

COMPETITIVENESS OF AUTO PARTS MANUFACTURING SECTOR COMPARISON AND RECOMMENDATIONS TO THE STATE OF TLAXCALA

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Abstract

At present, the automotive industry is one of the most important for the Mexican economy, representing 6% of the total Gross Domestic Product (PIB) and 18% of PIB in manufacturing production, the development of this sector is different engines in the states of Mexico, this difference in growth is reflected in the state of Tlaxcala which is away from rank as one of the states with the greatest progress in this industries. Considering various approaches to the factors affecting the competitive performance of the state, for purposes of this research the model Manufacturing Competitiveness Framework and the variables are taken into account is used are infrastructure, innovation, technology and human resources because They are closely related to the competitiveness and development of the manufacturing country. Accordingly, the purpose of this investigation was a descriptive comparative analysis of the aforementioned variables in the auto parts sector in the state of Tlaxcala compared with the states of Queretaro and Guanajuato, allowing propose future action lines aimed at increasing competitiveness the sector in Tlaxcala. This research is descriptive, the temporal dimension is transversal court, and the data for the period 2002 to 2014 are considered.

Keywords: Competitiveness, Infrastructure, Manufacture, Innovation, Technology, Human Resources.

1.0 Introduction

The competitiveness of a country's manufacturing sector is essential for economic prosperity and long-term growth. A competitive manufacturing sector globally creates sustainable economic ecosystem, promotes internal, external investment and the trade balance improvement in a country. A strong manufacturing sector, in turn, promotes the intellectual capital and innovation capacity of a country, supporting research and development, promoting technological platform and increased the demand for

workers and gifted scientists important skills The automotive industry and auto parts is considered as a benchmark of manufacturing industrial development. Globally, the importance of the automotive industry in the economy of nations and its role as an engine for the development of other sector of high added value, has meant that many countries have as one of its main objectives the development and strengthening of this industry at present, the automotive industry is one of the most important for the Mexican economy, representing 6% of the total Gross Domestic Product (PIB) and 18% of PIB of manufacturing engines [1]. Global vehicle production reached 89.5 million units in 2014, grew at an average annual rate of 3% between 2013 and 2014. In 2014, the major auto producing countries were China, the United States and Japan with the 48.8% of total production. For its part, Mexico is ranked seventh as light vehicle manufacturer and its production in terms of units accounted for 3.7% of the world total [2]. In Mexico the automotive industry is one of the most dynamic and competitive. Jobs, service and products derived from it make it relevant in the national and local economy. Their contribution to the national total PIB is 3.3% and manufacturing 18.1%. Its exports to over 100 countries represent 21.5% of all Mexican exports, with over 45, 000 million. It generates 1.6% of national employment. Moreover, it has become the main foreign exchange earner, ahú's of sectors such as electric-electronic, petroleum and tourism [3, 4]. In 2008 the relative weight of the automobile industry in the PIB of the entities is varied. Highlights Guanajuato (8.9%) and Queretaro (11.5%) while for the State of Tlaxcala the contribution of gross domestic product accounts for only 2.1% [5]. The impact of the global automotive industry in the development of industrial activity in general has been observed since its inception in 1890 Panhard and Levassor in France to manually produce a few hundred cars a year [6]. To one of the most entrepreneurial waters with the introduction of the Ford assembly line, which marked a new paradigm in the speed and efficiency of vehicle production [7]. It is then that starts the race to win the largest market share of the world war, it was going to be won by Detroit's Big Three General Motors, Ford and Chrysler, while other European and Asian companies seeking ways to reverse these results. In 1932, GM overtook Ford, who had more years in the business, to become the largest automaker in the world, a title he would hold for 77 years. By the late 50s, GM controlled 50% of the car market in the EE.UU. [8], the average annual growth in global vehicle production was 2.8 percent between 1997 and 2005, reflecting the dynamism of this industry in the last decade [9], but starting in 2008, Toyota has been placed as the world's largest producer of cars, surpassing General Motors supremacy retained for a long time.

At present, the automotive industry is one of the most important for the Mexican economy, representing 6% of the total Gross Domestic Product (PIB) and 18% of PIB of manufacturing engines. In 2014 Mexico became the largest automobile producer in Latin America and the seventh largest producer globally. And this growth will continue because auto production could reach 3.3 million cars in 2015 and 4.8 million in 2019, according to figures from the Mexican Association of the Automotive Industry for years, the quality of manufacturing has been the outstanding characteristic of the vehicles manufactured in Mexico. They are exported to the most demanding markets in the world, like the US, Germany and even Japan, where the Mexican plants have been presented as examples of quality and commitment to continuous improvement. For automakers, the quality of the plant and Mexican labor are some of the most important in deciding their investment strategies, geographical location and position factors. As evidence of this, in the last five years, most companies manufacturing cars and commercial vehicles in our country and a large number of companies producing automotive equipment, parts and components have made major investments to expand capacity production, equipment, modernization and automation. Automobile production reached a new record high in 2014, driven by the installation of new plants in the country and increased demand in key markets like the US and

