

**ORIGINAL**  
**Research article**

## **Socioeconomic Impact of the Refinery “Olmeca – Dos Bocas” in the Productive Sectors in the Municipality of Paraíso, Tabasco\***

**Impacto socioeconómico de la refinería “Olmeca – Dos Bocas” en los sectores productivos en el municipio de Paraíso, Tabasco**

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**Abstract**

This research allows us to know the impact that the productive sectors have within the economy of the municipality of Paraíso and to determine the changes that the big projects have in the region. The objective of this research is to analyze the socio-economic impact of the "Olmeca - Dos Bocas" Refinery on the Productive Sectors in the Municipality of Paraíso, Tabasco, to observe the change that this project causes in the different productive sectors. Therefore, a methodology with a quantitative approach is carried out, which, through data collection, allowed the development of a questionnaire that was applied to 50 people among the three productive sector experts in the field, which has a scope that evaluates the level of income of the population of the sectors studied, as well as the level of socio-economic contribution that these sectors generate to the municipality. It is evident that the primary sector contributes 18.00% to the socio-economy of the municipality, the secondary sector 29.00%, and the tertiary sector 53.00%, which generates a socio-economic change. Finally, it is concluded that an infrastructure such as the "Olmeca - Dos Bocas" refinery can change a region's socio-economic

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level. Thus, the investment in a large-scale infrastructure generates socio-economic changes in a population or the productive sectors of the region.

**Keywords:** Productive sector, Investment, Economy, Refinery, Infrastructure

### **Resumen**

Esta investigación permite conocer el interés del impacto que tienen los sectores productivos dentro de la economía del municipio de paraíso y determinar los cambios que los grandes proyectos tienen en la región. El objetivo de la presente investigación analiza el Impacto Socioeconómico de la Refinería “Olmeca – Dos Bocas” en los Sectores Productivos en el Municipio de Paraíso, Tabasco con la finalidad de observar el cambio que este proyecto provoca en los diferentes sectores productivos. Por ello se realiza una metodología con un enfoque cuantitativo, la cual, a través de una recolección de datos que permitió el desarrollo de un cuestionario que se le aplicó a 50 personas entre los 3 sectores productivos expertos en el rubro, el cual tiene un alcance que evalúa el nivel de ingresos de la población de los sectores estudiados, así como el nivel de aportación socioeconómica que estos sectores generan al municipio. Se evidencia que el sector primario forja una aportación del 18,00% a la socioeconomía del municipio, el sector secundario un 29,00% y el sector terciario un 53,00% la cual genera un cambio socioeconómico. Finalmente, se llega a la conclusión de que una infraestructura como lo es la refinería “Olmeca - Dos Bocas” puede generar un cambio a nivel socioeconómico de una región. De manera que, la inversión en una infraestructura de gran envergadura genera cambios socioeconómicos de una población o en sus sectores productivos de dicha región.

**Palabras Clave:** Sector productivo, Inversión, Economía, Refinería, Infraestructura

### **SUMMARY**

INTRODUCTION. - RESOLUTION SCHEME. - I. Research problem. - II. Methodology. - III. Writing plan. - 1. Conceptualization. - 2. The conceptual emphasis of the productive sectors. - 3. Analysis of the impact of the “Olmeca – Dos Bocas” refinery before and after its installation. - 4. Analysis of the factors that change the socioeconomic flow of the productive sectors. - 5. Perspective analysis of the society of the municipality of the socioeconomic impact of the productive sectors. - IV Research results. - CONCLUSIONS. - REFERENCES.

### **Introduction**

The interest of this research is to determine the impact that the productive sectors had within the economy of the municipality of Paraíso, based on its different productive sectors, since, in recent years in the municipality, there have been immersed investments that have maintained a balance between the productive sectors already mentioned and that have been maintained through a strong working relationship between the interest groups (stakeholders) within the municipality since these groups are a fundamental part of economic development.

The Kaldor-Verdoorn Law is a very important tool for the analysis of the productive sectors since it allows a better emphasis on each of its economic structures; as we know, the sector attracts better investment offers, but at the same time, the impact of these investments can be determined since it can generate an improvement or a strong negative impact on each of the productive sectors.

The objective is to see the changes or the impact that can be generated by this large investment in the "Dos Bocas" refinery; since the economic fluidity can be positive or negative for society in the municipality of Paraíso, it is important to correctly identify strategies that can

solve a new economic balance within the three productive sectors that are present in the economy (Aroche-Reyes, 2019, p.14).

Therefore, the socioeconomics of the municipality would be a change for the primary sector since it is expected that the production of this will be controversial as a result of the new measures that can be chosen in the products since this would cause a decline in its production in the said sector since at the social level of this sector there would be many casualties due to the abandonment of its production and its economy would weaken quickly to an economic market that demands high demands in the sectors, especially in the primary sector.

