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Presentation

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In the first chapter we present, *Socioeconomic characteristics of sisal producing municipalities in the State of Yucatan, Mexico using Principal Component Analysis,* by VÁZQUEZ-ELORZA, Ariel, SÁNCHEZ-CONTRERAS, Ángeles, MARTINI-MORALES, Sasi E. and REYES-MUNGUÍA, Abigail, with ascription in CIATEJ and Universidad Autónoma de San Luis Potosí, as following article we present, *Prevalence of alcohol in woman students of a high school in Minatitlan, Veracruz, Mexico*, by LUGO-RAMIREZ, Lizeth Alejandra, CORTAZA-RAMÍREZ, Leticia, ANDAVERDE-ARREDONDO, Jorge A. and VINALAY -CARRILLO, Ilsia, with ascription in the Universidad Veracruzana, as following article we present, *Evaluation of academic engagement among faculty of two Mexican and Colombian Universities*, by HERNÁNDEZ-PADILLA, Juan Alberto, MORALES-MARTÍNEZ, Mario Alberto, CELEDÓN-RIVERO, José Carlos and SIMANCAS-FERNÁNDEZ, Raquel Marlen, with ascription Universidad de Guadalajara and Universidad Cooperativa de Colombia as following article we present, *Sustainability and Corporate Social Responsibility from the Administrative Management in the Agricultural Secto r of the Évora Region, Sinaloa*, by INZUNZA-MEJÍA, Patricia Carmina, ESPINOZA-DURÁN, Francisco Arturo and CASTRO-CUADRAS, Dulce Livier, with ascription in Universidad Autónoma de Sinaloa. as following article we present, *Analysis of the integration social-economic between the Nayarit and Jalisco states, Mexico; from the tequila industry; for the year 2018*, by CAMELO-AVEDOY, José Octavio & RODRÍGUEZ-BAUTISTA, Juan Jorge, whit ascription in Universidad Autónoma de Nayarit.

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Socioeconomic characteristics of sisal producing municipalities in the State of Yucatan, Mexico using Principal Component Analysis

Características socioeconómicas de los municipios productores de sisal en el estado de Yucatán, México utilizando el análisis de componentes principales

VÁZQUEZ-ELORZA, Ariel[1]†, SÁNCHEZ-CONTRERAS, Ángeles[1], MARTINI-MORALES, Sasi E.[2] and REYES-MUNGUÍA, Abigail[2]

[1]*Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco (CIATEJ) SURESTE*
[2]*Universidad Autónoma de San Luis Potosí, Unidad Académica Multidisciplinaria Zona Huasteca*

ID 1° Author: *Ariel Vázquez-Elorza* / **ORC ID**: 0000-0002-6710-8935

ID 2° Co-author: *Angeles Sánchez-Contreras* / **ORC ID**: 0000-0002-6538-4901

ID 3° Co-author: *Abigail Reyes-Munguía* / **ORC ID:** 56013606800

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Abstrac

This paper seeks to analyze market trends and foresight of Henequen (Sisal: plant native to Mexico; source of textile fiber, agave and tequila) in the state of Yucatan, build a stratification of producing municipalities using productive characteristics, social shortcomings and infrastructure. To do this, we have used variables obtained from SAGARPA for its initials in Spanish (Secretaria de Agricultura Ganadería Desarrollo Rural Pesca y Alimentación, Sistema Agroalimentario y Pesquero), CONEVAL (Consejo Nacional de Evaluación de la Política de Desarrollo Social) and Consejo Nacional de Población. Multivariate principal component analysis (PCA) has been used to generate new variables and stratify municipalities according to productive and socioeconomic characteristics. Results: Four main components accumulate an explained variability of 81.79%. Subsequently, a Pearson correlation was made between the components and variables under study in order to determine groups of associated variables. From the first component, five stratums of producing municipalities were generated in order to relate their levels of socio-economic and productive development. Today the state of Yucatan has the technological and scientific conditions, as well as infrastructure and human capital, to boost the economy of the henequen industry and generate an infrastructure for producing biofuels.

Sisal, Principal component analysis, Public policy

Resumen

Este trabajo busca analizar las tendencias del mercado y la previsión del Henequén (Sisal: planta originaria de México, fuente de fibra textil, agave y tequila) en el estado de Yucatán, construir una estratificación de municipios productores utilizando características productivas, deficiencias sociales e infraestructura. Para ello, hemos utilizado variables obtenidas de SAGARPA para sus iniciales en español (Secretaría de Agricultura Ganadería Desarrollo Rural Pesca y Alimentación, Sistema Agroalimentario y Pesquero), CONEVAL (Consejo Nacional de Evaluación de la Política de Desarrollo Social) y Consejo Nacional de Población. El análisis de componentes principales multivariados (PCA) se ha utilizado para generar nuevas variables y estratificar a los municipios de acuerdo con las características productivas y socioeconómicas. Resultados: Cuatro componentes principales acumulan una variabilidad explicada de 81.79%. Posteriormente, se realizó una correlación de Pearson entre los componentes y las variables en estudio para determinar grupos de variables asociadas. A partir del primer componente, se generaron cinco estratos de municipios productores para relacionar sus niveles de desarrollo socioeconómico y productivo. Hoy el estado de Yucatán tiene las condiciones tecnológicas y científicas, así como infraestructura y capital humano, para impulsar la economía de la industria del henequén y generar una infraestructura para la producción de biocombustibles.

Sisal, Análisis de Componentes principales, Política pública

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† Researcher contributing first author.

Introduction

Unfortunately, in Mexico as of 2014, there is no record of henequen production, being the Yucatán state the most important producer of the Mexican Republic. This situation reflects a reality of loss of the main product that had greater economic booms at the beginning of the last century in that region. Although henequen has been given a significant promotion as a potential product for the development of the region, the results of production show a significant reduction of cultivated soils, and therefore, a decrease in the income of small producers in recent years. This reality is not different from other agricultural sectors, such as the case of Jatropha curcas where its production has deteriorated in Chiapas, Mexico (Soto, Ellison, Kenis, Diaz, Muys y Mathijs, 2018).

The situation of small producers in Mexico is in an uncertainty about the henequen market, economic disincentives to continue without adding value to the product, high transaction costs, lack of innovation and technological development applied to small producers, as well as, high emigration of people from rural areas to urban areas. However, the Federal Government has a tool to transfer resources to areas with higher levels of marginalization called Prospera. But, according to results obtained by Parker and Vol (2017) estimate that the effects will be observed by the new generations of children in education, work, income and economic status given the characteristics of the Program. In this way, it could be inferred that the income of small producers dedicated to the cultivation of henequen can be rewarded by welfare programs that are currently implemented by the federal government.

Productive context of global Henequen

Henequen (Agave fourcroydes) is a monocot plant, agave genus belonging to the family of Agavaceae. It originates from Yucatan and has been successfully introduced into some areas of Tamaulipas, Veracruz, and in Cuba. In countries like Brazil and East Africa, it is known by the name of sisal; as recorded by Food and Agriculture Organization statistics (FAO, 2014). Henenquen is originally known by the Mayan name "Sacci" (sak-CHEC) in the state of Yucatan.

For its fiber quality, the cultivation of Sac ki or white hemp has been the most widespread among plantations; however, the Yaax ki, of lower quality and performance, is in danger of extinction as it is no longer cultivated (Financiera Rural, 2011; Martínez *et al*., 2011).

Sisal has various pseudonyms by region and country where it is produced. According to la Estación Experimental de Citricultura y Zootecnía El Valle, D.F. (1942), the word sisal is derived from the Old Port of sisal in Yucatan; the Mayans called it "yacci". According to the United States Department of Agriculture USDA (1931), "Hard fibers are commonly known as Sisal (sisal hemp -agave sisalana- and -agave fourcroydes, Lem.). Currently in Yucatan, there are three varieties of hemp: Sac ki (white sisal), Yaax ki (green sisal) and Kitam ki (boar sisal).

In countries such as Cuba, Dominican Republic, Guatemala, Honduras and Nicaragua it is called sisal. In Mexico, the climax of domestic production of sisal corresponded to the period of 1880-1918 when the demand for fiber rose as a result of the mechanization of agriculture. In fact, a productive reconversion process took place transforming lands dedicated to the cattle and corn industry into those of henequen producing soils (Canto, 2002).

There were several factors that led to the gradual decline of henequen production in Yucatan. In the United States, a consortium of companies that monopolized the purchase of sisal from the Yucatan peninsula was formed, resulting in reduced fiber prices; there was also a lack of organization of Yucatan landowners, and more and more countries joined in on the production of sisal (Cuba, Kenya, Brazil, among others). Throughout the sixties, as a result of the aforementioned, cultivated areas diminished and high volumes of product were no longer obtained. The situation worsened in the nineties due to the furthering of productive diversification and economic crisis' in Yucatan (Yucatan Produce Foundation, 2011). In the state of Yucatan according to SAGARPA and SIAP, 40% (43) of the 106 municipalities that the state is comprised of, have records of henequen cultivation. The state of Tamaulipas is the second largest entity that produces green sisal in Mexico.

The planted area of henequen in the state of Yucatan is distributed amongst 40 municipalities, with a total area of 8,512 hectares (2014), well below the 84.670 hectares that were sown in 2000 (SIAP-SAGARPA, 2015). There is a close relationship between marginalization and socio-economic characteristics of producing municipalities. Within the main strategies to increase the growth of henequen sector is the development of new frontier knowledge, technology and innovation to transfer it to small and medium producers to increase the added value of the by products: beverages, organic fertilizers, generation of raw materials for the footwear industry, fibers, among others.

The most representative henequen producing countries in Africa are: Kenya with 26,000 tons and Tanzania with 37,400 tons in 2013, followed by South Africa, Madagascar and Mozambique, among others (FAO, 2014). In 2013, Brazil stood out in Latin America obtaining a production of 74,600 tons; however, during the period of 2008 - 2013 the AAGR was reduced from 6.7% (105,600 tons) in 2008 to 74,600 tons in 2013 (FAO, 2014).