Canada. According to information from the Mexican Automotive Industry Association (AMIA), armed car broke the record of 3 million units per year by registering a figure of 3 million 219 thousand 786 in 2014, an amount 9.8 percent higher than the 2 million 933 thousand 465 vehicles made a year earlier. Only in December 2014, production was 208 thousand 498 units, 27 percent higher than the 164 thousand 221 units in the same month of 2013, due to increased production of Honda and Nissan. Automobile production in Mexico for the years 2002 to 2014. The indicators on manufacturing production according to INEGI Aguascalientes, shows that in 2011 growth was observed at a rate of 14.4%, which meant to be within the top 5 entities with better economic performance nationally. One of the characteristics of the manufacturing sector of the State that makes it unique nationwide industrial peace is enjoying because in 43 years of its history has not registered a single industrial strike. Meanwhile the Ministry of Sustainable Economic Development of Guanajuato reported that during the past seven years (2007-2013), the State caught 9,800 million investment, which detonated 242 projects, 118 of which belong to the automotive industry the automotive industry accounts for 74% of the total investment that has come to Guanajuato in the last 7 years. The Ministry of Sustainable Economic Development of the State Government reported that in the past seven years Guanajuato achieved a historic investment of 9,800 million dollars and generated 83,800 jobs, to realize 242 projects of national and foreign investment. Thus, the automotive sector is the most dynamic and allowed Guanajuato place in a transformation process to stop being a state with an economy based on primary sector such as agriculture, livestock and mining, to be an entity economy is consolidating in the automotive industries Guanajuato went from having only one assembly plant, which is General Motors which was installed in 1995 in Silao, four auto plants, with the arrival of Mazda, Honda and Volkswagen. The launch of the assembly plants of Honda and Mazda in Salamanca in Celaya, and the expansion of General Motors and Volkswagen in Silao, allowed the value of Guanajuato automotive production grew 34.8% in the first quarter of 2014. The Guanajuato automotive industry accelerated and managed to exceed the State of Mexico and Puebla, to settle at the second national position. Thanks to this growth, Guanajuato national site jumped from fourth to second in the value of cumulative production, behind only Coahuila which produced 71,525 million in the automotive industries, with its assembly plants of Chrysler and General Motors. According to data of INEGI in 2013, the automotive industry and parts of Guanajuato has a high growth rate of 53%, which is reflected today with the arrival of world-class companies such as Pirelli, Hino Motors, Condumex, Stamping and Painting assembly, GKN Driveline, Seglo Group, Hutchinson, GST auto leather, Lear Corporation, Hirotec, Continental, Schaffler, Flex & Gate, Cie Celaya, Mexico and Faurecia Monroe among others. Installed Auto Parts Companies in Guanajuato: Enertec, Kolbenschmidt Pierburg, Meridian Automotive, Tenneco Automotive, automotive Bos, Getrag, Hutchinson, Universal Fasteners, Bader, Ferranti Packard, Hope Industries, Kasai, Lear, Flex-N-Gate, Ace, American Axle, Continental, Daetwyler Rubber, Delphi, Grupo Antolin, McCormick Tractors, Oxford automotive, Plastic Omnium, SMC Corporation [10], In the state of Queretaro are 300 companies, 58 companies Tier one level, 100 Tier 2 level and the rest are 142 level proveeduría 3. Queretaro houses 300 companies engaged in the automobile industries, generating 40 thousand formal jobs and generating 10 percent of gross domestic product (PIB), which according to the Ministry of Sustainable Development, the automotive industry is the engine of the economy Queretaro. In 2012 Querétaro has become the first manufacturer of auto parts in Mexico, with a base of 300 companies, which contributed 10% of national production, equivalent to 8,000 million dollars. According to figures from the Ministry of Sustainable Development, during 2013, the State of Queretaro attracted the largest number of investments in the automotive sector by concentrating 30% in the number of companies and 44.5% of the total amount invested.

In that sense, of the 77 recorded during 2013, 40 investments were in the metalworking sector and of these 23 belong to the automotive sector, with an investment of 5 billion 410 million 822 thousand 375 pesos, for a total amount of 12'148 253 313 thousand pesos and the generation of 4,162 work places of the 12, 137 created by the investment projects. Queretaro auto industry this year will grow above 8 percent, two percentage points higher than the growth in 2013, representing a turnover of four billion pesos this year, said the president of the National Chamber Industries (Canacindra) in Queretaro, Jesus Calderon Calderon. The participation of the automotive industry in the state GDP remains at 12 percent, favoring the growth expected for the end of this year. In this context he said that the sectors related to the automotive industry in Queretaro have grown 30 percent in the past five years, spending has represented an investment of 42 billion pesos to 90 billion pesos. According to Pro Mexico auto parts companies that are installed in the state of Queretaro they are: VRK Automotive Systems (Kirchhoff), Aeroquip Group (Eaton), Arvin Meritor, Aspel Group, Auma, Autoliv, Bosal, Bticino, Burgmann, Climate Systems, Collins & Aikman, Dana, Delphi, Durr, Eaton, Flex-N-Gate, Freudenberg-NOK, Gaiandu Mondragon, Hitachi Cable, Irizar, Johnson Controls, Johnson Matthey, Kostal, Magna, Mann Hummel, Michelin, Mold-Tech Nihon Plast, Norgren, Omni Manufacturing, Parts Finishing Group, Pilkington, Ronal, Siemens, Tremec, TRW, Valeo, Visteon, Vitro, Chevron - Oronite, Clarion, Harada Industries, PPG Industries, San Luis Rasini.

In the state of Tlaxcala there are 19 companies in the auto parts industries, of which 37% are tier 1, among which include Johnson Controls, SBNMX, Arcomex, Wexler and Grammer, the remaining 63% are providers second or third level. 45% are from the rest is domestic capital abroad. In Tlaxcala this sector is strategic, considering the high growth potential. The analysis of the auto parts sector in Tlaxcala profile is still in process. In this area the state is placed in the crosshairs of the automotive sector due, among other factors, to its geographical location: near Puebla, Mexico City, connecting with the Gulf of Mexico to the east and north with the Bajio. The company two kilometers from the Volkswagen plant in Puebla is home to a strong supplier with more than 30 signatures. Part of the region with sales for this concept totaled more than 30,000 million dollars in recent years, which placed it in the first place nationally. In addition, it ranks first nationally in terms of land area paved roads and has more than 7,000 graduates in the automotive industry related careers, which is significant given the high penetration that records the informal economy (72%). At present, the automotive sector is made up of about 31 company's holds 20% of gross domestic product (PIB) of the entity and generate about 7,000 jobs in the productive sector of manufacturing. According to Pro Mexico 2013 Auto Parts Industries in Tlaxcala are Aunde Texel, Delphi, Euwe Eugen Wexler, Flocktechnik, Forges Spicer, Grammer Automotive, and Johnson Controls. Competitiveness is an aspect that is becoming increasingly important in the business world, derived from the new demands of today's manufacturing environments. However, there is no talk of competitiveness recently, has its roots in the reflections of economists on the causes of the dominant position of one country or another in a given, about the secret of his superiority time and the strategies to achieve them [11], Discussion of this topic has appealed to a wide range of thinkers among these Adam Smith who introduced the first modern competitiveness argument in his book "The Nature and Causes of the Wealth of Nations" in 1776 emphasized that when two or more agents compete, it says that one has absolute advantage because it is more productive than the rest. Smith argues that countries should specialize in the production of goods for use fewer materials and other countries export some of them to buy the goods that other countries produce at lower cost. Like Smith, David Ricardo in 1817 outlined the contours to study competitiveness in his "Principle of Political Economy" developed the theory of comparative advantage to explain why a country may import goods even producing at low cost. Moreover it is up to the foundational work of Porter (1990) that the concept of competitiveness