This research analyzed the Socioeconomic Impact of the "Olmeca – Dos Bocas" Refinery on the Productive Sectors in the Municipality of Paraíso, Tabasco. The purpose was to observe the change this project causes in the different productive sectors and the perspectives generated at each social level within the municipality. On the other hand, a quantitative methodology was used since this approach helped us to gather quantifiable data on the salary levels of the people surveyed within the municipality.

## **Resolution scheme**

### **1. Research problem**

What socioeconomic impact does implementing a refinery have on the productive sectors?

### **2. Methodology**

This study was conducted using a quantitative approach. The approach is quantitative, defined by the “use of data collection to test hypotheses, based on numerical measurement and statistical analysis, to establish patterns of behavior and test theories.” (Hernández-Sampieri et al., 2014, p. 4).

Likewise, the research was conducted with an observable scope, which allowed for writing through the quantification of the data, since in this sense, few studies have been conducted in the municipality of Paraíso, Tabasco, about the socioeconomic impact that a large-scale infrastructure, such as the refinery can generate. It led to the determination of a sample size of 50 experts on the subject, which, in the same way, allowed the application of a survey to collect the information that would help identify the objectives set. A descriptive exploration was also used since the behavior was captured about the contributions the productive sectors generate at an economic level.

### **3. Writing plan**

#### **3.1 Conceptualization**

As a start to the study of the research on the socioeconomic impact that the “Olmeca – Dos Bocas” refinery had since its beginnings in the productive sectors, a brief conceptualization of what the productive sectors are is proposed, as well as their subclassification:

- Primary sector is defined as “a set of activities linked to the transformation of the natural environment” (Atucha & Lacaze, 2018, p. 240).

- Secondary sector: Within this sector, it is important to define that they are those goods that encompass the activities related to the processing of materials for the manufacture of final products, such as manufacturing, transportation, and distribution, that is, starting from the grouping of the set of activities linked to the transformation of inputs. (Aroche-Reyes, 2019, p. 12).
- Tertiary sector: This sector is determined by the grouping of a variety of sectors such as commerce, transportation, telecommunications, and information technology; this does not leave aside the services dedicated to construction, financial institutions, wholesale and retail distribution, as well as the hotel and restaurant sector, insurance institutions, real estate, education and health, professional, marketing and other business support services; government services, community services, audiovisual, recreational and domestic services. (Aroche-Reyes, 2019, p. 16).
- Keynesian model is “a strictly Keynesian formulation of growth that must explicitly include the role of money as a bridge between savings and investment and as a source of financing for autonomous investment” (Lorente, 2004, p. 38).

### 3.2. The conceptual emphasis of the productive sectors

- Primary sector: within emphasis, the productive sectors have been an essential part of the economic opinion of society over the years based on the new infrastructures that accompany a growth in the development of the economy in a country or a specific region, in his research the researcher Barkin described that the income or the economic implications of families satisfied a need for a positive effect on their income, in this way we can see that income over the last 20 years has been changing suddenly through large investments through the so-called "war economy" which refers to the "attractive alternative to start an accelerated process of economic reconstruction" (Arrollo-Ortiz, 1991, p. 14). Productivity in this sector has grown at a slower rate than the economy as a whole since in the period from 1970 to 1978, it increased by 20.38% while the national economy increased by 21.98% (Huerta-Cruz & Cano-Flores, 1982, p. 15).
- Secondary and tertiary sector: The structural analysis of the strategies over the years in the municipality has created a picture of how the structural investments of the industries and services have allowed a channel of greater superiority so that the primary sector is affected, taking into account the economic transformation that has occurred in recent years in the municipality of Paraíso, Tabasco and this has generated a socioeconomic impact. That is why it is argued that a competitive strategy involves relating a company to its environment. Although the relevant environment is very broad - it encompasses social and economic forces -its fundamental aspect is the industry or industries where it competes (Porter, 2010, p. 21). Competition is an industry that constantly struggles since the economic factors are changing; this makes the emphasis between the secondary and tertiary sectors more competitive; that is why there must be high performance in the socio-economy of the municipality in a positive way without affecting others, through the estimated investments within the municipality in recent years determines that competitive forces are important, for these sectors have become a competitive tributary within the municipality since they are the ones that apart from the large investments have become large contributors at a socioeconomic level (Porter, 2010, p.19).