From a commercial point of view, sisal is a product that takes on a new strategic economic dimension as well as an explorative outlook to the agro industry. According to FAO statistics and the configuration of the international market, the African continent has had an increase in henequen production from 66,900 tons in 2008 to 76,500 tons in 2013, representing an annual average growth rate of 2.7% (AAGR) 2008 – 2013.

In contrast, due to an interior impulse demand, Chinese sisal production increased from 53,000 tons in 2008 to 63,100 tons in 2013, representing an increase of 3.6% per year. Another Latin American country that ventured into the production of sisal was Cuba, which had a production of 1400 tons per year during the 2008 - 2013 period (FAO, 2014). According to FAO estimates, total world production of sisal and henequen has decreased slightly from 261,100 tons in 2008 to 257,000 tons in 2013; this represents a reduction of approximately 3% during that period.

It is worth noting that in 2013, there were other productions of other hard fibers like "Fique" that represented a total of 24,500 tons. In Argentina; Chile and South Africa, Phormium tenax is found (important fibre and ornamental plant native to New Zealand and Norfolk Island), together these 3 sites produce up to 3.3 billion tons each year. Furthermore, other hard fibers can be found in varying parts of the world including Brazil (caroa), Costa Rica (sisal), El Salvador (Latvian), Ethiopia (banana et doum), Mauritius (aloe), Philippines (maguey), Reunion (aloe) and other fibers which together in 2013 produced around 12 thousand tons. Among the countries that stand out in the exporting of sisal and henequen (fiber and manufacturing) are Brazil, Haiti, Kenya, Madagascar, Mexico, Mozambique, Tanzania, China, Europe, Costa Rica, Cuba, El Salvador, South Africa and Venezuela.

In 2013, world exports rose to 152,600 tons; fibers corresponding to 77,900 tons with an increased AAGR of 4.5% during 2008 – 2013; meanwhile, manufacturing fluctuated by 74,700 tons reducing exports in this same period to a -4.5% AAGR. Notably, Brazil exported 60,700 tons of sisal globally; 29,700 tons of which were fiber, 24,200 tons of cordage (rope) and other manufactured products (Yarn-Carpets) 6,800 tons. Kenya came in second to Brazil, with 24,000 tons of fiber and 600 tons of cordage; Tanzania followed up with 16,900 tons of fiber and 5,500 tons of cordage (FAO, 2014).

FAO registry of exports to Mexico reached only 1.9 billion tons per year in 2012 and 2013 respectively; this indicates an international share of only 1.25% of sisal and henequen exported worldwide. This situation reveals a large window of business opportunity for the state of Yucatan to increase its efforts with public policies aimed at increasing productivity, competitiveness and the economy of the sector.

Regions that excelled in 2013 regarding henequen as a raw fiber import (in thousands of tons) were: Europe with (22.3), Africa (5.8) and Latin America (4.1); importation of fiber used for manufacturing in the same year were: Canada (2.6 thousand tons), United States (27.2), the European Union (17.8), France (4.4), Germany (3.0), East Asia (6.8), Latin America and the Caribbean with (2.6) (FAO, 2014).

Mexico, as of 2007, became an importer of mainly Brazilian sisal fibers. According to the "Tariff Information System via the Internet" from the Secretary of Economy (Sistema de Información Arancelaria Web: SIAVI)", in 2014, Mexico imported 1,742 tons of sisal (tariff code 53050005) with a value of $2,431,283. During the period of January to August 2015 they imported about 1,656 tons of sisal with a value of $2,744,988. Contrastingly, in 2014, Mexico exported 43.34 tons of fiber with a value of $60.699 US dollars (SIAVI, 2015).

New perspectives on the use of henequen

For many years henequen has been used as a raw material for producing fiber. The Scientific Research Center of Yucatan A.C (Centro de Investigación Científica de Yucatan: CICY) notes that this process represents only 5% of the whole plant (CICY, 2010). This situation creates a opportunity to prospect and undertake new uses of farming in the areas of food, pharmaceutical, personal care and as a raw material in biofuel production (Fonseca *et al.*, 2014).

Also, the Innovation Agenda of the Yucatan National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología: CONACYT) rates henequen as a present specialized niche in the production chain from the primary sector up to the industrial sector (CONACYT, 2014).

Henequen can be used to produce alcoholic beverages and some recent studies show the possibility of bioethanol production (Martínez, *et al*., 2011; Cáceres *et al*., 2008). Also, there are several extracts that are worth mentioning: fertilizer, biogas, pulp for livestock feed, waxes for industrial use and hecogenin, among other highly demanded vegetable based steroids used worldwide. Henequen juice can also be used as a bio detergent for scrubbing and washing, as well as an emulsifier for fuels.

Currently there are studies investigating bioethanol production from molasses and henequen juice (Agave fourcroydes Lem.) using a mixture of yeasts; in the Yucatan peninsula, technologies are being developed to use this "juice" (byproduct of the fiber from the henequen industry (Agave fourcroydes Lem.)) in the production of bioethanol. In 2005, this industry processed 250 million leaves for the production of 5,000 tons of fiber that generated 75 million liters of juice as waste. The Mexican Society of Biotechnology and Bioengineering states that, "This substrate contains a high percentage of oligofructans that can be used in the production of bioethanol" (2009).

The CICY, in a joint effort with its chemistry department, has conducted research on new biotech trends from henequen extracts. It is stated that, "Henequen leaf 'juice', derived from the pulping process of the leaves and the concentration of the leaves for automated fiber extraction allow the obtainment of large amounts of juice concentrate rich in saponins steroids, such as hecogenin and tigogenin: raw materials used in the pharmaceutical industry as precursors of biologically active steroids "(CICY, 2010).

Agave strains are beginning to be considered "potential" raw materials for the production of bioenergy (bio-ethanol); this due to the fact that they are already well known in the production of "ethanol". They can exist in arid lands where food crops cannot grow; thus, in the long run resulting in substantial profits.

Grade of marginalization	Sown surface area of henequen shown in hectares	Average population percentage of illiterate persons 15 years of age or older	Average population percentage having less than 5000 habitants (2010)	Population 2010	
(GMMA) Very high	36	20.26	100	Average	2,768.00
				Sum	2,768.00
(GMA) High	179.1	19.23	100	Average	3,898.00
				Sum	19,490.00
(GMM) Medium	359.31	13.89	69.58	Average	8,175.51
				Sum	286,143.00
(GMB) Low	11	7.84	22.32	Average	62,865.00
				Sum	62,865.00
(GMMB) Very low	57.5		4.85	Average	897,331.00
				Sum	897,331.00
(GMT) Total	315.72	14.27	71.22	Average	29,502.26
				Sum	1,268,597.00

Table 1 Socio-economic characteristics of sisal producing municipalities
Source: Based on data of the SIAP-SAGARPA (2011) and CONEVAL (2015)

Socioeconomic importance of henequen producing municipalities in Yucatan

Of the 106 municipalities in the state of Yucatan, 43 have sisal plantations (40% of the basic administrative units of the state), and according to 2010 marginalization levels, there are differences amongst the sown areas (Table 1). For example, in municipalities with a "very high" degree of marginalization, on average, 36 hectares are planted; areas with a "high" degree of marginalization typically plant 179.10 hectares and this is further reduced to 11 hectares in municipalities with "low" marginalization.

However, it is observed that the highest percentage of illiterate population (15 years or older) is located precisely in henequen producing municipalities with "very high" and "high" levels of marginalization, together having a population of 22,258 inhabitants; this figure 1 constrasts the 5,000 or less habitant norm which generally characterizes rural locations (CONAPO, 2015 and SIAP-SAGARPA, 2015).

The Sistema Producto Henequen (Henequen Product System (2012) presents a classification of producers according to their number of hectares in three blocks (Table 2): the most important being that which focuses on 1-5 hectares of farmland, accounting for 86.4% of total rated producers.

Corresponding to the level of technology, the Henequen Product System establishes that producers with low-medium technology levels, mainly pertinent to the social sector, make up 80% of the total; those with medium-high technology levels, mostly being from the private sector, make up for 20% of all total producers.

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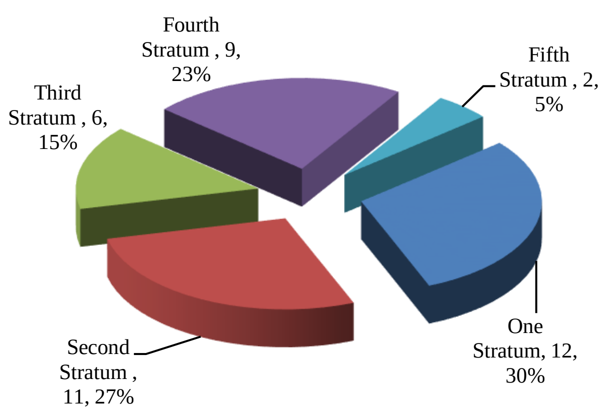
Number of hectares	Number of producers in the state	Total percentage
1 – 5	3,279	86.40%
6 – 20	479	12.60%
21 o más	36 1	0.00%
Total	3,794	100.00%

Table 2 Number of hectares and producers in the state of Yucatan
Source: Henequen Product System 2012

The CICY (2010) mentions that in the northwestern region of the state of Yucatan (henequen zone) there are 10,000 families dependent on this type of farming. This situation becomes relevant when analyzing the classification of the type of producer according to socioeconomic characteristics.



Graph 1 Stratification of henequen producing municipalities in the state of Yucatan
Source: Unique elaboration based on results of standardization of first component indicators

The fall of henequen production in the state of Yucatan has been very important. In 2000, 84,670 hectares were sown, whereas in 2014, the sown henequen areas in hectares were as little as 8,513 (SIAP-SIACON, SAGARPA 2015); this represented an average annual growth rate of -12%. According to SAGARAPA records, in 2014 the volume of crop production in Yucatan was 6,098 tons with a production value of 44,376,535 pesos. This situation reflects the potential output that the state of Yucatan could represent in meeting the international demand for henequen products and derivatives (fiber, chemicals, biofuels) under current conditions of use and added value needed for market supply.