becomes useful, operational and dynamic. No doubt, Michael Porter arguably the most prominent spokesman of the concept of competitive advantage. In his book *The Competitive Advantage of Nations* (1993), states that the competitive strategy establishes the success or failure of companies and that this should be enough, increased and sustained over time in order to ensure the essential elements for the existence of a company. Competitiveness is one of the most assiduously studied and at the same time most controversial areas of academic, business, government and media research concepts [12]. Competitiveness wake a thriving interest in various groups: politicians seek to improve it, lawmakers discuss it, publishers publish about it, implement it live consultants and economists try to explain it and measure it. Today, competitiveness is becoming increasingly important to opening markets and accelerating technological change has spurred competition. The risks for businesses are growing, we live in a context characterized by profound changes, accelerated and global [13]. To shed some light on the complex semantic forest competitiveness is necessary to start this work pointing out that there are three types of models to measure competitiveness: those measuring competitiveness in the country level, measuring the competitiveness of industries and measuring the competitiveness of companies [14], these three effects have an additive character, so that the impact on competitiveness is the sum of each of the effects [15], Concerning the concept of business competitiveness can argue that, as competitiveness in general, it presents a number of definitions and is not easy to find one in which everyone agrees. However, as suggested by Michael Porter (1990) and Paul Krugman (1991) [16]: "The competing nations but are not companies" make a country competitive companies out there right. Therefore the basis of competitiveness is in business. Among the definitions that have been raised issues are the following; the ability of companies under free and fair market are able to design, develop, produce and sell their products in international market advantage by generating greater added value than competitors from a systematic conception that incorporates economic elements, business, political and sociocultural [17,18,19,20]. It goes without saying that this level is crucial as it largely determines the competitiveness of other lower levels, the concept of competitiveness of a country or nation includes various concepts, in general terms, as a first approach to a country's competitiveness is the degree to which, in free market conditions and clear their industries are able to innovate, improve [21], and expand its participation in international markets, while increasing the quality of life of its population [22]. A second approach, led by Paul Krugman puts the accent on the business role, stressing that the decisive for the competitiveness of a nation are factors internal to the company and external that can not be altered easily and with adequate short-term economic policy [23]. The competitiveness of a country is well sustained almost exclusively by the economic performance of their production units. According to his vision, in international trade balance and operating forces more or less automatic forces to ensure that any country remains able to place certain goods in world markets. We end this section wishing few words to the measurement models for country competitiveness. The best known measure competitiveness index is the World Economic Forum [24], which it is published every year since 1979 in its *Global Competitiveness Report*. The authors of this report and the body proves it, consider the level of competitiveness is directly related to the ability of nations to develop their welfare. Under this fundamental consideration it is that they have developed the index to capture both microeconomic and macroeconomic aspects underlying the competitiveness of a nation. To explore how the global manufacturing ecosystem is evolving, the World Economic Forum, together with the experts making Deloitte, they embarked on a project called "The Future of Manufacturing" to identify the factors most likely to shape the future competition for countries and companies. The main conclusions of this study were released at the annual meeting of the Forum 2012 in Davos, including a key finding for policy makers dealing with job creation and economic growth. Based on recent research at Harvard Kennedy

School and the MIT Media Lab, the project concluded that the manufacture or the "ability to do things," is a key driver of knowledge creation, innovation, capacity development and economic prosperity. The link between manufacturing capabilities and economic prosperity is much stronger predictor of a vibrant, successful and growing economy than any other measure commonly used by economists. Meanwhile Porter (1990) argues that innovation, whether processes, products or organizational determines the competitiveness of a nation, as this depends on the ability of industry to innovate and improve. This agrees with the proposal as to define innovation aspects: location, type and scope [25]. By location is understood that innovation is for the world, the country, the city, the company, mentioned product and process type and scope refers to whether it is internal to the organization or if it is marketed, While technology can be defined as an assembly complex knowledge, means and expertise, organized for production. The technology in an instrument that supports the development of the strategy of the company, but can also serve as a starting point in defining it. According to this standpoint, technology is configured as a strategic variable, capable of providing competitive opportunities for firms who can use it properly [26]. Possession of certain technological capabilities have led to major changes in the structure, strategy and way of working of organizations of all types and sizes around the world; modifying their processes and creating, in many cases, a competitive advantage. Technological change is inherently importance when it affects the competitive advantage and an industry structural. High technology does not guarantee profitability. The importance of technology in competition does not depend on its scientific value and its prominence in the physical product; Technology is important if much affect the competitive advantage or industry structure [27]. To succeed in creating a competitive advantage companies have to have staff with appropriate skills, attitudes and intellectual agility, be acquired by continuous innovation processes, customer loyalty, good relations among workers, good organizational technology, ability to attract and retain the best professionals, these intangible assets has been commonly called their intellectual capital, and most studies agree that, in turn, this concept has three dimensions: human capital, structural capital and equity relation [28, 29]. To importance of human capital when we say that "today's human capital is one of the factors contributing to the competitiveness of organizations, since the skills, knowledge, creativity, problem solving, leadership and commitment of the staff are some assets required to meet the demands of a turbulent environment and achieve the organizational mission. Thus, to the extent that the elements are tacit human capital and defendable, they may be considered as competitive sources to be valuable, difficult to imitate and replace resources advantages, and appropriated [30,31].

2.0 Methodology

The Reniecyt brings to the auto parts industry talent training, knowledge generation developing products and services of high value. In addition to receiving support and encouragement programs. In 2012, 0.52% of the members of Reniecyt was in Tlaxcala, while that for every 10,000 ude of the entity 5.4 Reniecyt members are identified, between the periods 2007-2012 the average annual growth rate was 13.6%. The distribution by type of unionized shows that 66.7% of the members are companies, followed by IES (headquarters and sub-headquarters) contributing 19.4%, while third non-profit institutions (headquarters) with a share of 5.6% is found. For the entity of Queretaro in 2012, 3% of the members of RENIECYT were in Queretaro, while per 10,000 26.3 ude entity Reniecyt members are identified, between the periods 2007-2012, the annual average growth rate it was 15.3%. The distribution by type of unionized shows that 79.8% of the members are companies, followed by nonprofit institutions

that provide 6.3%, while third HEI (headquarters and sub-headquarters) are with a share of 5.8%. In Guanajuato in 2012, 6% of the members of RENIECYT was in Guanajuato. In Guanajuato the trend in the register was up from 2007 to 2012, with an average growth rate of 4.8% annually. The distribution by type of unionized shows that 76% of the members are companies, followed by individuals with business activity at an approximate rate of 10.8%. For the state of Tlaxcala 26 companies are registered to Reniecyt while for Guanajuato and Queretaro 287 and 155 respectively. Note that for the three states do not have information on the companies registered to Reniecyt late to the automotive industries, only data of all companies by state is shown.

