

University students' perception of the multinational automotive companies located in Mexico as potential job opportunities

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Abstract: For years, Mexico has positioned itself in the international economies as one of the most attractive countries for investment in the automotive sector. The automotive cluster in Mexico contributes to the generation of quality jobs. The main objective of this research is to analyze the perception that university students have about the automotive industry in Guanajuato, Mexico as it pertains to a job opportunity. This is a mixed-methods, predominantly quantitative investigation with a non-experimental, cross-sectional and exploratory design. For this study, 216 self-attended surveys were applied, and the data obtained was analyzed in SPSS. The results reveal that the companies that are best positioned as possible places to work for, from the perspective of Celaya students are Honda, Toyota and Mazda. We conclude that university students from Celaya, Guanajuato in Mexico consider the automotive industry as an area for potential job opportunities for new graduates.

Keywords: Mexico, automotive, multinational companies

Introduction

For years, Mexico has positioned itself on the international economic platform as one of the most attractive countries for investment in the automotive sector. Several variables have influenced this positioning, such as the labor costs which generally are competitive and higher than other sectors of the economy, the strategic location of the country, the opening of the oil and gas industry to foreign investment, and specific reforms that have accelerated innovation and increased the nation's competitiveness, all while contributing greatly to the strengthening of the manufacturing sector (Lauridsen, Lerdo de Tejada, Petersen, Puyana and Rosales, 2013).

The automotive industry is one of the largest in the country. Mexico is among the world's top ten producers of automobiles, trucks, auto parts and automobile components (in addition to being the leading vehicle manufacturing country in Latin America). There are 20 assembly plants in Mexico (where there were only eight ten years ago), with an annual production capacity of more than 3.1 million units, as well as a solid national and foreign supply chain (Mendoza-Velazquez, Santillana, Zárate-Mirón and Cabanas, 2018).

In Mexico, the Bajío region encompasses the states of Aguascalientes, Guanajuato, Jalisco and Querétaro. According to Mendoza-Velazquez et al. (2018), in this geographical area, it has been proven that wages act as an incentive for workers and are also considered as the force that contributes to attracting more employment to the Bajío region and nationally. According to Mendoza Cota and Cabrera Pereyra (2014), the automotive cluster in Mexico contributes to the generation of quality jobs, which is generally associated with relatively well-paid jobs.

Stemming from the prominence of the automotive industry in the State of Guanajuato, Mexico, the main objective of this investigation is to analyze the perception that university students have about the automotive industry in Guanajuato as it pertains to job opportunity. Specifically, we seek to identify the perception of undergraduate university students who are currently enrolled in an educational institution located in the municipality of Celaya, Guanajuato.

Literature review

In recent years, Mexico's automotive industry has fluctuated dynamically, both in terms of production and investment attraction (Covarrubias, 2014). In the first half of 2016, "the presence of FCA, Honda, KIA, Mazda, Nissan, Toyota and Volkswagen... increased the production of vehicles to almost 1.7 million" (Toguna, 2016, p.8). According to data from the Mexican Association of the Automotive Industry (AMIA) between 2014 and 2020, the Mexican automotive industry was projected to grow 60%, with a figure of 5,000,000 cars per year. In fact, Mexico is currently the fourth largest exporter in the world and the seventh in terms of automobile manufacturing. Within this context, the geographical area known as the "Bajío" (which includes Guanajuato, Querétaro and Aguascalientes) is gaining relevance for its production of automobiles and auto parts, and due to the high levels of foreign investment that flow into the region (Martínez, Santos and García, 2017).

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The automotive industry in Guanajuato dates back to 1995 with the start of operations of the General Motors plant in Silao, and with the arrival of their respective suppliers of auto parts and services. This plant, which was originally located in Mexico City, transferred its manufacturing activities to the State of Guanajuato with the aim of reducing logistics costs, due to its proximity to the United States of America (Martínez, García and Munguía, 2009; Micheli, 2016).

Among some of the largest investments in Guanajuato, the arrival of Volkswagen in 2013, which constituted an \$840 million dollar investment into an engine plant, was responsible for creating 1,200 jobs. In that same year, Mazda established its plant in Salamanca, with an investment of 770 million dollars, to produce its Mazda 2 and 3 models. Later, in 2014, Honda established its plant in Celaya with an initial investment of 1.3 billion dollars, creating 3,600 direct jobs in the medium term. Additionally, it is relevant to mention the presence of Toyota in Apaseo el Alto, which began its construction in November 2016 and started production in 2019 (Martínez, Santos and García, 2017).