The only Mexican federal entity that follows Yucatan in this crop production is the state of Tamaulipas which registered having a green henequen sown area of 1,775 hectares in 2014.

Stratification of henequen producing municipalities for the design of public policies

For the stratification of henequen producing municipalities, it was necessary to utilize information from SAGARPA, CONEVAL and CONAPO. When this sector's socio-economic and productive characteristics are related we are able to contextualize the peculiarities of the 43 producing municipalities in order to design more efficient and effective public policies. The analysis variables are:

1. Sown area of Henequen (ha),
2. Production (tons)
3. Yield (ton / ha)
4. Average rural price (price per ton)
5. Production value (thousands in dollars)
6. Average population percentage of illiterate persons 15 years of age or older,
7. Population percentage in dwellings without electricity,
8. Population in extreme poverty,
9. Persons lacking access to food,
10. Percentage of people 15 years of age or older with incomplete primary education,
11. Percentage of households with some level of overcrowding,
12. Population percentage having less than 5000 habitants (2010),
13. Percentage of occupants in houses with dirt floors and
14. Total population.

In 2010, henequen producing municipalities in Yucatan had the following characteristics: On average, 14.62% of the population identified as being 15 years or older and illiterate, 1.37% of the population occupied dwellings without electricity, 37.17% of the population aged 15 years or older identified as having incomplete primary education, 73.38% of the local population had less than 5,000 habitants and 50.01% of households had some level of overcrowding (CONAPO, 2015).

From this point we continued with methodology of principal component analysis (PCA) generating new variables that express the information in the original dataset; that is, reducing the dimensionality of the problem being studied as a first step for future analysis, and eliminating where possible, original variables if they provided too little information (Pla, 1986).

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This methodology can be used to analyze and relate socioeconomic variables, with issues of health, education, poverty, among others (Farinelli, Baquero, Stephan, yb Chiaravalloti-Neto, 2018). Table 3 shows the total variance of the Eigenvalues (values of each component) that are associated with the correlation matrix. The characteristic value associated with the first component is well above the rest, outlining 33.02% of the variable variance under study. The four components in the model can explain approximately 81.79% of the total variability of the data which can be interpreted as an acceptable percentage.

Component	Initial Autovalues			
	Total	Percentage of variance	Accumulated percentage	Total
1	4.62	33.02	33.02	4.62
2	3.5	25.02	58.05	3.5
3	1.88	13.49	71.55	1.88
4	1.43	10.23	81.79	1.43
5	0.85	6.1	87.89	
6	0.51	3.69	91.58	
7	0.38	2.76	94.34	
8	0.28	2.04	96.39	
9	0.23	1.67	98.06	
10	0.14	1	99.07	
11	0.08	0.61	99.68	
12	0.02	0.19	99.88	
13	0.01	0.11	99.99	
14	0	0	100	

Table 3 Total variance explained
Source: Extraction method: Principal Component Analysis

Conversely, with an approximate Chi-squared value of 671.38 and 91 degrees with a significance of p = .000, it is evident that we are not dealing with an identity matrix and the study of the variables in Table No. 1 with the PCA are able to be made; moreover, the value of KMO corresponds to 0.73 and therefore can be considered an acceptable model. Subsequently, we proceeded to correlate the components of the variables used by henequen producing municipalities with the ACP model to generate four groups of independent variables that guided the analysis features.

Table 4 shows that the first component (CP1) is significant to level 0.01 (bilateral) and is positively related with total population and households with some level of overcrowding; in contrariety, it presents a negative relationship with the local population of less than 5000 inhabitants, able to be considered "urban population and housing". It is noted that the second component (CP2) is significant to level 0.01 (bilateral) and is associated positively with area, production and production value of henequen municipality able to represent the "productive sector of henequen".

Typology	Component 1	2	3	4
1. Sown area of Henequen (ha),	0.24	0.908**	-0.18	-0.07
	0.13	0	0.27	0.68
2. Production (tons)	0.13	0.968**	-0.05	0.08
	0.42	0	0.74	0.62
3. Yield (ton / ha)	0.11	0.06	-0.03	0.921**
	0.51	0.69	0.84	0
4. Average rural price (price per ton)	-0.29	0.03	-0.17	0.836**
	0.07	0.87	0.28	0
5. Production value (thousands in dollars)	0.12	0.966**	-0.06	0.11
	0.47	0	0.69	0.51
6. Average population percentage of illiterate persons 15 years of age or older,	-0.1	-0.03	0.898**	-0.08
	0.55	0.84	0	0.64
7. Population percentage in dwellings without electricity,	-0.14	-0.06	0.691**	-0.03
	0.4	0.71	0	0.84
8. Population in extreme poverty,	0.1	-0.26	0.711**	0.21
	0.52	0.11	0	0.19
9. Persons lacking access to food,	-0.23	-0.28	0.27	-0.18
	0.16	0.08	0.09	0.26
10. Percentage of people 15 years of age or older with incomplete primary education,	-0.03	-0.2	0.841**	0.12
	0.86	0.21	0	0.47
11. Percentage of households with some level of vercrowding,	0.498**	-0.26	0.630**	-0.317*
	0	0.1	0	0.05
12. Population percentage having less than 5000 habitants (2010)	-0.823**	0.15	0.08	-0.06
	0	0.36	0.64	0.72
13. Percentage of occupants in houses with dirt floors	0.18	0.07	0.665**	-0.2
	0.26	0.68	0	0.23
14. Total population.	.869**	.429**	-0.06	-0.07
	0	0.01	0.72	0.65

**. Pearson correlation is significant at level 0.01 (bilateral).
*. Pearson correlation Correlation is significant at level 0.05 (bilateral).

Table 4 Pearson correlation coefficient matrix with components
Source: Based on the Principal Components method in SPSS

Considering "the socioeconomic conditions of henequen municipalities", the third component (3) has a positive relationship between the variables of: illiterate population 15 years or older, incomplete primary education, population in extreme poverty, homes without electricity and percentage of occupants in houses with dirt floors.

Finally, component four (4) is positively associated with performance, rural housing and negatively with homes having some level of overcrowding, explaining the "living conditions of the population and productivity of henequen".

Stratification of henequen producing municipalities according to social and productive characteristics was performed with the Dalenius and Hodges technique (1959); this technique seeks to minimize the variance of municipality data establishing more heterogeneous groups among producing municipalities and homogeneous among the populations that comprise them. The importance of generating stratums is radicated in the idea that municipalities need to design and implement public policies according to their needs from an interdisciplinary perspective.

Table 5 classifies municipalities according to the obtained stratums. It is important to note that the relationship between the Marginalization Index and the obtained stratums from the ACP vary according to the henequen producing municipality. This situation reinforces the need to work differentially in agricultural and municipal social development policies. The first component from the coefficient matrix proceeded to be combined linearly with the 14 variables of the first already standardized dimension.

The results fluctuated between values of 1.13 and 3.34. Subsequently, the optimum stratification, developed by Dalenius and Hodges, was applied to a set of values and grouped together as homogeneously as possible within the stratums and more heterogeneously amongst themselves. Interval limits for the stratification of the municipalities are: a. [-1.13, -0.69]; b. [-0.69, 0.24]; c. [0.24, 0.66]; d. [0.66, 1.55] and e. [1.55, 3.34]. In this way, each henequen producing municipality was grouped according to their population and urban housing characteristics.

Table 5 shows municipalities engaged in the production of henequen with data from 2011 SIAP-SAGARPA (2011) according to marginalization levels from the National Population Council (2010).

Marginalization grade	Stratum (ACP)	Municipality	Production (Ton) 2011	Yield (t/ha) 2011	Percentage of occupied population with income of at least 2 minimum wages
Very high	Two	Dzoncauich	22.4	0.7	84.72
	Two	Hoctún	122.77	0.53	69.89
	Two	Huhí	89.13	0.58	74.86
	One	Sudzal	9.03	0.53	77.45
	One	Tekal de Venegas	36.82	0.53	78.99
	Three	Tetiz	34.17	0.6	75.42
	s.d.	Abalá			62.77
	Cuatro	Acanceh	39.01	0.49	51.34
	Two	Baca	248.5	0.62	69.75
	One	Bokobá	88.07	0.53	64.36
	Three	Cacalchén	77.39	0.53	54.31
	Three	Cansahcab	76.5	0.77	69.6
	Two	Cuzamá	11.7	0.45	61.26
	One	Dzemul	127.4	0.51	64.44
	Three	Dzilam González	2.8	0.7	61.16
High	Three	Hocabá	72.73	0.45	62.5
	Cuatro	Homún	54.12	0.55	73.56
	Cinco	Hunucmá	18.08	0.6	67.17
	Cuatro	Izamal	503.63	0.53	67.04
	Three	Kantunil	14.84	0.53	61.58
	Cuatro	Kinchil	4.88	0.6	73.76
	Two	Mocochá	12.5	0.48	59.51
	Cinco	Motul	665.72	0.65	60.06
	One	Muxupip	53.25	0.51	68.75
	Two	Sanahcat	22.33	0.45	67.46
	Cuatro	Seyé	56.92	0.45	50.63
	One	Sinanché	114.12	0.58	72.61
	Two	Suma	218.4	0.71	71.43
	One	Tahmek	409.53	0.53	67.91
	Cuatro	Tecoh	91.78	0.53	59.15
	One	Tekantó	190.06	0.53	69.29
	Cuatro	Tekit	0.8	0.5	70.94
	One	Telchac Pueblo	110.4	0.69	67.87
	Cuatro	Temax	67.2	0.7	79.84
	One	Tepakán	138.81	0.53	73.64
High	One	Teya	213.57	0.53	69.17
	Cuatro	Tixkokob	132	0.54	52.13
	Two	Tixpéhual	31.1	0.52	52.35
	Two	Xocchel	8.11	0.53	65.28
	One	Yaxkukul	47	0.47	59.44
	Two	Yobaín	28	0.7	73.73
Low	s.d.	Umán			55.07
Very Low	s.d.	Mérida			41.24

Table 5 Productive characteristics of henequen municipalities according to marginalization levels
Source: Based on data from SIAP-SAGARPA (2011) and CONEVAL (2015)

Discussion and conclussions

There are significant differences regarding social, economic and productive gaps between different henequen producing municipalities. This situation demonstrates the inequalities and conditions between different stratums indicating the need to treat socioeconomic needs diversely.