The PNPC is the set of postgraduate programs (doctorate, master's specialty) recognized for their quality through a rigorous evaluation process by academic peers based on international standards, by the National Council of Science and Technology of Mexico. Conacyt (2015). The PNPC graduate belonging to maintain effective strategic alliances in research and development and in human capital formation for the auto parts sector. Tlaxcala has 14 graduate programs within the PNPC in 2015, concentrated mostly in the Autonomous University of Tlaxcala. Of the total programs 4 are Ph.D., one of 9 specialty and expertise. In addition 3 of these are consolidated character, 7 are in development and 4 are newly created. Tlaxcala has no international competition programs. Queretaro has 75 graduate programs of the PNPC in 2015, concentrated mostly in the Autonomous University of Queretaro. Of the total 17 are doctoral programs, 15 masters and 43 specialty. Furthermore 9 programs are consolidated basis, 28 are developing and 34 are newly created and has 4 programs of international competition. Finally is the entity of Guanajuato has 69 programs under the PNPC in 2015, concentrated mostly in the University of Guanajuato. Of the total 23 programs they are PhD, 7 and 39 master's specialty. Moreover, 18 programs are consolidated basis, developing 22, 17 are newly created and the company has 12 international competition programs. Tlaxcala has 2 programs PNPC belong in the area of engineering, while for entities of Guanajuato and Queretaro have 19 and 28 respectively.

A patent is an intellectual property right conferred by the government of a country that grants exclusive rights to exploit, use, sale, production, transfer or licensing of an invention in a specific territory and for a period of approximately 20 years. Because the content of patents is technological, they are associated directly to innovative potential of an economy. The patent databases are available for free and therein lies one of the largest collections of information about technology worldwide. To be granted a patent must meet three criteria: novelty, inventive step and industrial application. Taking advantage of these alternatives Protection of Industrial Property gives the automotive industry the potential ability to meet the dynamic and competitive market and enables technology development, such as engines, suspensions, electronic fuel injection systems, among others, which are backed and protected by patents. Patent applications for Tlaxcala seen sustained growth since 2006 and continuing through 2012, with an average of 3 applications per year. In relation to the number of applications per million inhabitants, Tlaxcala is found throughout the period below the national average. In 2012, the company record 4.9 applications per million inhabitants, below the national value. Queretaro entity for variable growth is observed with an average of 27 requests per year. In relation to the number of applications per million inhabitants, it is located in Queretaro entire period above the national average. In 2012, the entity record 16.2 applications per million inhabitants, above the national value. For the state of Guanajuato has a sustained growth from 2005-2012, with an average of 28 requests per year. In relation to the number of applications

per million inhabitants, Guanajuato found throughout the period below the national average, except in 2009. In 2012, the company recorded 7.6 applications per million inhabitants. Note that for the three states do not have patent information requested by the automotive industries, only data on total sample state patents. In connection with the granting of patent documents in Tlaxcala 2 patents granted accumulated over the review period were recorded. In 2012, the number of granted patents is only 2 patents, below the national average. The number of patents per million inhabitants in the state for that year is 1.6, while the domestic value is 2.4. 80 patents granted to Queretaro accumulated over the review period were recorded. In 2012, the number of patents granted it reached in July, below the national average. The number of patents per million inhabitants is the entity for the year is 0.6. In Guanajuato accumulated 51 patents granted during the reporting period were recorded. In 2012, the number of patents granted reached 12, a figure that exceeds the national average of 11 patents. The number of patents granted per million inhabitants in the state for that year is 2.1. Note that for the three states do not have information of patents granted to the automotive industries, only data on total sample state patents.

The productivity of a researcher, in terms of the contributions that have the stock of scientific knowledge, can be evaluated through the number of indexed items produced. In the same way you can identify the relevance of these contributions by the number of times they have been cited, meaning that each citation means the number of times it has been used to build new scientific or technological knowledge. The impact factor of scientific production in turn represents the average of quotes obtained an article published in a period of time. Tlaxcala scientific production presented in three periods ranging from 1997 to 2011. In the first revised (1997-2006) period analyzed the number of items identified was 241; for the period 2002-2011 the number of items multiplied 2.3 times, reached 566. In Queretaro scientific production presented in three periods ranging from 1997 to 2011. In the first review period (1997-2006) the number of items identified It was 2,699; for the period 2002-2011 the number of items multiplied 8.5 times, reaching 23,171. For Guanajuato scientific production presented in three periods ranging from 1997 to 2011. In the first review period (1997-2006) the number of items identified It was 4,103; for the period 2002-2011 the number of items multiplied 8.2 times, reaching 34,051. The publication of scientific articles is an indicator of importance for the characterization of the scientific activities of the states. In this regard, the number of documents published by a researcher in a given time period is considered an appropriate measure of scientific productivity. According to this indicator an entity that presents a higher average number of articles per researcher is considered more productive, and thus generating a greater amount of scientific knowledge.

Monitoring and measurement of scientific production of researchers from the SNI and characterization of its scientific productivity by state for the period 2003-2011 is made. In this respect it is found that the average number of articles per researcher in Tlaxcala SNI has shown a significant increase, rising in absolute terms from 0.6 to 1.8 scientific papers per researcher in the period 2003-2011. In addition to the above highlights that productivity of SNI researcher's entity is positioned below the national average throughout the reference period. Also it is found that the productivity of these researchers has grown at an average annual rate of 14.0%, exceeding the 8.5% national. Queretaro is the average number of articles per researcher SNI in Queretaro has shown a significant increase, rising in absolute terms from 1.2 to 2.4 scientific papers per researcher in the period 2003-2011. In addition to the above highlights that productivity of SNI researcher's entity is positioned above the national average throughout the reference period. Furthermore, it is also found that the productivity of these researchers has grown at an average annual rate of 8.6%. For Guanajuato average number of articles per researcher SNI Guanajuato State has shown a significant increase from 1.07 in 2003 to 2.36 articles per researcher scientists in 2011. The productivity of SNI researcher's entity presented a performance prominent position above the national scientific productivity throughout the entire period 2003-2011. It is also found that the scientific productivity of SNI researchers of the company has grown at an average annual rate of 10.4%.