In fact, Martínez and Carrillo (2017) confirmed that from 2006 to 2016, 193 automotive investment projects had been registered for a total value of 11.3 billion dollars. These authors also reported that the following municipalities benefited the most: Silao, Irapuato, Celaya, Apaseo el Grande and Salamanca. In this region alone, 91% of investment were concentrated, and additionally, there was an increase of 76.15% in attracted projects and 75.53% of job growth.

According to Guzmán (2015), traditional location theory predicts that companies prefer low-wage locations as a way to save costs. However, the result of a recent investigation (Guzman, 2015) concluded that Japanese companies in Mexico tend to be located in municipalities with relatively higher wages. This can be explained by hypothesizing that the wage level set by Japanese firms has a productivity component; in other words, higher wages may be offered with an expected higher level of productivity, from the general labor pool. Within this framework, it appears that Japanese companies in Mexico are looking for locations with a more skilled and productive workforce. Furthermore, according to Smith and Florida (1994), it may be that Japanese companies choose higher levels of human capital and job stability rather than lower wages. Additionally, it should be noted that Japanese companies tend to be located in municipalities with a concentration of activities related to the automotive industry and that are grouped in some cluster in Mexico.

Finally, the investigations of Chan, Makino and Isobe (2006) have concluded that in the case of Japanese companies, the presence of industrial clusters is a determining factor for their location decisions. Specifically, the presence of other Japanese companies is another determining factors for this type of decision. Similarly, Smith and Florida (1994) found that one of the determining factors for location decisions is the presence of Japanese automotive assemblers.

It is important to highlight that despite the existence of numerous research papers that address the relevance of the automotive industry in the State of Guanajuato, its significant effects on employment, and also research that supports the notion that Guanajuato is positioned as the most important Automotive Cluster in Latin America, there is no study that addresses an analysis of the perception that the Guanajuato university student community has about said industry as a job opportunity. It is precisely from here that the relevance of the research arises as this study seeks to address this gap: current university students represent the future latent workforce in the State of Guanajuato and being able to know their perception of the industry will provide useful information for academic institutions, private sector companies and also to the public sector, as it will contribute to future decision-making and generation of strategies for the improvement of the sector and the economy of the State of Guanajuato in Mexico.

Methodology

This present investigation utilized mixed methods, being predominantly quantitative, with a non-experimental, cross-sectional and exploratory design. The purpose of this study is to answer the following research questions: What is the perspective of university students from Celaya regarding the automotive industry in the state of Guanajuato? What expectations do Celaya university students have regarding the automotive industry in the state of Guanajuato? and What are the job expectations of Celaya university students regarding the automotive industry as a source of employment? Thus, having the necessary elements to confirm or reject the work hypothesis: University students from Celaya, Guanajuato in Mexico consider the automotive industry as their main job opportunity upon graduation.

The survey utilized was validated in terms of reliability by performing the scale analysis utilizing Cronbach's alpha coefficient, where we obtained a coefficient of 0.767 utilizing statistical software SPSS V.23, which is regarded as acceptable.

The sample consisted of university students enrolled in any of the educational programs offered by public or private universities in the municipality of Celaya, Guanajuato in Mexico. These students had an age range of 17 to 30 years; in this case, the semester in which they were presently enrolled was not a discriminatory factor, since it would allow us to know the perspective of university students with different profiles.

Given that it was not possible to know the enrollment status of students from all the universities of the municipality of Celaya, Guanajuato in Mexico, we utilized a finite sample of 216 people, scoring a confidence level of 96% and a margin of error of 0.07, calculations which were obtained with Statdisk V.13 software.

Regarding the surveying process specifically, 216 self-assisted surveys were distributed to university students during a time period from July 2020 to August 2020 using Google Forms. The survey was distributed through WhatsApp, email, and social media with the support from five students who were currently pursuing a Marketing Degree; these five students did not receive any incentive because the data-collection was part of their social service activities required for graduation. The students who answered the survey did not receive any incentive either, which made the data collection period more challenging. The data was collected in nine universities, public and private, which included the following: Instituto Tecnológico de Celaya, Universidad Continente Americano, Universidad de León, Universidad Unitesba, Instituto Tecnológico de Roque, Cedva, Universidad de Celaya, Universidad de Guanajuato and Universidad Politécnica de Guanajuato. After finishing the field work, the data obtained were analyzed.