It is therefore necessary to generate differentiated municipal government actions towards henequen producing municipalities. Furthermore it is essential to focus federal and state programs aimed at improving the living conditions of producers in the area for the benefit of the population. Today the state of Yucatan has the technological and scientific conditions, as well as infrastructure and human capital to boost the economy of the henequen industry generating an infrastructure for producing biofuels. By doing this, coordination and organization between agencies; research centers (both public and private); farmers; businessmen; comercializers; industrialists; municipalities and members of the henequen production chain, will be able to reduce transaction costs, obtain greater added value to raw materials and aquire better wages and employment in the region.

The results obtained in the main components model seek to generate a prospective for the implementation of public policies focused in the sector and boost production and value chains that the henquen represents for the state of Yucatan as an engine of growth and development in the 43 municipalities. In particular, it would seek to benefit those localities, which maintain very high, high and medium marginalization.

To increase the competitiveness of henequen, it is essential to empower the actors in the production value chain by providing them with more infrastructure, training, technological packages, and knowledge in order to add value to by-products. The Henequen is very important for the textile industry, as well as for the use of bagasse in the generation of natural fertilizers and the improvement of infertile soils. To increase productivity the sector needs more efficient technological packages making use of natural resources based on sustainability.

In addition, public agricultural policies represent an important tool for the government sector to generate synergies among the different gubernamental institutions responsible for the primary sector (state, municipal and federal). In this way, the development of new technologies, innovation, research and development will promote growth in the sector and knowledge economy for the use and exploitation of the plant and its derivatives. As a result of applying agricultural policies implemented in biotechnology to the value chain of henequen, productive economies will strengthen and increase the efficiency and effectiveness of knowledge and science currently generated.

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Prevalence of alcohol consumption in woman students of a high school in Minatitlán, Veracruz, Mexico

Prevalencia del consumo de alcohol en mujeres estudiantes de una secundaria de Minatitlán, Veracruz, México

LUGO-RAMIREZ, Lizeth Alejandra†*, CORTAZA-RAMÍREZ, Leticia, ANDAVERDE-ARREDONDO, Jorge A. and VINALAY-CARRILLO, Ilsia

Universidad Veracruzana, Campus Minatitlan- Coatzacoalcos

ID 1er Autor: *Lizeth Alejandra, Lugo-Ramirez* / **ORC ID**: 0000-0001-5973-1754, **Researcher ID Thomson**: P-2861-2018, **CVU CONACYT- ID**: 786491

ID 1er Coautor: *Leticia, Ramirez-Cortaza* / **ORC ID**: 0000-0002-0592-7695, **CVU CONACYT- ID**: 252470

ID 2do Coautor: *Jorge A, Andaverde-Arredondo* / **ORC ID**: 0000-0002-6385-9598 - **Researcher ID Thomson**: 2866-2018, **CVU CONACYT- ID**: 35149

ID 3er Coautor: *Ilsia, Vinalay-Carrilo* / **ORC ID**: 0000-0002-9546-1955, **CVU CONACYT- ID**: 694648

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Abstract

Alcohol consumption is one of the current problems that affects mostly the young population and in the case of women the effects are more harmful in smaller amounts, which makes it a more vulnerable population. Therefore, the objective of this research is to identify the prevalence of alcohol consumption in women students of a secondary school in Minatitlán, Veracruz. This is a descriptive and transversal study, the whole population was used, consisting of 89 third-grade students from high school, from all groups and both shifts (morning and evening), a personal data card, the Prevalence Questionnaire on Alcohol Consumption and the Questionnaire for the Identification of Disorders due to Alcohol Consumption (AUDIT) was used. Results: The median age of onset of consumption was 14 years (IQR = 1 year), the overall prevalence of 60.7%, the lapsica of 39.7% and it is highlighted that both the immediate and mediate prevalence maintain the same percentages of 19.1%. It is recommended to consider the results to plan strategies for prevention and reduction of alcohol consumption, considering the age groups and gender

Prevalence, Alcohol Consumption, Woman

Resumen

El consumo de alcohol es una de las problemáticas actuales que afecta en su mayoría a la población joven y en el caso de las mujeres los efectos son más nocivos en menores cantidades, lo cual hace que sea una población más vulnerable. Por lo tanto, el objetivo de esta investigación es identificar la prevalencia del consumo de alcohol en mujeres estudiantes de una secundaria de Minatitlán, Veracruz. Estudio descriptivo transversal, se utilizó toda la población, conformada por 89 alumnas de tercer grado de secundaria, de todos los grupos y ambos turnos (matutino y vespertino), se utilizó una Cédula de datos personales, Cuestionario de Prevalencia de Consumo de Alcohol y el Cuestionario de Identificación de los Trastornos debidos al Consumo de Alcohol (AUDIT). Resultados: La mediana de edad de inicio de consumo fue de 14 años (IQR = 1 año), la prevalencia global de 60.7%, la lápsica de 39.7% y se destaca que tanto la prevalencia mediata e inmediata conservan los mismo porcentajes de 19.1%. Se recomienda considerar los resultados para planear estrategias para prevención y disminución de consumo de alcohol, considerando los grupos de edades y el género.

Prevalencia, Consumo de alcohol, Mujeres

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* Correspondencia del Autor: alelizlugo@hotmail.com
† Investigador contribuyendo como primer autor.

Introduction

Alcohol consumption is one of the current problems in Public Health, which affects adolescents in a greater proportion. The World Health Organization (2018) mentions that alcohol is a psychoactive substance with dependency-causing properties that has been widely used in many cultures for centuries. The harmful consumption of alcohol carries a heavy social and economic burden for societies. Alcohol affects people and the social environment in different ways, and its effects are determined by the volume of alcohol consumed, consumption habits and, in rare cases, the quality of alcohol. In the case of women, this problem has become more relevant, due to the increase that has occurred in recent years globally in this population.

Epidemiology

According to the report of the World Health Organization (WHO) in 2014, the percentage of deaths attributable to alcohol consumption among women amounts to 4%. In 2010, the total consumption of alcohol per capita in the whole world registered an average of 8.9 liters among this same population.

In Europe, according to the report of Heralth at a Glance: Europe 2016 of the Organization for Economic Cooperation and Development (OECD), the region of the European Union (EU) between 2013 and 2014, The countries with the highest percentages of young women aged 15 years who have been drunk are Denmark (38%), followed by Hungary (34%) and the United Kingdom (33%). In Spain between 2008 and 2010, women increased their consumption from an average of 6.7 to 10.6 liters per year, which indicates that Spanish women drink almost twice the world average (Information, 2016).

In the Americas region, women consume more alcohol and more frequently, Acquiring higher prevalences of disorders due to alcohol use among women, with an estimated 12.6% of girls and women affected. According to the report of the Pan American Health Organization (PAHO), the percentage of women between 2005 and 2010, that consumes at least four or five alcoholic beverages per month increased from 4.6 to 13% (WHO & OPS, 2014).

The Encuesta Nacional de Consumo de Drogas, alcohol y Tabaco (ENCODAT) 2016-2017, indicates that in Mexico the consumption of alcohol is high, in particular the pattern of excessive consumption.

This pattern occurs not only in the population of legal age, but also in a large proportion of minors, and it is in adolescent women that the greatest proportional growth has occurred, until they reach prevalences similar to those of men. Excessive consumption and customary consumption rates represent the main problem in the field of addictions, which has grown particularly due to the integration of more women into alcohol consumption (INPRFM, 2017).

The prevalence of alcohol consumption in women aged 12 to 17 years is 39.8% "sometime in life", 27.2% in "the last year", 7.7% in "the last month" and indicates a possible dependence on alcohol in 0.7% of women. Comparing 2011 results, excessive consumption in the last month showed a significant increase in women, from 2.2% to 7.7%. Regarding the beginning of consumption, women reported having started at 19.2 years old (INPRFM, 2017). In the South Central Region of Veracruz, Mexico, the drug with the greatest impact on women was alcohol with 53%, of which the characteristics of this population were highlighted, being that 71.4% were single, 49% were under 18 years old, in terms of schooling, 53.7% had secondary education and 21.7% had a high school diploma (National Survey of addictions, 2011). On the other hand, in the same Region, according to the National Survey of Alcohol Consumption in Students 2014, 8.8% of high school students have a problematic consumption and it increases significantly in high school students (16.6%). Even so, these percentages of consumption in the state are below the national prevalence, except for secondary that is within (National Commission Against Addictions, National Institute of Psychiatry Ramón de la Fuente Muñiz, Secretaría de Salud & Secretaría de Educación Pública, 2015)

Effect of ethanol on women

There is evidence that women could be more vulnerable to the harmful effects of alcohol compared to men. Due to the greater sensitivity of women to the effect of ethanol, because in them, compared to men, reach higher concentrations in plasma for the same intake. This is because they have less activity of the enzyme alcohol dehydrogenase in the stomach mucosa, which makes the first-pass effect of alcohol (intestine-liver) in them less intense, resulting in higher plasma concentrations. Another factor is its lower volume of body and plasma water compared to man. Therefore, the risk of alcohol-related injuries is higher in women (WHO, 2016, Vecchione, Vásquez & Bermúdez, 2011).

A study by Bríñez (2001) confirms with its results that women are more at risk of manifesting physiological signs of intoxication than men. It was also observed that the higher the level of consumption, the higher the proportion of women who showed the signs of intoxication, in the following order from highest to lowest: dysarthria, physiological, altered state of consciousness, cognitive, motor and emotional, having been the most significant physiological alterations. The Nutrition Guide points out that, for women, consuming more than one alcoholic beverage per day can increase the risk of having a car accident, other injuries, raising blood pressure, suffering strokes, committing or being the victim of an act of violence or suicide, in addition to developing certain types of cancer (US Department of Health and Human Resources, 2005).