The government, through the National Council for Science and Technology (CONACYT), serves to provide the monetary resources to the states to achieve development in states that enable the development of science, technology and innovation. According to information gathered in the agreements state budget expenditures as shown in Figure 29, it is identified for the State of Tlaxcala not report the budget for science technology and innovation. As for the state of Guanajuato state budget for CTI has had a significant decrease since the year 2009 registered a budget of \$ 73.3 million pesos and the year is 2013 has a budget cut that record \$ 53.2 million. The state of Queretaro state budget for CTI has experienced significant growth since the year 2009 registered a budget of \$ 15.4 million and for the year 2013 has registered an increase of \$ 19.8 million. Among the various public support instruments that manages the CTI CONACYT, are FOMIX, Scholarships, SNI researchers, Sector Funds, Institutional, International Cooperation Incentives

Of the total approved and supported by the PEI for the institution of Tlaxcala projects it highlighted that during the period these resources (private and public) have increased by just over 12% annual average; Moreover, the average investment per project during the period is just over 8 million, similar to the average national rate. Note also that for the State of Tlaxcala these projects have been mainly directed to the chemical industries, plastics and automotive industries. These sectors or industrial areas concentrate 84% of the total approved projects supported during the period, the agro industrial and petrochemical industries recorded only one project each; together they account for 8% of the total projects. For the entity Queretaro projects are mainly aimed at the aerospace industries, biotechnology, and energy, automotive, industrial and agricultural machinery. These sectors or industrial areas concentrated 56.12% of the total approved projects supported during the period; construction industries, printing, electrometrical instrumentation, metallurgy, and an unspecified services reported only one project each, which together represent 0.61% of the total projects. Guanajuato projects are mainly aimed at the food industry with 23 supports, the leather and footwear supports 16, 15 support the automotive among others. These sectors or industrial areas account for 40% of all projects approved during the period. In the graph 19 projects approved in PEI entities Tlaxcala, Queretaro and Guanajuato shown.

In this section the results obtained in the National Ranking CTI 2013 for the State of Tlaxcala, Queretaro and Guanajuato are detailed. National Ranking of CTI 2013 is calculated by the FCCyT in 2013 indicator, which shows the characteristics of each state on STI. It also positions the entities by their scientific, technological and innovation capabilities and their vocations. The indicator is constructed with ten dimensions. The ten dimensions measured CTI ranking shown below: D1. Academic and research infrastructure, D2. Training of human resources, D3. Teaching and research staff, D4. Investment in CTI, D5. Scientific and innovative productivity, D6. Business infrastructure, D7. Information technology and communications, D8. Institutional component, D9. Gender in the CTI, D10. Economic and social environment. Tlaxcala is located in the number 27 position in the ranking of 2013 CTI respect of all entities in the country. Stresses that Tlaxcala is positioned 11th in the Gender dimension in CTI, and at position 15 in the D1 academic and research infrastructure. The entity of Guanajuato is located in the number 20 position in the ranking of CTI 2013 to total entities, excels in the dimensions D6 Enterprise Infrastructure at position 8, D5 scientific and innovative productivity at position 7 between all entities from the country. The state of Queretaro is located in the number 3 position of National Ranking of CTI 2013 to total entities, it should be noted that the company stands for position in second place in the teaching staff and research D3 and D4 Investment in CTI ranking second nationally.

The highly qualified human capital has become an indispensable input of organizations and production facilities. Such resources are actively involved not only in implementation but also in the generation of new scientific knowledge, which help to achieve productive efficiency of organizations. In this sense the formation of human capital related to the auto industry can be seen as an indispensable part to increase competitiveness and achieve economic efficiency of the industries in this sector. Tuition and coverage and Technological University Degree in the states of Tlaxcala, Guanajuato and Queretaro. Tlaxcala recorded in the 2011-2012 school year a total enrollment of 23,000 students in 145 university and technological level degree (LUT) representing 0.4% of total national enrollment respectively. LUT enrollment of the company has shown a positive trend over the period 2004-2012, growing at an average annual rate of 3.4%. During the 2011-2012 school year the State of Guanajuato recorded a total enrollment of 88,000 students in 758 university level degree and Technology (LUT) representing 3.2% of total national enrollment. Enrollment in the entity has shown a positive trend over the period 2004-2012, since the level of LUT has grown at an average annual rate of 4.6%.

Queretaro recorded in the 2011-2012 school year a total enrollment of 47,000 students in 141 university and technological level degree (LUT) representing 1.7% of total national enrollment. The registration of the company has shown a positive trend over the period 2004-2012, growing at an average annual rate of 6.2%. In the 2011-2012 cycle Tlaxcala record 947 students at the graduate level, representing 0.4% of total national enrollment. However, at the graduate level enrollment it has declined at an average rate of -0.2% as shown in Figure 12 graduate enrollment and coverage. I catch Guanajuato 1,752 students in the graduate level, representing 4.7% of total national enrollment. Enrollment in the entity has shown a positive trend over the period 2004-2012, as in the graduate level has grown at an average annual rate of 5.6%. The state of Queretaro record in the 2011-2012 school year 4000 226 students in the graduate level representing 1.8% of total national enrollment. The registration of the company has shown a positive trend over the period 2004-2012, growing at an average annual rate of 2.5% in the graduate levels. The concentration of enrollment in institutions depends on several factors, including the level of observed studies. Enrollment in engineering and technology that are related to the automotive industry between 2004 and 2011 in the states of Tlaxcala, Guanajuato and Queretaro racing is observed. In connection with degrees in engineering and related technology to the automotive industry recorded the state of Tlaxcala in 7866 2010-2011 enrollment cycle. Captor entity Guanajuato in 2010-2011 33,669 students enrolled in undergraduate engineering and technology school year, which is four times more than recorded for the state of Tlaxcala.

The state of Queretaro has been a progressive growth in undergraduate enrollment in engineering and technology for the 2010-2011 school year almost 16708 registered more than twice what the company recorded Tlaxcala. The growth of the automotive industry in Mexico has generated greater demand for skilled engineers in the country, is where racing becomes relevant engineering and technology at the end of this sector. Graduate enrollment related to S & T Tlaxcala presented in six periods ranging from 2004 to 2011. In the first review period (2004-2005) is analyzed identified the enrollment was 123; for the period 2010-2011 the number of graduates from related postgraduate C and T decreased to 99. The Guanajuato graduate enrollment related to S & T comes in six periods ranging from 2004 to 2011. In the first period revised (2004-2005) identified the number of students was 929; for the period 2010-2011 the number of graduates of postgraduate related to S & T to increase Queretaro in 1340. For the graduate level is a growing trend in enrollment, for example, is also observed in the school year (2004-2005) the enrollment was 578; for the period 2010-2011 state coverage reached 791 graduates graduate. The importance of postgraduate related to the automotive industry aims to produce graduates who are able to organize, implement, conduct and evaluate production systems in the automotive industry to

coordinate technical, human resources, materials, equipment and facilities required to meet the social needs category. The training of scientists and generating high-level technical personnel is one of the triggers of higher value added products and services produced in an economy. To the extent that an economy remains at the forefront in the generation and application of scientific and technological knowledge, will generate a greater impact on the competitiveness (CONACYT, 2006). The training of researchers in the automotive industry develops high-level human resources with high quality standards in the auto sector that helps build teamwork in research and at the same time facilitates the advancement of knowledge.