Although the survey instrument included descriptive data such as the university to which they are enrolled, the degree, the semester and the age, in this study we will not address these data, in order to prioritize the privacy of the students as well as focus on the items that will help us to know the perception of university students regarding the automotive industry as a source of employment. The data was analyzed with SPSS V.23 Software, obtaining the results described below.

Results

In the first section of the survey, the students were asked if they currently work; we found that that 36.1% do work, while the remaining 63.9% do not currently work. Regarding the students who already work, when asked in which field or industry they work in, the automotive industry was the most mentioned with a percentage of 24.3%, followed by the food industry with 21.4%, the trade branch with 15.7%, and in fourth place was the sector of health with 12.9%. The remaining percentage corresponded very low frequency mentions for education, entertainment, construction and the agricultural sector.

The students who answered that they do not work were asked in which branch or industry they would like to work; in this case the automotive industry was the most mentioned with 16.3%, followed by the administrative branch with 14%, in which all types of companies were included; in third place they mentioned the health sector with 11.6% and in fourth place they mentioned the financial sector with 10.9%. The remaining percentage corresponds to mentions with very low frequencies for the food industry, education, entertainment, construction and the agricultural sector.

The next survey question asked about the frequency with which the students have heard about or researched the automotive industry in Guanajuato; we found that 33.3% of the students do it very often, 27.3% have done it sometimes, 28.2% do it a few times and 11.1% have never done it. This indicates that there is interest in automotive industry, that it is common for university students to listen and investigate about it, and consequently it is frequently mentioned as a topic of conversation.

It was also examined whether students have ever considered working in the automotive sector or industry of Guanajuato upon graduating from university. We were able to identify that 56% (121 students) did, while the remaining 44% (95 students) have not considered it, that is, more than 50% of the students have considered it as a possibility. However, it is necessary to understand the motivating factor in considering this possibility, so, upon asking the students what motivated them to make that decision, the main motivator mentioned was the job opportunity with 33.1%, followed by 24.8% who considered they could get a good salary, in third and fourth place we found a passion for the industry with 14% and the influence of acquaintances and family with 14%, in fifth place we identified the growth of the industry with 11.6%, and finally the mere need of a job with 2.5%.

The 121 students who have considered working in the automotive industry were asked about the salary they expected they could earn per month upon graduating from university and entering the automotive industry. In response to this question, as seen in the Figure 1, 28.9% of university students expected that they could earn more than \$18,000.00 Mexican pesos per month, 20.7% expected to earn from \$13,000.00 to \$15,000.00, 18.2% expected to earn from \$16,000.00 to \$18,000.00, 16.5% expected to have a salary of \$10,000.00 at \$12,000.00, 12.4% expected to earn from \$7,000.00 to \$9,000.00, and 3.3% considered that they could earn from \$4,000.00 to \$6,000.00 pesos. Therefore, we conclude that in general, university students expect that, upon entering the automotive industry, they could achieve a relatively good salary considering that it would be their first employment as graduated professionals.

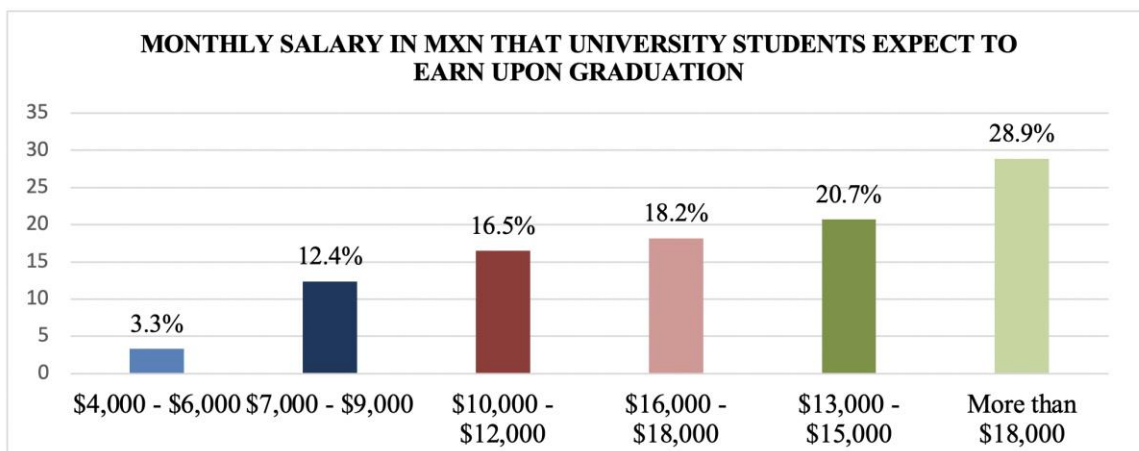


Figure 1. Monthly salary in Mexican Pesos that university students expect to earn upon graduation. Source: own elaboration.