### 3.3. Analysis of the impact of the “Olmeca – Dos Bocas” refinery before and after its installation

Despite the daily efforts to balance the sectors in this socioeconomic impact, the relationships between them have greater repercussions on the municipality's lowest or least productive sectors. In particular, this determines the impact of their relationships. As an estimate within the general framework, the development of research is sought based on the productive systems trying to study the impact that the "Olmeca - Dos Bocas" refinery has on the productive sectors in such a way that both the economy and society influence the same socioeconomic impact. It will allow measures to be established that allow an economic balance between the productive sectors of the municipality of Paraíso, Tabasco. Thus, the socioeconomic impact is too important within the municipality since it will influence economic development and create a high demand within the sectors with greater social and economic profitability; likewise, it would create a decrease in the production of the sectors with less viability or profitability within the social, economic framework, since therefore there is the exact way in which certain sectors are more benefited with their production than others and a socioeconomic instability would be created.

Within it, one of the main triggers of the economic impact was the extraction of the first oil well carried out by Petróleos Mexicanos (PEMEX) in 1960 in Campeche and Tabasco; this determines that from the year in which the exploration of raw materials such as oil was carried out, the productive sectors began to generate a positive change in one and negative in others, as well as a change in the economic flow of society within the municipality of Paraíso, Tabasco. (Moscoso-Baeza & Martínez-de-Escobar-Fernández, 2022, p. 100).

Within the research, the affluence and development of a productive sector can be seen benefiting in the same way as a result of the economic investment and exploitation of certain resources; as previously mentioned, the exploration of oil in the state of Tabasco originated the score of the tertiary sector since it produced a chain of businesses within the municipality, as well as its rebound in the fluidity of the economy within the sector.

Later, an analysis was reached which, with the data collected from the Mexican Institute of Statistics and Geography (INEGI), determined that the primary, secondary, and tertiary sectors had affluent importance within the municipality, but in such a way that when the refinery began to be built, a difference in the importance of the productive sectors began to be seen.

Within the investigation, it was stated that the greatest impact of the construction of the "Olmeca – Dos Bocas" refinery would fall on a greater problem in the economic and social issues for families in the primary sector within the municipality since there would be few investments generated for the sector above of the municipality of Paraíso, Tabasco.

Tacuba-Santos & Astudillo Moya (2022), as cited in Maurer (2011), highlight that "the Mexican oil expropriation of 1938 was seen as the apogee of Mexican resource nationalism and the United States "good neighbor" policy; it was considered a patriotic triumph in which the federal government took control of the country's country's most valuable natural resource" (p. 100). Considering that the investments that affect the socioeconomic changes in the productive sectors are in the investment of the oil sector both in the country and in the municipality of Paraíso, Tabasco, taking as a guideline that the United States is one of the largest investors in that sector according to data from DATA MEXICO (n.d.) and the Ministry of Economy (n.d.).

### **3.4 Analysis of the factors that change the socioeconomic flow of the productive sectors**

Within the framework of this research, it is determined that the factors that can cause the economic flow of the sectors in a region or municipality are the high economic productivity that exists in the case of sectors with higher terms of economic investment, which is why the secondary and tertiary sectors tend to have a high impact of positivism in recent years since society tends to give a better economic spillover to the businesses and services that are provided than to agricultural production in the municipality. (Challco - Luque, 2020, p. 21).

Therefore, Herrera (2022) was cited in Cienfuegos et al., 2011 indicating that "the efficient provision of infrastructure services is one of the aspects of development policies, especially in those countries that have oriented their increase towards the exterior" (p. 6), which is why the socioeconomic structure of a municipality can be modified in its economic sectors based on the political vision that is had on issues of economic investment.

Likewise, Rosas & Sánchez (2004, p. 17) indicate that "the analysis of the relationship between investments in infrastructure works and services and growth is of long standing in economic literature." At this point, the authors indicate that based on economic models, public investments based on large infrastructures mark the development of the economy in the different sectors in which they are composed, such as the productive sectors in Paraíso, Tabasco.

One of the economic models mentioned is the Keynesian model. We know that this model seeks to maintain an economic balance in such a way that it helps boost the primary sector since it is the sector most vulnerable to such large economic changes. (Rosas & Sánchez, 2004, p. 17). For his part, Rostow, in his work published in 1961, states that the development of infrastructure networks – in particular, transportation networks, among others – generates an essential precondition for economic development and that it was confirmed in another study in 1963. In both works, Rostow revealed that growth, which was proposed as a function of the stock of public infrastructure, with the help of the growth rate of investment, among other factors involved, helps to influence economic growth. The equation postulated for these studies then had the following basic form: Economic growth = f (stock of public infrastructure, growth rate of investment, among others) (Rosas & Sánchez, 2004, p.18). Fogel's work reflects that the determining factors in economic development are linked with special emphasis on some socioeconomic characteristics of the countries, postulating a causal relationship that is represented as follows: Economic growth = f (product of the manufacturing sector relative to the rural sector, participation of investment in the GDP, incorporation of technology in the manufacturing sector, relative participation of the workforce in manufacturing and rural sectors, and degree of urbanization of the economy) (Rosas & Sánchez, p.18, 2004).