Epidemiology has shown that alcohol consumption is causally related to a higher risk of cancers of the upper aero-digestive tract, liver, colon and rectum, and female breast. Especially worrisome is the case of the promotion of breast cancer due to chronic alcohol consumption. Indeed, breast cancer is a cause of disease and death extremely important in women and alcohol consumption is one of the few modifiable risk factors for this cancer (Castro, 2015).

In addition, alcohol can interact with a wide variety of medications, both prescription and over-the-counter. Reducing effectiveness or increasing side effects. In case of pregnant women, it can cause fetal alcohol syndrome. Another risk of drinking is that the woman could, at some point, abuse alcohol or be dependent on said substance. Consuming more than seven drinks per week increases the risk that a woman will abuse alcohol or become dependent. Even women who drink less than seven drinks per week are at greater risk of developing such dependence or abuse, if they occasionally drink four or more drinks on any given day (US Department of Health and Human Resources, 2005).

Regarding affect in the emotional field, a study by Cortaza y Villar (2008), in which women reveal their own experience as it makes them feel like drinking alcohol, highlighting that although it makes them feel good, there is an ugly side, in which they perceived the losses that occurred by the act of consuming alcohol, at that time they became aware of the ugly side, which includes the raw, suffering, hangover, leading to guilt, sadness, bitterness, return to reality, emptiness and lack of control, aggressiveness and feeling death.

In general, the consumption of alcohol is harmful to the body and more at an early age, any amount of alcohol is considered excessive and harmful, because between 11 and 19 years there is physiological, metabolic and hormonal immaturity, which increases the severity of the consequences produced in this consumption, also reduces self-control and increases risk behaviors. It can even cause health problems at a later stage of life and influence life expectancy (Sadock & Sadock, 2005; López, Villar, Alonso, M & Alonso, T, 2013). These circumstances have caused it to be considered as a priority public health problem of preadolescence and adolescence, in addition to which behavioral habits are formed at this stage and socialization models are adopted, which can become a facilitator of the beginning of consumption of alcohol, and therefore, should be known and take measures to prevent it. (Rebolledo, Medina & Pillon, 2004, Alfaro, Vázquez, Fierro, Muñoz, Rodríguez & García, 2014).

Importance of timely detection

Information on the amount and frequency of alcohol consumption can help establish a diagnosis of the patient's current status, as well as alerting clinicians to the need to warn patients whose use may adversely affect their medication and other aspects of your treatment.

The detection also offers the health person the opportunity to adopt preventive measures that have demonstrated their effectiveness in reducing the risks related to alcohol, considering the Test of Identification of the Disorders Due to the Consumption of Alcohol, (AUDIT), for said evaluation of effective way (Babor et al., 2001).

Public policies on alcohol consumption

The Health Law of the State of Veracruz of Ignacio de la Llave (2014), which is of public order and social interest and its provisions, is of mandatory application in the State; regulates the right to health protection. Therefore, it indicates in TITLE TENTH, CHAPTER 1, ARTICLES 155, that the Government of the State will coordinate with the federal sanitary authorities for the execution in the State of the program against alcoholism and the abuse of alcoholic beverages, which highlights the actions II to provide education on the effects of alcohol on health and social relations, especially aimed at children, adolescents, workers and farmers, through individual methods, social or mass communication (Secretaria de Gobierno del Estado de Veracruz, 2014).

Likewise, said study is based on ARTICLE 156, which mentions that obtaining the information that guides the actions against alcoholism and the abuse of alcoholic beverages, the health authorities of the State, in coordination with other agencies and public entities, will carry out research activities where stands out aspect III.- Habits of alcohol consumption in different population groups (Secretaria de Gobierno del Estado de Veracruz, 2014).

On the other hand, the Government of the State of Veracruz, with the purpose of promoting and strengthening actions in the field of prevention and care of addictions to improve the quality of life of Veracruz citizens, the National Commission against Addictions and the government of that entity signed a collaboration agreement in order to work together on the subject, to allow the strengthening of prevention programs y del Consejo Estatal and the State Council Against Addictions (SCAA), as well as promoting the integration of Municipal Committees Against Addictions (MCAA) and promoting preventive citizen participation (Secretaria de Salud, 2017).

For its part, the government of the State, recognized the need to face the threat of addictions, therefore, stressed the importance of prevention in relation to this problem refers. He highlighted the role of the family and the school in preventive work. He warned that in Mexico, consumption rates are increasing at a younger age, and the use of drugs has increased, mainly among young people. (Secretaria de Salud, 2017)

Therefore, it is important to know the prevalence of consumption of this substance, identifying the age of onset of women, as a starting point for health personnel to plan activities focused on prevention or reduction of consumption, considering the most vulnerable population, regarding gender and age. Therefore, with the aforementioned, the following research question was asked: What is the prevalence of alcohol consumption in female students of a secondary school?

This study is briefly described with the following sections: Methodology, which details the type of study, the population, the instruments, the data analysis strategies and the ethical considerations, Results and Conclusion, which frames the important findings of the study, as well as some recommendations.

Objective

To identify the prevalence of alcohol consumption in women students of a secondary school in Minatitlán, Veracruz, Mexico.

Methodology

This study was of a cross-sectional descriptive type, in which all the population that fulfilled the inclusion criteria was studied, which consisted of women who were enrolled in the third grade of secondary school in the selected educational institution, therefore, the final population consisted of 89 third-year students, from all groups of both shifts (morning and evening) who wished to participate and attended the day of data collection, without discriminating against anyone.

Instruments

For data collection, a personal data card and a questionnaire on the prevalence of alcohol consumption were used, which made reference to questions about the frequency and amount of consumption as well as the age of onset of consumption. Likewise, the Questionnaire for the Identification of Disorders due to Alcohol Consumption (AUDIT) was applied, which was developed by the WHO and adapted in Mexico by De la Fuente and Kershenobich (1992).

The AUDITT was developed to detect excessive alcohol consumption and in particular to help health personnel to identify those people who could benefit from the reduction or cessation of consumption. This helps to identify if the person presents a risk consumption, harmful consumption or alcohol dependence, is composed of 10 multiple choice items (with a score from 0 to 4) that correspond to three domains. So when adding the scores of the 10 items the scale ranges from 0 to 40.

Its cut point is 8 and with more than 8 points there are problems with the way of drinking. The scores for the type of alcohol consumption are as follows: 0-7 points, low risk consumption; from 8 to 15 points of risk consumption, from 16 to 19, harmful consumption and from 20 to 40 is considered dependent consumption (Babor et al., 2001).

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Regarding the data analysis, previously histograms were made with their respective curvatures, and also the Kolmogórov-Smirnov test was performed to see the distribution of the data, which did not comply with a normal distribution, therefore tests were performed nonparametric, in which central tendency and dispersion measures were obtained, as well as frequencies and percentages, according to the scope of the study. It is worth mentioning that this research was attached to the General Law of Health on Research.

Results

Of the population studied, it was found that their ages ranged from 17 to 14 years, with a median of 14 years (IQR = 1 year), with respect to their marital status, 100% reported being single, in terms of their occupation 94.4 % study and 5.6% mention study and work. In addition, they were asked if they performed any recreational activity in their free time (outside the school), so 41.6% answered yes and 58.4% said they did not.

Regarding the consumption of alcohol, 60.7% are consumers and 39.3% have not consumed. The age of onset of consumption was between 5 and 16 years with a median of 14 years (IQR = 2 years), what can be inferred that the adolescents of this region are beginning to consume at younger ages, than at the national level according to the ENCODAT 2016-2017, which reports that the age of initiation in women is 19.2 years (Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz [INPRFM]).

Type of Prevalence	Frequency	%
Global (Once in a lifetime)	54	60.7
Lapsica (In the last year)	35	39.3
Mediata (In the last month)	17	19.1
Imnediata (In the last week)	17	19.1

Table 1 Prevalence of alcohol consumption of high school students
Source: Constructed from data obtained by the Prevalence Questionnaire of alcohol consumption

Regarding the prevalence of alcohol consumption, Table 1 is observed, which shows that the overall prevalence is 60.7%, the lapsica is 39.7%, and it is highlighted that both the immediate and mediate prevalence maintain the same percentages 19.1%. Result inferred that there is a percentage of students who were consuming in the last seven days before applying the study, data that has increased compared to the study of Tegoma and Cortaza (2016), conducted in a secondary school in the region of Veracruz, which indicates percentages 16.9% in the immediate prevalence, and 6.5% in the immediate.

Assiduity in the consumption of alcohol	Frequency	%
Never	36	40.4
Once a month or less	46	51.7
2 or 4 times a month	6	6.7
2 to 3 times per week	1	1.1

Table 2 Assiduity of alcohol consumption of high school students
Source: Prevalence questionnaire on alcohol consumption

On the other hand, Table 2 shows the assiduity in alcohol consumption, where the largest percentage of the population is consuming at least one time or less with 51.7%, it should be noted that there is a percentage of the population that you are consuming 2 or 4 times a month (6.7%) and 2 to 3 times a week (1.1%), Although it seems to be minimal, it is frequently consumed, which together with the amount of consumption places the female population at risk, according to the aforementioned literature.

As for the number of drinks, they consumed between 10 and 1 alcoholic drinks in a typical day of consumption, with a median of 2 drinks (IQR = 3 drinks). According to the National Library of Medicine of the USA (MedlinePlus) (2018), she mentions that drinking an excessive amount of alcohol implies a risk to health, that for women it would be that she ingested more than 1 drink a day, or 8 or more drinks a week. A drink is defined as 12 ounces or 360 milliliters (mL) of beer (5% alcohol content), a 5 ounce glass of wine or 150 mL (12% alcohol content) or a 1.5 ounce drink or 45 mL of liquor (80 degrees test or 40% alcohol content).