These same 121 students who said they would consider working in the automotive industry were also asked which company they would like to work for upon graduation. The most mentioned company according to Figure 2 is Honda, corresponding to 27.2%, and Toyota being the second most mentioned at 15.2%. Mazda and GKN landed in third and fourth place with 13% (12 students) in both cases.

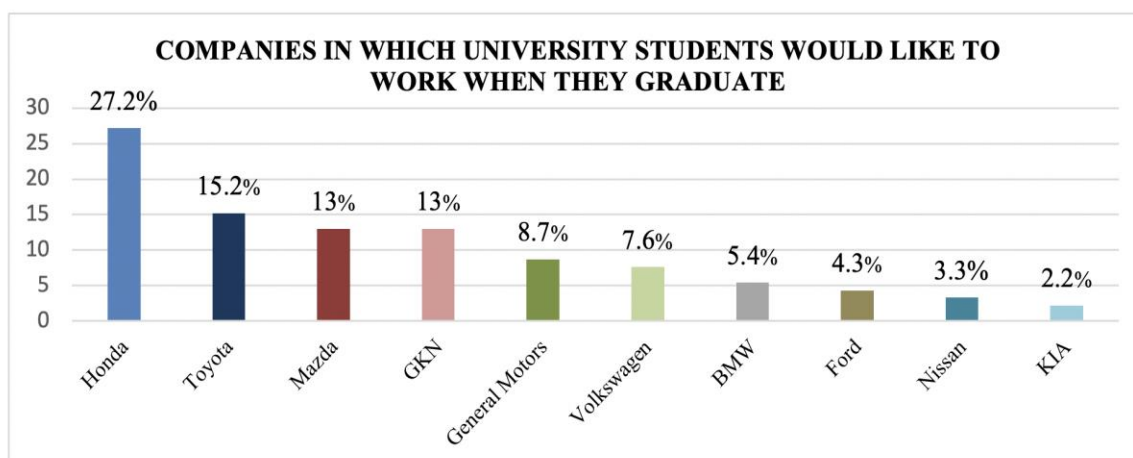


Figure 2. Companies in which university students would like to work upon graduation Source: own elaboration.

The second part of the instrument was applied to the 216 respondents, since it sought out to identify the perception of university students about the job opportunity that the automotive industry represents. The level of agreement or disagreement that they expressed to different statements was measured on a Likert scale containing the anchors strongly disagree, disagree, agree, and totally agree. The relevant findings are detailed next.

The first statement was: "The automotive industry in Guanajuato is a good job opportunity for new generations of university students". Given this statement, 54.6% of those surveyed stated "agree," 38.4% "totally agree," 6% "disagree," and 0.9% stated "totally disagree."

The second statement was: "The automotive industry makes good contributions to Guanajuato." Given this statement, 55.1% of those surveyed stated "agree," 36.6% "totally agree," 6.5% "disagree," and 1.9% stated "totally disagree."

The third statement was: "I stay informed about new news and trends in the automotive industry", in this case 42.6% participants responded agree, 13.9% fully agree, 31.9% disagree, 11.6% stated they totally disagree. This allows us to infer that there is a high percentage of students who do not stay informed about the automotive industry.

The fourth statement was: "The State of Guanajuato and particularly Celaya should invest more in the automotive industry". Given this statement, 47.7% of those surveyed stated agree, 34.3% totally agree, 14.8% disagree, and 3.2% stated totally disagree.

The fifth statement was: "At the university, they should include automotive industry topics in classes since they are the future of the State". Accordingly, 50.5% of those surveyed stated agree, 31.5% totally agree, and 18.1% disagree. It should be noted that in this statement, no respondent declared to totally disagree.

