

**Study of the context variables for the design of a sustainable economic model in gas service stations in Villahermosa, Tabasco****Estudio de las variables del contexto para el diseño de un modelo económico sostenible en estaciones de servicio de gasolina en Villahermosa, Tabasco**

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**Abstract**

**Objectives:** To study the context variables, for the design of a sustainable economic model such as improvement to companies with service stations in Villahermosa, Tabasco. **Methodology:** Describe the most appropriate strategies to reach the target group: people who have vehicles for family use, shall apply where a survey to a sample of the population seeking to identify characteristics as habits of consumption, frequency of use, additional services and budget to invest. **Contribution:** The design of a sustainable economic model.

**Resumen**

**Objetivos:** Estudiar las variables de contexto, para el diseño de un modelo económico sostenible como propuesta de mejora a empresas con estaciones de servicio en Villahermosa, Tabasco. **Metodología:** Describir las estrategias más adecuadas para llegar al grupo objetivo: personas que tienen vehículos para uso familiar, donde se aplicará una encuesta a una muestra de la población que buscará identificar características como hábitos de consumo, frecuencia de uso, servicios adicionales y presupuesto a invertir. **Contribución:** El diseño de un modelo económico sostenible.

**Model, Sustainable, Gas Stations****Modelo, Sostenible, Gasolineras**

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## Introduction

The present research work entitled "Study of the context variables for the design of a sustainable economic model in gas service stations in Villahermosa, Tabasco", stems from the interest of solving the problem that is currently being lived in Mexico, due to the low utility of the fuel distribution sector, because of the constant variations in prices, so it is proposed, to establish a model that allows to visualize the scenario in an integral way, particularly analyzing the City of Villahermosa.

The bases for a sustainable economic model are: Generation of employment sources that contribute to the welfare of society, use of clean energy sources in the operation of service stations, Care and protection of the environment, and sustainability in urbanized areas. through a rigorous control of atmospheric emissions generated by companies and solution to problems of waste of organic matter in rural areas.

It is suggested to the entrepreneur to visualize different aspects, which are important to consider so that they facilitate decision making and that allow to know in an integral way the current scenario, creating a sustainable economic model that considers the variables: cultural, social, political, economic, Environmental and technological Since through its analysis you can apply specific tools and programs that contribute to the improvement of the entire sector.

## Objectives

Course objective: Design a sustainable economic model that facilitates decision making for gas service stations in Villahermosa, Tabasco.

Specific Objective 1: Carry out a comprehensive situational analysis at petrol service stations in Villahermosa, Tabasco.

Specific Objective 2: Design a sustainable economic model applicable to gas service stations.

## Methodology to be developed

Kind of investigation:

The research is of a simple transversal descriptive type since it seeks to describe the most appropriate strategies to reach the target group: people who have vehicles for family use, where a survey will be applied to a sample of the population that will seek to identify characteristics such as consumption habits, frequency of use, additional services and budget to invest.

Population:

To fulfill the purpose of the investigation it is necessary to apply the survey instrument:

Elements	Private vehicles
Sampling Units	People who live in Villahermosa, Tabasco and own vehicles for family transportation, do not apply to heavy duty vehicles.
Time	August 2019

**Table 1** Sampling units  
*Own Source*

Sample size:

To establish the sample size, the number of households and population per dwelling was based on the 2017 demographic indicators report of the State of Tabasco in the central municipality, where 177, 328 private cars were registered in the municipality Tabasco Center, according to INEGI data in 2017.

The following formula was used to calculate the sample size:

$$n = \frac{N * p * q * Z^2}{N - 1 e^2 + Z^2 * p * q}$$

Where:

n, is the sample size.

N, is the population

p, is the probability of success

q, is 1 - p

Z, is the level of confidence expressed in standard deviations

e, is the sample error.

Substituting the values to find the sample size that we require for this investigation is:

$$n = \frac{177,328 * 0.5 * 0.5 * 1.96^2}{177,328 - 1 * 0.05^2 + 1.96^2 * 0.5 * 0.5}$$

$$n = 383.33 \approx 383$$

Sources and techniques for information gathering:

The methodology for collecting information is quantitative, the technique used is a structured survey and the instrument is a questionnaire which will be applied to the target audience defined in the population.