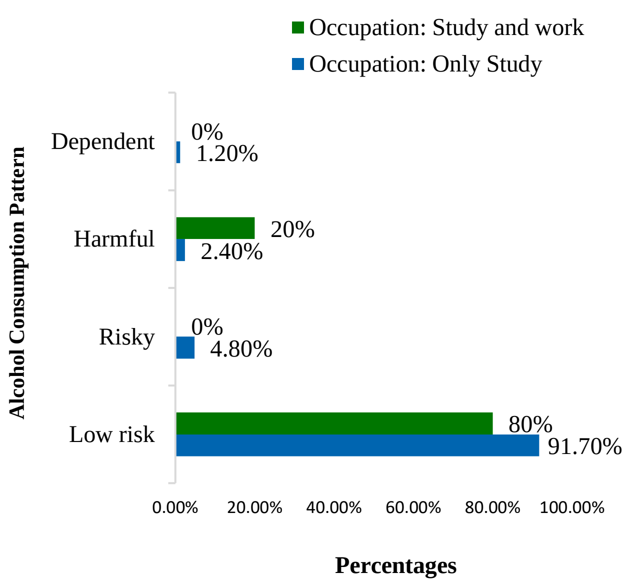
The pattern of alcohol consumption combines the number of drinks consumed with the period of time during which it is consumed, to classify the population. Distinguishing between strong consumption (Five or more drinks per occasion) and moderate consumption (less than five drinks) allows you to qualify the risk situations for the different groups (National Institute of Statistics, Geography and Informatics [INEGI], 2004)

Patterns	Frequency	%
Low risk consumption	81	91.0
Risk consumption	4	4.5
Harmful consumption	3	3.4
Consumption dependence	1	1.1

Table 3 Patterns of alcohol consumption of high school students
Source: Constructed from data obtained by the Audit Questionnaire

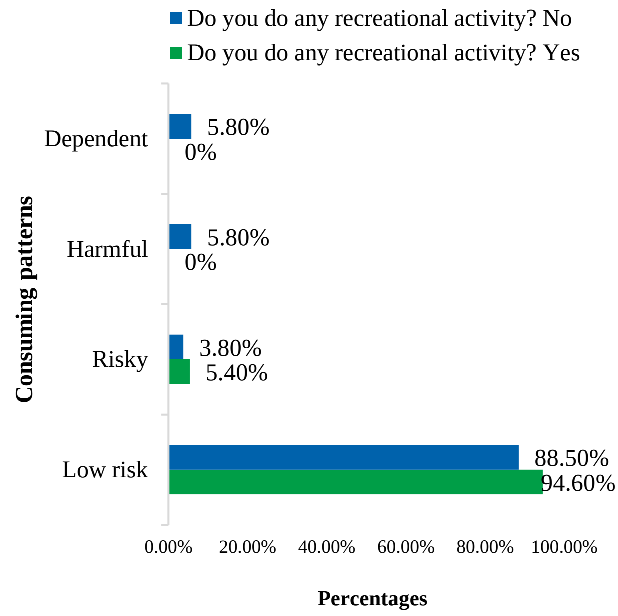
Regarding the patterns of consumption in this study, Table 3 is observed, which shows that there is a percentage of students who are in, consumption of risk (4.5%) harmful consumption (3.4%) and dependent (1.1%). An alarming fact, since according to Babor et al. 2001, the consumption of risk constitutes a pattern that increases the risk of adverse consequences for the drinker or for others.

Identifying it is important for planning intervention strategies. Harmful consumption refers to that which entails consequences for physical and mental health, although some also include the social consequences among the damages caused by alcohol. Dependence is a set of behavioral, cognitive and physiological phenomena that can appear after the repeated consumption of alcohol.



Graphic 1 Consumption patterns according to the occupation of high school students

On the other hand, graphic 1 shows the patterns of alcohol consumption according to occupation, where it is observed that women who dedicate themselves only to study are in a higher percentage in low risk consumption (91.7%) that those who study and work (80%), even though they take their consumption to a dependent level (1.2%), data that is similar to the study by Alonso, Yañez & Armendáriz (2017) carried out in secondary school students, who mention that excessive consumption occurs in a greater percentage of those who study and work (24.1%) than in those who only study (2.7%).



Graphic 2 Patterns of consumption according to the performance of recreational activities of high school students

Also, in graphic 2, the consumption patterns are shown according to whether they carry out any recreational activity in their free time (outside the school), where it is observed that those who do recreational activities in their greater percentage are in low risk consumption (94.6%) compared to those who do not perform any activity (88.5%) and take their consumption to the harmful (5.8%) and dependent (5.8%) pattern. Results that are similar with the study by Espejo et al. 2017, which mentions that according to the parameters of physical activity studied, it is established to a greater extent than those participants who practice collective sports have a consumption between zero and a half, while for four out of ten of those who maintain excessive consumption do not practice no type of physical activity.

Therefore, Alvaro et al (2016) states that adolescents who practice physical activity on a regular basis are induced by the non-consumption of harmful substances.

Conclusion

In this study, it is observed that more than half of the women students of secondary school have consumed alcohol, and that this consumption started at younger ages (14 years) than those reported nationally by the ENCODAT 2017 (19 years), alarming data for health professionals, especially for those at the primary care level, such as the nursing staff, who are called to plan strategies focused on prevention and decrease in consumption at younger ages.

Regarding the prevalence of consumption, there is the same percentage of the population in the immediate and mediate prevalence, which may refer that the students who consumed in the last month, also did so in the last seven days, and contrasting it with the frequency of consumption, that there are students who consume 2 or 4 times a month and 2 to 3 times a week, increasing the risk in said population, which considering their gender is more vulnerable to the consequences of alcohol consumption.

On the other hand, according to the patterns of consumption and occupation, where a greater percentage of low consumption stood out in those who only studied. Result that can be linked to the students who study and work has greater accessibility to the purchase of this psychoactive substance, for having a remuneration for their work, also implies that the adolescent must socialize with older groups that are part of their work, sharing with these groups increases the likelihood of even excessive alcohol consumption (United Nations Office on Drugs and Crime, 2013). Regarding recreational activities, it was observed that students who work in other activities find themselves in low risk and risky consumption patterns, which may denote a path or a strategy for the prevention or reduction of alcohol consumption.

For which the recommendation is made to deepen in future research, based on ARTICLE 156, section II, CHAPTER 1, TITLE TENTH of the Health Law of the State of Veracruz of Ignacio de la Llave 2014. In addition, the use of of the AUDIT as an instrument designed to focus on the problems of alcohol consumption, obtaining short-term results, identification of consumption patterns and gives the guidelines to apply an intervention or timely treatment.

On the other hand, considering governmental strategies, it is recommended to reinforce public policies aimed at the prevention and reduction of alcohol consumption in vulnerable population such as women, considering the data of this study, as current scenario in this population of the region in particular of the South of Veracruz.

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Evaluation of academic engagement among faculty of two Mexican and Colombian Universities

Evaluación del engagement académico de docentes en dos universidades de México y Colombia

HERNÁNDEZ-PADILLA, Juan Alberto[1]†*, MORALES-MARTÍNEZ, Mario Alberto[1], CELEDÓN-RIVERO, José Carlos[2] and SIMANCAS-FERNÁNDEZ, Raquel Marlen[2]

[1]Universidad de Guadalajara, Centro Universitario del Norte
[2]Universidad Cooperativa de Colombia, Campus Montería

ID 1er Autor: *Juan Alberto, Hernández-Padilla* / **ORC ID:** 0000-0003-2388-2301, **CVU CONACYT- ID:** 261877

ID 1er Coauthor: *Mario Alberto, Morales-Martínez* / **ORC ID:** 0000-0001-7909-7121, **CVU CONACYT- ID:** 91486

ID 2nd Coauthor: *José Carlos, Celedón-Rivero /* **ORC ID:** 0000-0003-2388-2301

ID 3rd Coauthor: *Raquel Marlen, Simancas-Fernández/* **ORC ID:** 0000-0002-3259-1461

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Abstract

In the last two decades, the New Public Gestion model has modified the objectives of the Universitarian Education. However, faculty has been able to face these new psychosocial consequences of their jobs, using among others, the Work Engagement concept "[that] is a positive mental state, satisfactory and related to work, characterized by vigor, dedication and absorption (Schaufeli, Salanova, Gómez-Romá & Bakker, 2002 p.74) ".

Objective: To evaluate and compare the work engagement of university professors from two institutions in Mexico and Colombia.

Methodology: It is an exploratory, cross-sectional study, an intentional sample of university professors was used from a public university (n=69) in Mexico and a private one in Colombia (n=69), the distribution was 49 full-time professors and 20 professors without a permanent contract for each University. The instrument that was used was the UWES scale by Schaufeli and Bakker (2003). The results show that in the global engagement index teachers show a high level of engagement (0.84) in Mexico and (0.85) Colombia with a slight variation in the Dedication dimension

Contribution: In addition to expanding the study of university teachers, it lays the foundation for intercultural studies on engagement in our region since it compares Mexican and Colombian teachers from two contexts of public and private higher education.

Engagement, Faculty, UWES

Resumen

En las últimas dos décadas nos enfrentamos al modelo de la Nueva Gestión Pública que ha modificado los objetivos de la educación universitaria. Sin embargo, los docentes han podido enfrentar estas nuevas consecuencias psicosociales derivadas de sus trabajos, entre otras cosas por medio del concepto engagement laboral que es: "un estado mental positivo, satisfactorio y relacionado al trabajo, caracterizado por vigor, dedicación y absorción" (Schaufeli, Salanova, Gómez-Romá & Bakker, 2002 p.74).

Objetivo: Comparar el engagement laboral de docentes universitarios de dos instituciones de México y Colombia.