The sixth statement was: "In my family they consider that the automotive industry is a good job opportunity for me", as this statement would allow us to explore one of the motivations for entering the industry, that is, family influence. From the responses, we obtained that 46.3% of the respondents agree, 19.9% totally agree, 23.6% disagree, and 10.2% totally disagree. This confirms that the family is a reference group that can influence the graduate whether or not to enter this sector.

Finally, the participants were asked two open questions: the first was about the expectations they have about the automotive industry as an employment opportunity upon graduation. Since these answers were extensive and diverse, they were categorized and coded according to the key points of each. This categorization is shown in Figure 3, which expresses the main expectations of the students, as shown below.

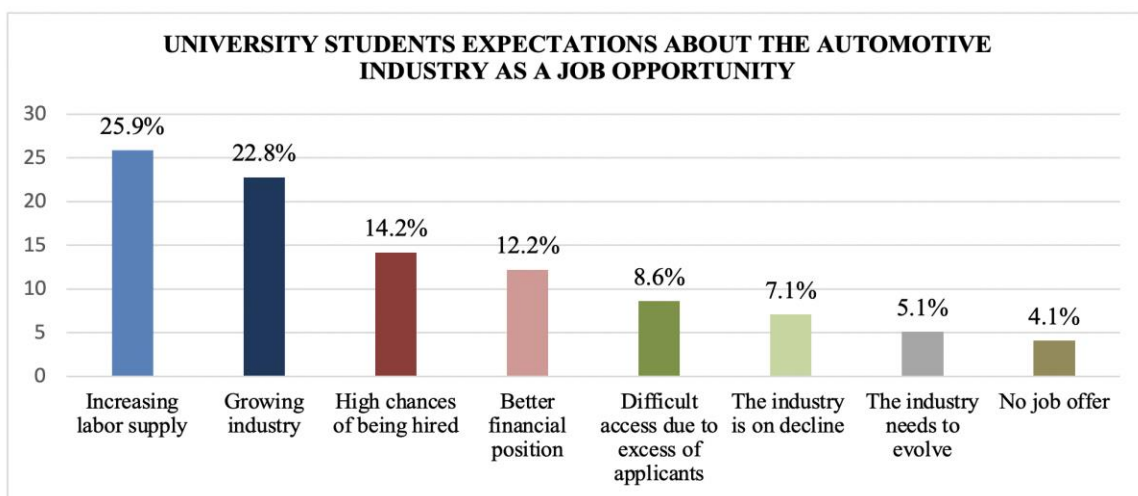


Figure 3. Expectations of university students about the automotive industry as job opportunity. Source: own elaboration.

As seen stated, the four main expectations mentioned by the surveyed students that have a positive relationship with the automotive industry, 25.9% are related to the fact that the labor supply is growing, 22.8% mention that the automotive industry in general has shown growth in Guanajuato, 14.2% mentioned that they considered having a high probability of being hired in the automotive industry or that this was their expectation, 12.2% expect the automotive industry to help them improve their economic position by having better income, 8.6% mentioned that their expectations were low since the positions for professionals were highly competitive and required experience, 7.1% mentioned that the automotive industry is no longer growing, but is in decline due to economic problems derived from insecurity and crime, 5.1% mentioned that their expectations were low unless the auto industry evolves and has a real technological change or evolution, while 4.1% consider that there is a job offer for blue-collar personnel, however for graduates there is no job offer.

The final question focused on which careers the university students consider having the greatest opportunity in the automotive industry, given that sometimes respondents answered with more than one career, all the careers mentioned by the students were grouped and accounted for an idea of which are the most mentioned. The results indicated that 18% of the mentions correspond to the Bachelor of Mechanical Engineering (BS), followed by 17% corresponding to Bachelor of Industrial Engineering (BS), 12% to Bachelor of Automotive Engineering (BS), 11% to the Bachelor of Business Administration (BA). Furthermore, these previously mentioned four sections were also the four most mentioned careers in general, 75% of the careers mentioned are degrees in the engineering area, while the remaining 25% correspond to careers in the economic-administrative area. The previously described information can be summarized in Figure 4, as seen below.