SNI researchers from the states of Tlaxcala, Guanajuato and Queretaro. The SNI is classified by distinctions involving: Candidate for National Research and National Investigator (with three levels). These distinctions are obtained depending on the quality of the scientific production of researchers, as well as the training of new researchers and the contribution to strengthening the scientific and technological research in the country in their line of study (SNI current Regulations, 2013). In Tlaxcala it currently has 116 researchers from the SNI, representing 0.61% of the national total in 2013. In the same year 92.5 SNI researchers identified per million inhabitants in the state. Queretaro currently has 490 researchers from the SNI, representing 2.6% of the national total in 2013. In the same year 250 SNI researchers identified per million inhabitants in the state. In 2013, researchers enrolled 681 System was identified in Guanajuato; this number represents 3.6% of the national population of researchers in the SNI in that year. On the other hand in this state there are 119 registered in the SNI researchers per million inhabitants. According to figures Conacyt, Queretaro has a significant focus on the NIS in areas related to the Automotive Engineering, 2013 has 161 researchers in this area. In contrast to the state of Tlaxcala there is some considerable development by the researchers because in 2013 only has 15 researchers in related areas to the automotive industries. Guanajuato recorded a remarkable growth in terms of its researchers in the field of engineering because in 2002 only had 42 investigators and by 2013 had 123 researchers considerable growth in related areas of the automotive industries. The formation of high quality human resources depends largely on the support for graduate level studies through scholarships and grants. One program of great national importance is the Scholarship Program for Graduate Studies CONACYT.

The auto parts industry needs professionals capable of taking on the challenges posed by globalization and constant change of science and technology, thus updating knowledge and expertise become paramount for this sector. The number of scholarships allocated in the state CONACYT has shown significant growth during the period 2002-2012. In absolute terms it has grown from 27 in 2002 to 231 in 2012, with an annual growth rate of 23.9%. Although Tlaxcala has maintained an increasing rate performance scholarships per million population it has remained below the national average during the reference period. For example, in 2012 the company reached a rate of 189 scholarships per million inhabitants. Queretaro entity for the number of scholarships from CONACYT has gone from 112 in 2002 to 893 in 2012 with an annual growth rate of 23.07%. In addition Queretaro has maintained an increasing rate performance scholarships per million inhabitants: in 2012 it was 467. The number Guanajuato CONACYT scholarship of the company has gone from 370 in 2002-1000 243 in 2012, with an annual average growth of 12.9%. In addition, Guanajuato has maintained throughout the period of scholarship rate per million population below the national average; For example, in 2012 the company reached a rate of 219 scholarships.

The road network is the infrastructure of transport used for the auto parts industry given the flexibility which gives freight movers as well as its large size, allowing delivery services door to door. Tlaxcala entity for 2012 has 2769 km of road network, while according to figures from the Ministry of Communications and Transport Queretaro State has an infrastructure of 3295 km of road network, the State of Guanajuato has 12785 km of road network allowing it greater participation in movement of vehicles and auto parts. This road network connects all state capitals, major metropolitan concentrations, medium-sized cities, seaports and access relevant international busiest border bridges with the United States both in the north and Belize and Guatemala in the south. The links between the automobile industry and rail corresponds to a bilateral relationship that is both agree to, the point of integration lies in the incorporation of the railroad to the logistical needs of the automotive industries. The railway infrastructure is one of the logistics assets of the utmost importance, because it is the main element in the logistics network that facilitates the so-called intermodal transport, where several modes combine their advantages for greater efficiency. In graph 28 the length of railways entities Tlaxcala, Queretaro and Guanajuato shown. Tlaxcala entity for 2012 has 351.8 km of railways, while according to figures from the Ministry of Communications and Transport Queretaro State has an infrastructure of 476.4 km of railways, Guanajuato has 1,085 km railways allowing you greater participation in movement of vehicles and auto parts.

The rail industry moves large volumes of finished vehicles and auto parts aftermarket assembly or have found a strong ally in rail transport to meet their needs of both domestic and international logistics that enables movement of compact cars, medium and large to markets in North America and elsewhere, through the railway network.

Seaports for the automotive industry is one of its most important strategic logistics assets, given its participation in the international exchange of goods. According to statistics from the World Trade Organization over 80% of goods sold in the world they are moved by sea, with ports that allow nodes to operate such an exchange. The port of shortest distance to the state of Tlaxcala is the Tuxpan Veracruz is located at 204 km, while according to figures from the Ministry of Communications and Transportation for the State of Guanajuato port height shorter distance is the Altamira in Tamaulipas at a distance of 324.70 Km, for the institution of Queretaro nearest port height is located in Altamira Tamaulipas at a distance of 372.30 Km. The advantages of having a connection to the ports height is to offer companies ideal business conditions, the economic benefit to be essential, this is achieved by making logistics operations more efficient, lowering their costs and execution times.

Air transport is an innovative industry that guide economic progress and social progress. For her people, countries and cultures connect. Provides access to global markets and generates trade and tourism. Forging ties between developed and developing nations. The automotive industry one of the main factors is adequately comply with delivery times for customers, which is why air transport serves an important role in the export or import of auto parts and products that supply the automotive industries. Regarding the airport infrastructure, the state of Tlaxcala has a national airport in the state capital. However, this has only reported operations in 1994 and were only 24. The Del Bajío International Airport and Guanajuato International Airport is an international airport located in the city of Silao. Handles national and international air traffic in the area which includes the metropolitan area of Leon, as well as the cities of Irapuato, Salamanca and the state capital, Guanajuato. Queretaro Intercontinental Airport (IATA code: QRO - ICAO: MMQT - DGAC Code: QRO), is located in the municipalities of Colon and El Marques, Queretaro, Mexico. Manages the air traffic of the metropolitan area of Querétaro (ZMQ) and is part of the Metropolitan Airport System. In 2012 he had a movement of 226.908 passengers, but by 2013 had an increase of 38.16% in the movement of passengers reaching 313.509 passengers move.