Método: estudio exploratorio, transversal, con muestra intencionada de profesores universitarios (n=69) de una universidad pública (México) y una privada (Colombia, n=69); 49 tienen contrato indefinido y 20 contrato temporal. Se empleó la escala UWES de Schaufeli y Bakker (2003). Los resultados muestran que los docentes de ambos países puntuaron alto en el índice global de engagement 0.84 en México y 0.85 en Colombia, con una ligera variación en la dimensión Dedicación

Contribución: Además de ampliar el estudio de los docentes universitarios, sienta las bases para los estudios interculturales sobre engagement en nuestra región puesto que compara a docentes Mexicanos y Colombianos de dos contextos de educación superior público y privado

Compromiso, Facultad, UWES

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* Correspondence to Author (email: juanalberto@cunorte.udg.mx)
† Researcher contributing first author.

1. Introduction

Over the last few years we have witnessed a substantial change in the way organizations have been modifying the way they relate to their employees and their environment. Suffice it as an example that in our time, automation is leaving many workers unemployed, so it has been said that we are at the end of work as we know it (Rifkin, 1996). This new configuration of the way in which work is carried out has generated new paths that have allowed technology to be a nodal part of our development and our work with a social and personal cost that has been increased, and that we can be witnesses from the moment we perform our work supported on the internet, that way university teachers have to be immersed to perform a series of roles: as teachers, managers, authors of articles, researchers and experts in ICTs that involve more and more wear (López-Vilchez & Gil-Monte, 2015).

There comes a reflection that goes beyond the mere terrain of motivation since when investigating the subject of work engagement we place ourselves in a part of the research in Social Work Psychology (Segurado & Agulló, 2002) where the important thing is not only in the analysis within companies, but the social role that work has in the lives of professionals, as in this case to university teachers and their most significant relationships.

2. The role of the Universities

We can talk about different stages in the histories of the Universities, the most recent is when higher education schools are confronted with globalization, that is, with the information age, where in universities there is an intense exploitation of knowledge advanced, disintegration of communities and individualization of subjects (Fernández, 2009). In our Latin American universities the relationship between University and Society this relationship is mediated by something that is called "the third mission" and that is more focused on extension and dissemination (Cancino & Cárdenas, 2018), than in its counterparts, mainly Anglo-Saxon. On the other hand, university intellectual power and the rights associated with it are now confronted with the market, which by force of a series of depersonalized exchanges reorder functions, and therefore relations between peers and supervisors, this really is a novelty in the postmodern space of the university field (Fernández, 2009). However, the change has not occurred suddenly.

In Mexico in 1983, a deregulation in the field of forms of work, based on the Neoliberal model, will result in greater labor flexibility, which will lower the costs that are invested in the workforce (Salazar & Azamar, 2014), in addition to generating a new type of personnel hiring, with atypical jobs (Thirot, 2013). In the same decade, the evaluation of the academic performance of teachers by the government was launched (Urquidi & Rodríguez, 2010). The evaluation of the teaching work can highlight the importance and complexity of the activities related to the fulfillment of the teaching function, they imply a series of roles for the same person. We can also identify that this type of assessment within the national context is little valued and even less recognized (Canales & Gilio, 2008), but it is mandatory.

The Colombian case is not different from the Mexican one, it is mainly in the nineties, when mainly driven by the International Monetary Fund, a series of reforms based on the Neoliberal Model is started that will bring different consequences in the way in which the State It intervenes and organizes all its functions, which results in the fact that we now have labor flexibility as well as other forms of contracting that will lead to precarious work (Herrera, 2008, p.119 and Morales, 2010, p.42 cited in León-Jaramillo , Méndez-Solarte & Ruíz-Gutiérrez, 2015).

In addition, thanks to the New Public Management, in Colombia it happens that Education in the hands of the state begins to have a different objective from the third mission that we have mentioned, in order to take an increasingly closer step towards the economic model of University-Enterprices, where the demands of the Institutions towards the workers are increasing every day and at the same time the benefits that had been gained, are put into question (León-Jaramillo, Méndez-Solarte & Ruíz-Gutiérrez, 2015).

These reflections make us suppose that in both countries, more or less at the same time we began to generate and to live a series of changes in the way in which Education is understood and administered. To understand that the function of the universities must be mediated by the transfer of knowledge, following foreign models, and in this way reduce the various social challenges that have, and that although it is true that it works in some areas of Mexico, the reality is that in the regional universities, because they focus on these issues, they leave aside the opportunity to become active agents of their communities. (Gregorutti, Charles-Marcel, González, Avilés & Roel Cela, 2015).

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Perhaps as a result of the pressures received from the market, as well as from the new organizational tendencies (Garrido-Pinzón et al., 2011), private and public universities have moved towards an organizational model of business education. In addition there is another type of consequence in this sense, since there are increasingly greater experiences of suffering in teachers mainly related to the incessant increase in workloads, physical and mental exhaustion, in addition to the uncertainty that implies not knowing if they will have an employment contract and the mental health problems derived from these circumstances (Chalfin, Pit Dal Magro & Budde, 2011).

In an investigation with teachers of a Technological University in Mexico, the researcher Rocha (2013) found that the characteristics that make the teachers' teaching satisfactory, implied having a teaching profile with a fixed contract with the University. On the other hand, they will present their research at least twice a year in academic events, publish at least once every three years and have a minimum of a graduate.

Teachers entering the class have a series of expectations regarding the preparation of their students to incorporate new knowledge. On the other, the students expect something different from the teacher, they even perceive him as someone outside the closest context in which they develop, and unfortunately this mismatch between the expectations between students and teachers is something that has become commonplace every day. The universities (Kumar & Rajaram, 2012).

According to the research of Guevara and Domínguez (2011) when analyzing the condition of full-time university teachers, in a Mexican Public University, their results showed a discontent with the teaching being, beyond the satisfaction of being projected and overcome. By the students, this disagreement expressed by the teachers is in virtue of the difficulties to satisfy their basic needs and in the limitations to develop potentialities.

As we will see later, for a teacher to feel that their quality of working life is satisfactory, not only has to do with the satisfaction of basic needs, but the fact that they have the possibility to take advantage of their knowledge and apply them. Sirgy (Lee et al., 2007), to which he will name aesthetic needs, which are as important as the basic ones and which go hand in hand with the elements that constitute the engagement.

Teachers are pointed out as the main protagonists in the educational work because with them begin the reforms (Rodríguez & Aguilar, 2018) as well as being considered as the main responsible for the educational transformation, which makes them the main characters at risk in their quality of life and the subject of engagement, since they are the first to pay attention to working conditions and how their performance will be affected (Terán, López & Restrepo, 2013).

In recent years, some emerging issues related to the field of health and the quality of working life have become more important, especially those that are linked to the so-called psychosocial risk factors, where one of these elements is the stress, burnout (Blanch, 2007, Botero, C., 2012, Brunsting, Sreckovick & Lane, 2014, Martín, Campos, Jiménez-Beatty, & Martínez del Castillo, 2007).

For the social psychology of work and organizations, the problem of work stress has theoretical relevance, because it condenses the complex relationships between working conditions and health, and practice, for its impact on the quality of life and also on the effectiveness, the efficiency, viability and sustainability of labor organizations (Blanch, 2007). The impact of work stress and its culmination in Burnout is felt at the individual level, in the chain of physiological, emotional, behavioral, cognitive and psychosocial disorders that usually accompany it (Blanch and Sahagún and Cervantes, 2010).

At the organizational level, it translates into a significant decrease in productivity and work performance, absenteeism and its derivatives, as well as unsatisfactory negative social interactions with customers, users, patients and professionals, of tension and labor conflicts, which in many cases lead to cases of resistance movements by workers and counter-resistance by employers (Botero, 2012; Brunsting et al., 2014; Torres da Paz, 2011; Viegas & Bianchetti, 2014). In addition, as Martos et al. (2018) puts it, the study of engagement as a counterpart of burnout is not only a matter of solving a problem, but of fostering, from the teachers' own experience, new ways of influencing their quality of life. lifetime.

However, we also recognize that it is important and necessary, not only to stay in a moment where teaching is going through a transition, and that the conditions in which teachers face are not the best, we can even infer that they have become more complicated.

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This resistance on the part of employees has led to the identification that there are situations that encourage employees to want to be more committed to their jobs, which undoubtedly seems paradoxical, however we will realize how this process happens.

3. Engagement

From the year 2000, there begins to be a change in the way of understanding the work of Psychology, to give way to the terrain of what is now called Positive Psychology, where the importance that exists in the various organizations of the well-being of the workers and that at the same time subjective tools are used to analyze their experiences (Seligman, Steen, Park & Peterson, 2005), which led to a reflection on the role of work and what was given to call positive organizations.

Derived from these works there was a boom to what concerns us in our research, related to engagement. According to the comments made by Schaufeli (2013) the first time this term was used, which in some academic papers is called academic commitment in some Spanish-speaking works, it was on the part of the Gallup Organization at a point at the beginning of the decade of the nineties it was when it began to be used mainly when employing the perceptions of the employees on their places of work in a questionnaire that today is known as Q12.

However, academically speaking the first work that was carried out with this theme was that of Khan (1990: 264) who defined engagement as "taking advantage of the members of the organization of their own work roles: in engagement, people they use and express themselves physically, cognitively, emotionally and mentally during the development of their roles".

This perspective, raised the need for the employee could be involved in the roles you have in your work, at the same time, set the background so that he was at the same time putting his whole being, at the service of work.
Later and as a movement that had been processed to differentiate from the concept of burnout and pose it as the opposite to it. For the same reason, the work by Schaufeli, Salanova, González-Romá and Bakker (2002, p.74) define engagement as: "Engagement is a positive, satisfactory and work-related mental state, characterized by vigor, dedication and absorption.

More than a specific and momentary state, engagement refers to a more persistent and influential affective-cognitive state, which is not focused on an object, event, individual or particular behavior. The vigor is characterized by a great willingness to devote effort to work and persistence in the face of difficulties. Dedication refers to being strongly involved in the work and experiencing a sense of enthusiasm, inspiration, pride, challenge and meaning. Absorption is characterized by being fully concentrated and happily immersed in work, so that time passes quickly and you experience distaste for having to leave work".