As is widely recognized, investment plays a crucial role in the participation of economic or productive sectors in the short or long term due to the economic dynamics present in a specific region. In the case of the municipality of Paraíso, investment has contributed to the accelerated growth of the secondary and tertiary sectors while slowing down the primary sector, mainly due to the considerable investments made in the area.

As investments were proposed for constructing the "Olmeca-Dos Bocas" refinery, according to data from DATA MEXICO (n.d.) and the Secretary of Economy, the municipality did not have an influx of foreign investment that would destabilize the economic sectors. Similarly, from the 2000s, the first quarter of 2022 saw an economic influx of investments from countries such as the United States, the United Kingdom, Ireland, Spain, and France, among others.

However, the investment was stopped by the COVID-19 Pandemic in 2020 and 2021; this allowed to some extent to balance the productive sectors, allowing the investment in the large infrastructure of the refinery to be noticed slow compared to the large investment at the end of 2020 as well as 2021 and the first quarter of 2022 where the investments were placed in such a way that they rebounded with an accelerated movement of the secondary and tertiary sector. Within economic functionality, it has been determined that infrastructures in Latin America have emphasized how they impact the socioeconomic changes in a region. It is known that with the advance of globalization, countries are investing directly in the economy, allowing the economic infrastructure of the production sectors to generate a social change, either negatively or positively, for the region in which they are investing.

It is highlighted that greater coverage promotes the best infrastructure works, considering the multiple impacts on the different sectors of the economy and society. First, we must consider the infrastructures that constitute an essential factor within the productive process by transporting and connecting many people, goods, services, and information or knowledge. Therefore, having an adequate denotation of the infrastructure constitutes an essential condition for the productive and efficient functioning of the economic system. (Lardé, 2016, p.12).

Within this framework, the sectors are influenced in their social economy by technological advances in which it is stated that technology plays an important role since the advances that are made year after year allow greater ground for productive sectors, especially for those that allow the development of infrastructures such as the refinery in the municipality of Paraíso, Tabasco (Jordá-Borrell & López-Otero, 2020, p. 19).

Within the parameters, Bastidas - Regalado et al. (2020), point out that "such activity requires a complementarity of factors specific to a country, related to macroeconomic stability, such as a good institutional, political, commercial and financial regime" (p. 4).

The attraction of Foreign Direct Investment (FDI) is considered an important government strategy for meeting economic development goals in developing countries. Therefore, the location determinants are highly relevant to public policy designers. This study allows the elements to know the different variables that can generate the impulse of attracting FDI and thus improve the current regional policies in Mexico. Studying the determinants of FDI is a tool to take long-term and long-term actions (Tinoco-García & Guzmán-Ayala, 2020, p. 91).

In particular, in business activities, social equity plays a role in which it can be analyzed in alternative ways; this is because, through a review of the literature, the study in the evaluation of corporate social responsibility and the actions of stakeholders tend to have approaches that need to address the root problems of social equity in terms of sustainability. That is why, when dealing with social equity at the company level, in terms of income inequality, one can specifically observe the contributions of organizations regarding income equality in the general system and, therefore, social equity (Córdova-León et al., 2020, p. 175).

### **3.5. Perspective analysis of the society of the municipality of the socioeconomic impact of the productive sectors**

Within the psychoanalysis of the research, an opening was taken in which it was determined from the applied survey that the infrastructure of the "Olmeca-Dos Bocas" refinery in the municipality left a socioeconomic instability that went from being positive to negative in the primary sector as well as positive for others, that is why within this study 43.00% of the population determined that the primary sector does not obtain the benefits as they should since 57.00% of the population that produces under the other two sectors consider that the refinery

creates the necessary benefits for the development of contribution to the economy is low since if the necessary support in work instruments affects its productivity as other sectors do.

From the previous studies, society considers that the investment of the “Olmeca-Dos Bocas” refinery in the municipality influences the economy of the productive sectors since the secondary and tertiary sectors tend to have a greater correlation of economic flow, and this has allowed an unbalancing impact on the primary sector.

#### 4. Research results

As a result, the "Olmeca – Dos Bocas" refinery has had. It will greatly impact the socio-economics of the productive sectors, in a negative way for some and positive for others, in the municipality of Paraíso, Tabasco.

The investigation results had an impact, especially on the primary sector's social economy. In this way, the interest groups of the municipality would have to work together to be able to determine salvation for this sector as a result of this great infrastructure, such as the "Olmeca – Dos Bocas" refinery that is being built and will soon be completed in its entirety.

#### Conclusions

It is concluded that it is extremely necessary to work through a process that allows the harmonization of productive sectors at a socioeconomic level to generate a balance in the region, which allows for steady progress and avoids common errors within the regional economy that can be made in this type of project, as well as not having clarity on the problem or the uncertainty that can be caused by not knowing if one is working in a balanced way with the socioeconomic situation of the region.

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