Telecommunications is one of the most important sectors for any country, as it contributes to economic and social development, and improving the quality of life of the world's population. The telephone infrastructure is the backbone of telecommunications companies need it to face the challenge of having a faster flow of information among its suppliers and customers to streamline the relations between them. Telephone lines regarding the state of Tlaxcala recorded in the year 2012 121 641 fixed telephony subscribers. I catch Guanajuato entity in the year 2012 839,527 fixed telephony subscribers, representing 6.9 times more than recorded for the state of Tlaxcala. The state of Queretaro has been a progressive growth in its fixed telephony subscribers for 2012 recorded 334,479 representing 2.7 times more than the figure recorded for the state of Tlaxcala.

The formation of industrial parks serves companies to share resources such as information, materials, water, energy, and infrastructure and so on. Additionally, an industrial park improves the economic benefits of the business, as it promotes rapid industrialization in an economy, attracts investments, increases productivity and promotes job creation by capitalizing on the workforce of a particular region. The state of Tlaxcala has 9 industrial parks yet only six industrial parks information was found. In total these parks grouped 79 established companies, of which 35% are small companies, 32% medium-sized enterprises, 25% are large companies and the remaining 8% are micro enterprises. In total, this group of companies has generated 14 thousand 143 jobs. Based on data from the Ministry of Economy (SE, 2015), in the state of Guanajuato it has 23 industrial parks registered in the Mexican System for the Promotion of Industrial Parks (SIMPPI), representing 4% of total industrial parks registered in the system; these parks have established 240 companies and generated 16,207 jobs. Based on data from the Ministry of Economy (SE, 2015), in the state of Queretaro has 13 industrial parks registered in the Mexican System for the Promotion of Industrial Parks (SIMPPI). These parks have established 566 national and foreign companies; they have generated 6,188 jobs.

The Gross Domestic Product (PIB) is the main indicator to measure the wealth of a country; by definition are components and features that measures: value of production of final goods and services, expressed in monetary terms, within the limits of an entity in a given period. When the competitiveness is measured, the main reference for positive results is a high level of gross domestic product. While PIB is not the only indicator to measure economic performance, it is the one most representative so measured and its level of comparability with other countries, states and municipalities. The state of Tlaxcala Gross Domestic Product amounted to over 84 billion pesos in 2012, which contributed 0.6% to the national PIB. Tertiary activities, among which are trade and real estate services, contributed 60% to the state GDP in 2012. As for the state of Queretaro gross domestic product amounted to more than 305 billion pesos in 2012, which It contributed 2.0% to the national PIB? The manufacturing industry contributed 28.6% of the state PIB in 2012. Gross Domestic Product Guanajuato State amounted to more than 588 billion pesos in 2012, which contributed 3.9% to the national PIB. Tertiary activities, among which are trade and real estate services, contributed 57% to the state GDP in 2012.

Foreign direct investment (FDI) has been one of the main factors associated with globalization processes. Governments compete to attract these capital flows because of its benefits in terms of jobs, productivity and financial stability. The determinants that influence the input and output flows of foreign direct investment are widely discussed in international economic literature (Oman, 2000; Artige & Nicolini, 2009; Krugman & Obstfeld, 2009). FDI is defined as the participation of foreign investors, in any proportion in the capital stock of Mexican companies; investment by Mexican companies with majority foreign capital; and the participation of foreign investors in activities and acts contemplated in the Law on Foreign Investment. Empirical and econometric studies of various authors I argue that there is a

positive relationship between FDI and economic development of a country, (Romer, 1993) (Bloomstrom, Lipsey and Zejan, 1990) in recent years has been growing in developing countries due the expansion of transnational corporations, building a huge infrastructure in major production activities of host economies. An economy has the potential to benefit from the different components of FDI, such as capital, technology transfer which can add value to the production process, generate technology spillovers and stimulate the development of human capital. The manufacturing sector received 12,869.9 million (Ministry of Economy, 2015) on account of foreign direct investment in 2014, representing 57% of uptake across the country. Tlaxcala received 32.2 million dollars in foreign direct investment (FDI) in 2013, representing 0.07% of the FDI received in Mexico. Manufacturing was the main destination of foreign direct investment received by the state in 2012. The organization of Guanajuato received 892 million dollars in foreign direct investment (FDI) in 2013, representing 2.02% of the FDI received in Mexico. Manufacturing fuer the main destination for foreign direct investment received by the state in 2013. Querétaro received 560.3 million dollars in foreign direct investment (FDI) in 2013, representing 1.27% of the FDI received in Mexico. Manufacturing was the main sector that attracted FDI received by the state in 2013, followed by trade. In Figure 39 the main recipients of FDI subsectors observed by state in 2014.

3.0 Results

Innovation and Technology: The development in technology and innovation is a powerful tool to access a better participation in the auto parts industry and become a national reference as shown in Queretaro and Guanajuato entities that for a decade have invested in the development and growth this area. Note that the state of Tlaxcala has 12 research centers as shown in Table 35. Tlaxcala not have any research center in engineering related to the automotive industries, its orientation is focused on social sciences and humanities. With regard to the members of Reniecyt in 2012, 0.52% of the members of Reniecyt was in Tlaxcala, while for each 10,000 of the entity 5.4 Reniecyt members are identified, between the period 2007-2012 the rate of average annual growth was 13.6%. The distribution by type of unionized shows that 66.7% of the members are companies, followed by IES (headquarters and sub-headquarters) contributing 19.4%, while third non-profit institutions (headquarters) with a share of 5.6% is found. With regard to graduate within the PNPC Tlaxcala it has 14 graduate programs within the PNPC in 2015, concentrated mostly in the Autonomous University of Tlaxcala. Of the total programs 4 are Ph.D., one of 9 specialty and expertise. In addition 3 of these are consolidated character, 7 are in development and 4 are newly created. Tlaxcala has no international competition programs. In relation to patent applications for Tlaxcala seen sustained growth since 2006 and continuing through 2012, with an average of 3 applications per year. In relation to the number of applications per million inhabitants, Tlaxcala is found throughout the period below the national average. In 2012, the company record 4.9 applications per million inhabitants, below the national value. With regard to the granting of patent documents in Tlaxcala 2 patents granted accumulated over the review period were recorded. In 2012, the number of granted patents is only 2 patents, below the national average. The number of patents per million inhabitants in the state for that year is 1.6. Moreover Tlaxcala scientific production presented in three periods spanning from 1997-2011. In the first review period (1997-2006) identified the number of items was 241; for the period 2002-2011 the number of items

