must increase their internship programs with companies near State of Hidalgo to improve young undergraduate potential.

To promote an economy of knowledge is also a strategic component to increase the potential of attracting FDI. The construction of a nourishing environment for research and development will contribute by creating talent demanded by the manufacturing industry. Hidalgo, must continue investing in the consolidation of the City of Knowledge and the Scientific and Technologic Park, to maintain promoting the creation of innovation sector. Raising funds for R&D represents the possibility to create small and medium companies that could be incorporated into to new supply chains for anchor companies.

Quality of infrastructure must be a priority for Hidalgo´s government. The State urgently requires improvements to current infrastructure, and increase connectivity. In different regions of the State, there are several bottle-neck accesses that have a negative impact in logistics. The current administration must continue requesting the federal government to transfer resources to construct the infrastructure demanded for industrial and logistic necessities and expectations. In addition, it is necessary to complete energy supply in high voltage and redundancy to the industrial zones, which offer more certainty for new investments.

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New industrial zones are the most suitable areas for complex manufacturing firms. Industrial parks offer certainty and fast soft landing for national companies and FDI. For decision making, companies seriously evaluate the risk of site location. Therefore, all services must be ready on site.

For the case of Hidalgo, Platah´s Industrial Park represented the best of industrial policy, because it offered the possibility of attracting companies based on its world class infrastructure and exceptional location at the intersection of the Arco Norte and the Mexico - Pachuca highways.

Finally, with a land use regulation, the local government should promote an evolutionary vision of the quality of life in regards to hospitals, restaurants, hotels, malls and cultural activities, to present as attractive medium size and modern cities. Besides that, industrial areas like Altiplano Industrial Corridor, PLATAH, and the Tepeji region need a municipality program to improve landscapes and urban furnishing.

Tax incentives are required to evolve. There is a zero sum for attracting a new investment from the fiscal point of view or not. If companies are not located in certain sites, the government does not receive tax incomes, and if the company decides to establish in a given location and it obtains tax incentives, the government won´t receive any income either. Additionally, all the states receive federal transfers based on the amount of local incomes. Directly and indirectly, the state receives a benefit for not offering tax incentives. That requires the state to modify local legislation to cancel the possibility of offering tax breaks. This alternative is based on the poor evaluation of location factors that companies expressed in UNCTAD survey as we mentioned before.

Hidalgo has to perform its promotional strategy, which requires new products to prioritize the factors that we had already mention in chapter 8. Also, a general tourism campaign is necessary to show the diversity of its culture, infrastructure, and the quality of life. This campaign should work in synergy with the industrial offer, using national and international specialized economic medias. The objective is to widen the target that arrives to the company´s decision makers who are looking for a site location for expansion abroad.

The Secretary of Economic development could also increase their promotion capabilities, with more training to their public servants in English and in technical and sales skills. The industrial parks must align their promotional efforts with the government to create a synergy for attracting new companies.

Finally, Hidalgo has to strengthen their relationship and collaboration with Promexico, in terms of diffusing the industrial infrastructure and the recent evolution of the quality of life in the main cities. Additionally, working closely with the federal government will facilitate handling the resources for strategic infrastructure for current and future projects.

10. Conclusions

Mexico is going to continue receiving FDI in the coming years according to the references presented in this paper. In particular, the automotive sector will continue looking back to the country for the skilled workforce, low cost, connectivity, size market, and growth. Specifically, structural reforms in energy, telecommunications, education, and finance will boost the Mexican economic perspective.

Hidalgo has to strengthen its industrial offer to became more attractive to the automotive sector. The state must invest more in strategic infrastructure to increase its competitive advantages, and eliminate the tax incentives offer to avoid losses in estimations for federal transfers.

The skilled workforce should be the deciding factor with the rest of states of Mexico to attract FDI. Increasing investment in quality education, the consolidation of R&D centers, and the collaboration with productivity sector must be prioritized. The states should improve the quality of life for medium size cities in coordination with federal, state, and municipal governments through programs that improve services and infrastructure. This issue is relevant for the expats that move as consequence of location.

Finally, one of the objectives of any government is to create quality jobs with good salaries. The unique way to achieve it is to attract new companies. Hidalgo has real competitive advantages that confirm its capabilities for becoming the new industrial hub of Mexico.

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