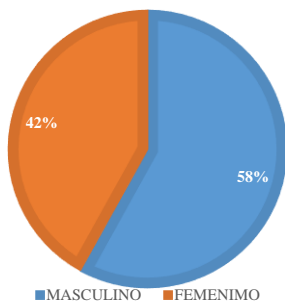
**Results**

50 people were surveyed (this being a representative sample), who came to load gasoline with a vehicle, in the city of Villahermosa, Tabasco. During the descriptive statistical analysis, it was identified that 29 people (58%) were men and 21 people (42%) women, with main interest in those who had some type of own means of transportation; of which 38 people (76%) answered yes and 12 people (24%) answered no, since they only occupied a borrowed vehicle eventually. The percentage of respondents is 64% in ages between 20 and 30 years and, secondly, with 18% in ages between 30 and 40 (see Table 2, graph 2).

Gender		Frequency	Percentage
Valid	Male	29	58.0
	Female	21	42.0
	Total	50	100.0

**Table 2** Percentage of people according to sex  
*Source: Own*

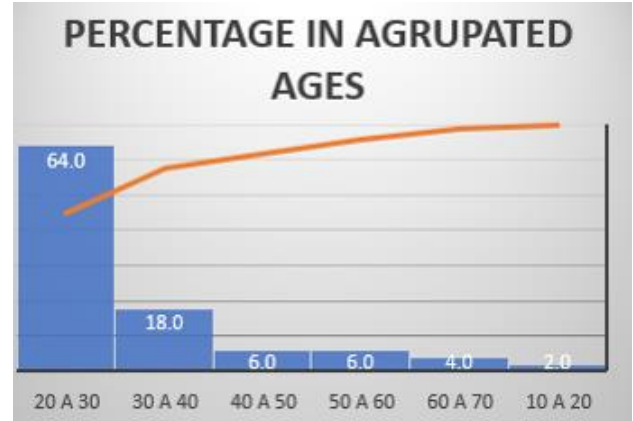
% OF PEOPLE ACCORDING TO SEX



**Graphic 1** Percentage of people according to sex  
*Source: Own*

AGE (grouped)	Frequency	Percentage
Valid 10 TO 20	1	2.0
20 TO 30	32	64.0
30 TO 40	9	18.0
40 TO 50	3	6.0
50 TO 60	3	6.0
60 TO 70	2	4.0
Total	50	100.0

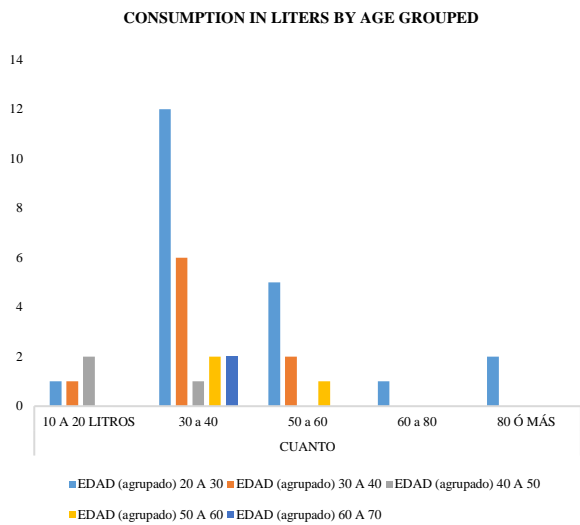
**Table 3**  
*Own Source*



**Graphic 2** Percentage of people in grouped ages  
*Own source*

Cross-table data analyzes were performed to know the relationship between age, occupation, degree of study, weekly gasoline consumption, and to know the opinion regarding the price. The results obtained are presented below: With respect to consumption in liters by grouped age, in the cross tables it was found that 12 people indicated that their consumption is 30 to 40 liters per week with ages between 20 and 30 years; On the other hand, people who consume more liters of gasoline with a frequency of 5 people who indicated that their consumption is 50 to 60 liters per week, are between the ages of 40 and 50, since they are people with luxury vehicles with a stable job, so they consider it necessary to have a full tank to avoid wasting time when charging if you run out of fuel.