multiplied 2.3 times, reached 566. As regards average of articles per researcher in Tlaxcala SNI has shown a significant increase, rising in absolute terms from 0.6 to 1.8 scientific articles for research in the period 2003-2011. In addition to the above highlights that productivity of SNI researcher's entity is positioned below the national average throughout the reference period. Also it is found that the productivity of these researchers has grown at an average annual rate of 14.0%, exceeding the 8.5% national. According to information gathered in the agreements state budget expenditures as shown in graph 35, it is identified for the State of Tlaxcala not report the budget for science technology and innovation. It notes that the total of approved and supported by the PEI to the Tlaxcala entity projects highlighted that during the period these resources (private and public) have increased by just over 12% annual average; Moreover, the average investment per project during the period of just over 8 million pesos, similar to the average national rate. Note also that for the State of Tlaxcala these projects have been mainly directed to the chemical industries, plastics and automotive industries. These sectors or industrial areas concentrate 84% of the total approved projects supported during the period, the agro industrial and petrochemical industries recorded only one project each; together they account for 8% of the total projects. With regard to the rank of CTI Tlaxcala is located in the number 27 position on all entities in the country. Stresses that Tlaxcala is positioned 11th in the Gender dimension in CTI, and at position 15 in the D1 academic and research infrastructure.

Human Resources: The investigation provides that there is a relationship between human capital formation and the auto parts industries, it can be considered as part indispensable for increasing the competitiveness of the sector and achieving economic efficiency of auto parts industries as reflected in entities Queretaro and Guanajuato who have had a continuous and substantial growth in the years 2002 to 2012. Comparisons entities in Tlaxcala, Queretaro and Guanajuato in the variable of human resources. To gain a competitive advantage the states of Guanajuato and Queretaro have been developed for professional auto parts industry able to organize, implement, conduct and evaluate production systems in the automotive industry to coordinate technical, human resources, materials, equipment and facilities needed to meet social needs in that category. However the state of Tlaxcala has some significant growth due to the tendency of human resources is focused on the areas of social sciences and humanities. Tlaxcala recorded in the 2011-2012 school year a total enrollment of 23,000 students in 145 university and technological level degree (LUT) representing 0.4% of total national enrollment respectively. LUT enrollment of the company has shown a positive trend over the period 2004-2012, growing at an average annual rate of 3.4%. In the 2011-2012 cycle Tlaxcala record 947 students at the graduate level, representing 0.4% of total national enrollment. However, at the graduate level enrollment it has declined at an average rate of -0.2% as shown in Figure 12 graduate enrollment and coverage. In connection with degrees in engineering and related technology to the automotive industry recorded the state of Tlaxcala in 7,866 2010-2011 enrollment cycle. In regard to the enrollment of postgraduate related to S & T Tlaxcala presented in six periods ranging from 2004 to 2011. In the first review period (2004-2005) identified the enrollment was 123; for the period 2010-2011 the number of graduates from related postgraduate C and T decreased to 99. Note that in Tlaxcala currently has 116 researchers from the SNI, representing 0.61% of the national total in 2013. In the same year 92.5 SNI researchers identified per million inhabitants in the state. With regard to the automotive industry related to researchers in Tlaxcala there is little

significant development because in 2013 only has 15 researchers in related areas to the automotive industries. With regard to the number of scholarships allocated in the state Conacyt has shown significant growth during the period 2002-2012. In absolute terms it has grown from 27 in 2002 to 231 in 2012, with an annual growth rate of 23.9%. Although Tlaxcala has maintained an increasing rate performance scholarships per million population it has remained below the national average during the reference period. For example, in 2012 the company reached a rate of 189 scholarships per million inhabitants.

Infrastructure: Levels of competitiveness are closely related to the development of the infrastructure of countries, also with the auto parts industries, as shown in figure 37 to greater infrastructure developed by the major United uptake and participation of the auto parts for States, it is important that the material for the development and to accelerate progress in the auto parts industry base depends largely on the growth and rehabilitation of the country's infrastructure. Tlaxcala entity for 2012 has 2,769 km of road network, while according to figures from the Ministry of Communications and Transport Queretaro State has an infrastructure of 3,295 km of road network, the State of Guanajuato has 12,785 km of road network allowing it greater participation in movement of vehicles and auto parts. Regarding railways Tlaxcala entity for 2012 has 351.8 km of railways, while according to figures from the Ministry of Communications and Transport Queretaro State has an infrastructure of 476.4 km of railways, State Guanajuato has 1,085 km of railways allowing you a greater participation in the movement of products and services.

Competitiveness factors: Through this research it does conclude that GDP growth and FDI has a significant bearing on the automotive sector due to driving growth in the economy of the entity and create the conditions for the auto parts sector successfully undertake its task selectively intervene in the entities that have been considerable development in the state's gross domestic product, it is the main indicator to measure the wealth of a country or entity. The relative weight of the automobile industry in the gross domestic product highlights the contribution to the states of Queretaro and Guanajuato with a contribution of 11.5% and 8.9% respectively, while for the State of Tlaxcala contributes only 2.1% nationally . The state of Tlaxcala Gross Domestic Product amounted to over 84 billion pesos in 2012, which contributed 0.6% to the national GDP. Tertiary activities, among which are trade and real estate services, contributed 60% to the state GDP in 2012. With regard to foreign direct investment Tlaxcala received 32.2 million dollars in 2013, representing 0.07% of FDI in Mexico. Manufacturing was the main destination of foreign direct investment received by the state in 2012. For the lines of action it intends to make a link between government, universities and companies to create new knowledge and activities that develop the auto parts industries. Companies in the auto parts sector with the cooperation of universities have shown that the link between government, academia and industry is gaining momentum in the exchange of knowledge and therefore of relationships; which fosters an environment where these links are considered as part of development of the auto parts industries. Hence the importance of the contributions of Tlaxcala State Universities such as University of Tlaxcala, the Polytechnic Universities, and Technologic de Apizaco Tech University and private universities play an important role in socio-economic activities of the State Tlaxcala, while they can generate their own activity besides teaching and learning, research and in the same way you can participate in the development of the auto parts industry for the state of Tlaxcala. In this sense universities can be the

starting point for the auto industry to develop, for it must create strategies and actions that encourage investment and attract companies of auto parts for this entity. It is worth emphasizing the role of the state government of Tlaxcala is a key to the development of the auto parts industries, some of the agencies that must work to trigger the development of this industry in the state are SETYDE factor, SEP, COCYTET, CONACYT, SECTE, to name a few, these units will be responsible to encourage through legislation, instruments and favorable tax incentives to promote the development and dynamism of the auto parts industries.

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