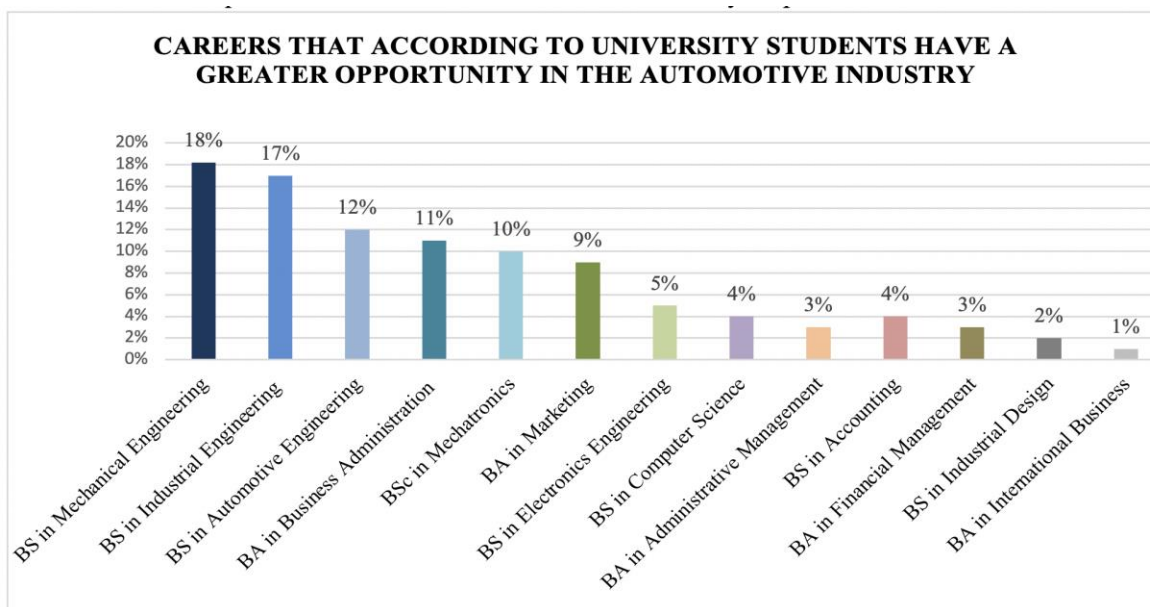


Figure 4. Careers that according to university students have the greatest opportunity in the automotive industry. Source: own elaboration.

Discussion

It is important to specify that the question "What expectations do you have about the automotive industry as an employment opportunity for you and other university students?" allowed us to identify the expectations that university students have regarding the automotive industry as a job opportunity in Guanajuato in Mexico. Accordingly, there are university students who perceive the automotive industry as an opportunity to start their working life, acquire experience, in addition to viewing it as a short and long-term job opportunity. Thus, we highlight a few statements made by students: "A good opportunity to start working life", "It can be a good opportunity for work experience and growth for university students", "It is a work alternative when finishing studies, by far it is competent and can be a great option from short to long term", "It is a great opportunity to have a job in world-class companies".

Within this framework, the university students surveyed mentioned that they perceive that the automotive industry in Guanajuato is an opportunity to grow personally and professionally: "It is an industry where you can grow in a job and as a person", "Opportunities to travel and generate new knowledge".

From a more general perspective, for some students working in the automotive industry in Guanajuato in Mexico represents having access to job stability and a better quality of life: "Stable jobs", "My hope of promotion to a better standard of living". It should be noted that students are also aware that competition is an aspect to consider when applying for a job in the automotive industry: "The market is very saturated, and competition will be difficult if you do not have working experience".

However, as previously mentioned by Guzmán (2015), in reference to the traditional theory of location, we similarly found that even though university students consider that companies in the automotive industry of Guanajuato offer good wages for high-level positions in the hierarchical structure, their perception regarding operational positions is different, since they consider that salaries are not really the most attractive or important factor. This finding is consistent with Guzmán's theory.

Furthermore, in this context, one of the expectations that college students have regarding the automotive industry is salary. While some of the students mentioned that working in the automotive industry in Guanajuato represents access to a good salary, others mentioned that they consider that salaries are very low taking into account the working hours: "For me it reflects a good salary", "The salary is very low for the total of working hours", "Very low expectations and very long and heavy working hours with respect to wages", "The positive aspect is the availability of more jobs, but the negative side is that they offer very low wages", "Although I want to work in industry in the HR area, I am not interested in the automotive industry because the pay is not good, but it represents a very wide job opportunity for recent graduates".

Additionally, our results coincide with the conclusion that was found by the previously mentioned research regarding localization choices by Japanese firms (Guzmán, 2015); about 50% of the university students we surveyed indicated expectations of obtaining high salaries upon graduation, however, being able to access a higher-level position

within the organization is a discouraging factor for them, since according to the students perceptions, some of the best positions are held by foreigners.