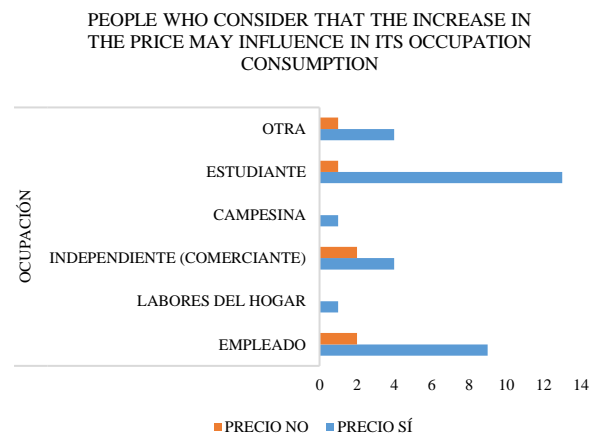
In addition, in the case of the respondents, there was a person who indicated that they consume between 60 and 80 liters per week, and two people indicated that they consume 80 liters or more for their vehicles on a weekly basis and with ages between 20 and 30 years, this Due to your daily activities. (See Graphic 3).



**Graphic 3** Percentage of gasoline consumption in liters per week according to the grouped age  
*Own Source*

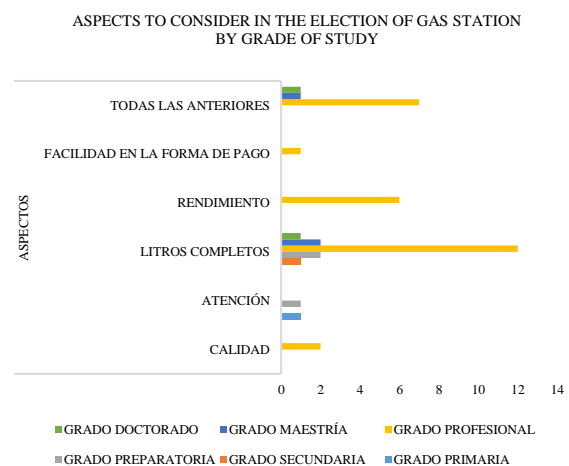
According to the degree of studies, the frequency of the people who chose to have the gas stations self-sustaining, and the following was found: first with a total of 28 people they said that they consider it necessary at a professional level or that they have a bachelor's degree, followed from the preparatory level with a frequency of 3 people, and for the elementary, secondary and master's levels, one person said yes respectively for each; In the case of people who said no, there is a frequency of two in masters and two doctorates, for which it is evident that the majority defend this sustainable approach, and mostly with a professional level.

On the other hand, when analyzing the occupation with respect to the price and its continuous increase, and because the people surveyed are mostly students, therefore, the displacement from their homes to schools or research centers, represents a constant expense in fuel, because many travel from other municipalities in the state of Tabasco, to the city of Villahermosa and are concerned about their savings and performance. The results obtained are the following: 13 students responded that they have considered other alternatives, such as saving or buying in places not authorized for sale and distribution, since the increase in the price affects their economy which makes them more vulnerable. Followed by a frequency of 11 people with employee occupation, they answered yes, and that they also use their vehicles, units or means of transport to move from their homes to their work centers, which represents an inevitable expense (see figure 4).



**Graphic 4** Percentage of influence on consumption with respect to the increase in the price per occupation  
*Own Source*

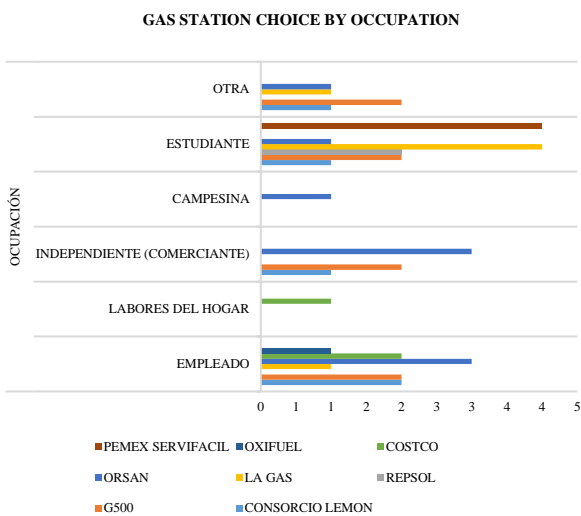
Analyzing the degree of study with respect to the aspects that they consider when choosing their gas station, a frequency of 12 people (of the 50 respondents in total) who chose the “full liters” were obtained, with a professional study degree or degree level, because they consider gas stations that have very good prestige or that their advertising is based on guaranteeing “full liters” to consumers, since they even have certifications and periodic reviews in their service stations for their proper functioning in the gasoline dispensing machines, making use of the word of mouth recommendation to increase their sales levels, and thus have higher profits. In addition, with a frequency of 7 people who chose several aspects, followed by 6 people who chose the highest performance aspect, and with a frequency of 2 the quality aspect and 1 person chose the ease aspect in the payment method (see Graphic 5).