This is also relevant to the contributions of Smith and Florida (1994), where the authors explore the relationship between the level of human capital and job stability; in our present study, we found that university students perceive lower turnover in managerial and executive positions in the automotive industry, which they furthermore interpret as few vacancies in the industry. Within this framework, it should be noted that our research findings also concluded that university students consider that the automotive industry of Guanajuato represents a job opportunity for the operating sector: *“High expectations, since several automakers are settling in the surroundings from Celaya. However, the largest number of jobs generated there are for workers, who generally do not require a higher level of education”*. On the other hand, they also stated that they have ambition to aspire to jobs that are generally occupied by foreigners: *“We must achieve that the majority of the positions of foreigners become occupied by Mexicans”*.

In other words, in the case of operational positions, we can infer that university students consider that within this industry is where the “real” job opportunity is, since they perceive that at the operational level job rotation is high, which leads to companies to have vacancies more frequently; however, this kind of job offer, according to the survey responses, is not the job market to which they aspire to when graduating with a higher education degree.

Lastly, we note that some of the findings indicate that university students consider that the insecurity and organized crime that currently exist in the region may have effects on job opportunities in the automotive industry of Guanajuato in Mexico: *“I don’t know if I will have a job opportunity in the automotive industry since companies are leaving the state due to crime”, “The automotive industry has been continuously growing during the last years in Mexico and specially in Guanajuato State, however I perceive that opportunities are decreasing due to the uncertainty because of the activities that are being performed by the organized crime in the region ”*.

Conclusions

The automotive industry in Guanajuato has brought high expectations for the state's economy. Specifically, this industry is positioned by the manufacture of automobiles and auto parts. Within this framework, it can be noted that employment in the automotive industry plays a fundamental role in the economy of Guanajuato.

Considering the findings obtained in this research, we conclude that university students perceive that the automotive industry in Guanajuato is a job opportunity for them upon graduation because it represents an opportunity to start their work life and gain experience, in addition to seeing it as both a short and long-term job opportunity. On the other hand, they visualize that the automotive industry is obviously an opportunity for their professional and personal development. Additionally, having the opportunity to work in a company in the automotive industry in Guanajuato represents for university students having job stability and a better quality of life.

However, it is convenient to point out that university students consider that it is discouraging that the positions to which they can aspire are operative, since it is there that they believe that the true job opportunity is found, derived from the perception that many key position holders of organizations are generally occupied by foreigners who are brought from other countries to assume managerial positions and where the leadership and strategic decision-making of multinational companies in the automotive sector located in Guanajuato, Mexico are concentrated. In other words, having access to an operative position is not the labor market to which university students aspire to when completing their professional studies.

In practical terms, the monthly salary that university students expect to earn upon graduation is more than \$18,000 MXN. The results reveal that the companies that are best positioned as possible places to work for Celaya students are Honda, Toyota and Mazda. The expectations of university students about the automotive industry as an employment opportunity is that they consider that this industry represents a growing job offer because it is a growing industry and therefore, they have a high probability of being hired. The careers that they consider have the greatest opportunity in the automotive industry are Bachelor of Mechanical Engineering (BS), Bachelor of Industrial Engineering (BS) and Bachelor of Automotive Engineering (BS).

It is essential to highlight that the findings of this research conclude that university students located in Celaya, Guanajuato in Mexico perceive the automotive industry as a future job opportunity. Most of the respondents indicated that they are interested in working in this industry because they think that automotive and auto parts companies offer good wages. Additionally, the results of this study reveal that the companies that are best positioned as possible places to work for Celaya students are Honda, Toyota and Mazda. It is convenient to mention that the students are kept informed about the automotive industry, in addition, they mentioned that they consider it necessary that the topic of the automotive industry be transferred to classrooms for more knowledge about the industry, which denotes interest. On the other hand, their families offer their support so that they can enter to work in one of the automotive and auto parts companies.

Among the limitations of the study, it should be mentioned that the findings are limited to the municipality of Celaya, in the state of Guanajuato in Mexico. Future studies may focus on analyzing the perception of university students residing in other municipalities in the state of Guanajuato to confirm whether the results of this investigation can be generalized throughout the state of Guanajuato or limited only to the municipality of Celaya. It would be pertinent to analyze the perception of university students about the automotive industry as a job opportunity, not only in the state of Guanajuato, but throughout the Bajío area.

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