**Graphic 5** Aspects for the choice of gas station according to the degree of study  
*Own Source*

Finally, the choice of gas station with respect to the occupation of the respondents was cross-analyzed and the following were found for the student occupation: the G500 gas station with a frequency of 2 people, and for the ORSAN, LA GAS, and CONSORTIUM gas stations LEMON with a frequency of 1 respectively in each of them.

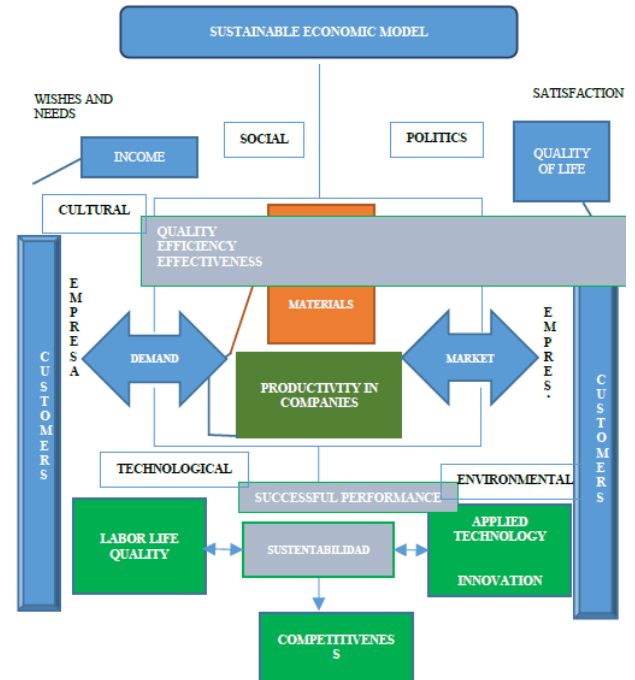
It was also found that from the employee occupation the following: for the ORSAN gas station a frequency of 3 was obtained, for COTSCO, G500 and CONSORCIO LEMON there was a frequency of 2 people for each of them, and for the LA GAS and OXIFUEL gas stations there was a frequency of 1 respectively for each one. So it can be said that ORSAN and G500 are the preferred gas stations in people with these occupations (see Graphic 6).



**Graphic 6** Gas station choice percentage according to occupation  
*Own Source*

**Model**

As part of the analysis of the six context variables: cultural, social, political, economic, environmental and technological, the model that considers each of them and the way in which it relates to the system of companies in the sector of the sector is presented. sale and distribution of fuels.



**Figure 1** Sustainable economic model  
*Own Source*

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**Conclusions**

The study carried out contains relevant information to facilitate decision-making to entrepreneurs, and its purpose has been to know the consumption of gasoline in liters per week, as well as the factors that people consider when choosing where to load gasoline, the gas station of their preference and level of consumption in gasoline of people with private vehicles of Villahermosa, Tabasco; In addition to knowing the percentage of people who are aware of the need to have a new approach to what is economically sustainable.

Therefore, all companies dedicated to the distribution and sale of fuels must also take these aspects into account in their planning for the opening of service stations and those already established, which would have a positive impact on the entire population of the Tabasco state.

Among the most relevant findings of this research, the following are mentioned: the majority of people who have a vehicle are mostly men, since 29 people (58%) were men and 21 people (42%) women that it can be deduced that in the case of women, due to the culture in the state, they only dedicate themselves to household chores, or to some other work informally near their homes, or, they only have one vehicle per family and this is occupied by the heads of family to move to their source of work. It should be noted that this has changed over the years and it has been observed that the percentage of difference between both sexes has decreased.

Another important point that has been found is that the type of advertising that gas stations implement to attract more customers has been the dispatch of “full liters”, which has worked since they mostly chose this aspect with a percentage of 47% of the total number of people surveyed with some type of own land transport means. In addition, quality of service is a strategic factor for the differentiation of local gas stations, with respect to the competition of foreign companies.

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