This situation will bring us to identify the three main elements that converge in the concept, such as Vigor, Dedication and Absorption, which will serve as indexes to build the concept of work engagement.

4. Investigations on Engagement in Mexico and Colombia

According to the work of León-Jaramillo, Méndez-Solarte & Ruíz-Gutiérrez (2015) the works in Colombia linked to the topic of engagement are recent, and from their perspective they are not necessarily related to the proposal made by the Blanch team (2008) on the consequences of the New Public Management in the psychosocial risks that run the university professors, from the public politics on the education.

The first work that has been recorded is that of Arenas-Ortiz, F. & Andrade-Jaramillo (2013) who worked in a Private Health Institution of the city of Cali, to identify the relationship between psychosocial risk factors with the engagement finding a positive relationship between both factors. Another of the works referred to was carried out by Benetti (2011 cited in León-Jaramillo, Méndez-Solarte & Ruíz-Gutiérrez, 2015) carried out in Cartagena de Indias, where he linked the beliefs of self-efficacy with work engagement.

In the case of Mexico, we can identify the works that have been carried out with peasants (López-Palomar, García-Cueva & Pando-Moreno, 2016); which is a novel job in the field of study. In relation to other types of employees, Ocampo-Bustos, Juarez-Garcia, Arias-Galicia, & Hindrichs, (2015) evaluated the engagement with restaurant employees, which is also considered a little explored group as the case of Contreras -Quevedo (2015) with employees of an oil and gas production plant.

On the other hand, in the area of human resources (Aguillón, Peña & Decanini, 2015) they analyze the case of store employees and finally in the revised bibliography it also implies the link between the burnout syndrome and the engagement in university professors (De Chávez- Ramírez, Pando-Moreno, Aranda-Beltrán & Almeida-Perales, 2014). This wide panorama of diverse workers gives us the possibility of being able to deepen with a population that needs to be more evaluated, at the same time that no work was found in America that compares university teachers from two countries.

4. Methodology

It was a descriptive, cross-sectional study, where the work Engagement in University teachers was evaluated. The population was integrated with 138 teachers, 69 from each university (see table 1). The sample was chosen by covenience; it includes professors with the two types of contracts that exist in both universities, 49 professors who have a definitive contract and 20 temporary ones (see table 2).

The studied population consisted of a total of 138 professors, half were members of a Mexican public university and the other part were from a private one in Colombia, as shown in Table 1.

Country of origin	Number
Mexico	69
Colombia	69

Table 1 Teachers by university
Source: Self Made

Various sociodemographic and labor data were collected from the teachers through an ad hoc questionnaire that included questions to know the age, marital status, date of admission to the university, number of children and hours dedicated to work. For the estimation of the Engagement, the international version of the UWES Utrech of Engagement in the Work of Schaufeli and Bakker (2003) was used in the translation into Spanish by the Integral Attention Module of the General Commissariat of Prevention and Social Reintegration of the Jalisco state called: Welfare and Work Survey, conducted by Valdéz-Bonilla & Ron-Murguía (2011).

The scale is composed of items that measure three dimensions of work commitment with a Likert-type scale with response options coded numerically from 0 to 6. These options are the following: never or never until always or every day.

The scale includes three dimensions: vigor, dedication and absorption. It should be mentioned that the instrument is validated to be used in the Mexican population (α=0.90) (Villavicencio-Ayub, Jurado-Cárdenas, & Aguilar-Villalobos, 2014).

For the hypothesis test in this work, nonparametric tests were used. The validity of the instrument was verified with the Cronbach's Alpha (α = 0.909). The statistical analysis in general was carried out with the software SPSS version 22.

5. Results

A sample of Mexican university professors and their Colombian counterparts was compared using the UWES scale.

Origin	Full Time Teachers	Occasional teachers
Mexico	49	20
Colombia	49	20

Table 2 Teachers by contract and university
Source: Self Made

The sample of Mexican teachers includes 31 teachers and 38 teachers, while in the sample of Colombian teachers were 35 women and 34 men. The distribution of the age of the teachers is between twenty six and thirty years is 12%, between thirty and one years until thirty five is 26%, in the next block between thirty and six years to forty represents 18%, 17% is related to teachers between forty and one years until the age of forty-five, the rest of the teachers who are forty-six years old or more represent 27%. The average age of the teachers is 40.18 years.

In relation to seniority teaching classes is 9.75 years, in the range of years teaching 36% has from one to five years in teaching, those who have between six and ten years represent 26%, those who have between eleven and fifteen years are 18%, between sixteen and twenty years are 12% and those over twenty years represent 9%.

In terms of academic training, 13.8% have a bachelor's degree, 14.5% have a specialty, 60.9% have a master's degree and 10.9% have a doctor's degree. According to their civil status, 26.1% are single, married 66.7%, divorced 6.5% and in free union 0.7%. On the other hand, the reliability analysis showed a Cronbach's alpha of 0.909. The global index of engagement in the respondents is shown in graph 1, which shows that the results are almost the same in both universities, with 0.845 and 0.847 for the Mexican and Colombian universities.

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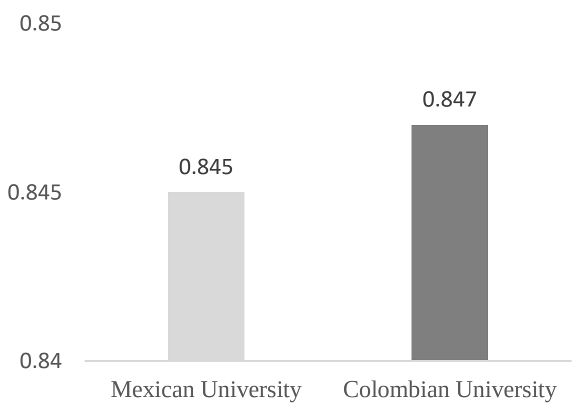

Graphic 1 Global index of work engagement by university
Source: Self Made

These results agree with those found by Ruíz de Chávez-Ramírez, Pando-Moreno, Aranda-Beltrán & Almeida-Perales (2014) where, when evaluating university teachers in Mexico, they found a high level of engagement among professors, despite the levels of burnout. In table 3 we can identify the distribution by frequency of the dimensions of the labor commitment of Mexican university teachers.

Work engagement dimensions	Very high		High		Medium	
	Freq.	%	Freq.	%	Freq.	%
Vigor	11	42	44	46	14	11.5
Dedication	29	42	32	46.3	8	11.5
Absorption	8	11.5	41	59.4	20	28.9

Table 3 Frequency distribution of Work Engagement in Mexican university teachers
Source: Self Made

In the preceding table (see table 3) the results are shown by frequencies of each of the dimensions. In relation to the Vigor, in the Very High quadrant we identify 42%, then 46% in a high level and in the medium level 11.5%. For the Dedication dimension, on the Very High scale, 42% is placed, followed by 46.3% on high and 11.5% on average. In relation to Absorption, 11.5% are located in the Very High quadrant, 69.4% in High and 28.9% in the middle.

In the test of statistical hypothesis, non-parametric tests were applied, because when performing the normality analysis the results obtained showed that there is no normal distribution of the variables, as a result it was observed that, in the Vigor and Absorption Scales, there is no statistically significant difference between Mexican and Colombian teachers surveyed. On the other hand, in the Dedication dimension, a statistically significant difference is observed between the two groups of teachers.

With the results obtained we infer that in relation to the experience of work engagement, the best rated scale is the Dedication with 86.3%, followed by Vigor that stands at 86% and finally Absorption which is the least punctuated with 70.9%. Below we will give an account of the distribution of frequencies in relation to Colombian teachers.

Work engagement dimensions	Very high		High		Medium	
	Freq.	%	Freq.	%	Freq.	%
Vigor	18	26	40	57.9	11	15.9
Dedication	39	56.5	24	34.7	6	8.7
Absorption	7	10.1	38	55	24	34.7

Table 4 Frequency distribution of Work Engagement in Colombian university teachers
Source: Self Made

Table 4 shows the distribution by frequency of each of the elements that make up the Engagement. In the dimension of Vigor we find that 26% is at the very high level, followed by 57.9 that is high and 15.9 that is at a medium level. For the Dedication scale, 56.5 stands at the very high level, followed by 34.7% high and 8.7 in the middle. Finally, in the Absorption scale, 10.1% were identified, followed by 55% in high and 34.7% in the middle.

These results lead us to identify that the experience of work engagement in Colombian teachers, found in the dimension Dedication their highest score with 91.2%, then is the vigor with 83.9 and the last with 65.1 what is related to absorption. The previous results show that in both scales, the dimension of dedication is the one that scores the most, followed by vigor and finally absorption. Which helps us to understand that most of the teachers are in the highest quadrants, which agrees with Ruíz de Chávez-Ramírez's study, Pando-Moreno, Aranda-Beltrán & Almeida-Perales (2014), where Mexican teachers had high levels of engagement. In contrast, the study by León-Jaramillo, Méndez-Solarte, & Ruíz-Gutiérrez (2015) found that in the Colombian institutions of basic, secondary and media education, the levels of engagement were average.

On the other hand, it is worth mentioning that the dimension of dedication is the one that best scores, since it is inferred that the teachers are continuously involved directly with their teaching activity, as well as with the institution. Which also agrees with the results obtained by Ocampo-Bustos, Juárez-García, Arias-Galicia & Hindrichs (2015) that worked with a sample of employees of a restaurant in Mexico.

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In the case of Colombia, the study by Téllez-Zuluaga (2017) with a construction company found that the dimension that was best evaluated was also that of dedication. We therefore consider, like the results of Ford, Myrden and Jones (2015), that those employees who are committed to their work, enjoy better health and well-being.

In the research of these authors, related to the role conflict, the ambiguity and the engagement in the workers served as predictors of job satisfaction. However, as the literature points out, they did not serve to mediate between work stress and satisfaction as theory and other studies have shown (Orgambídez-Ramos, Pérez-Moreno, & Borrego-Alés, 2015). This last point is relevant, because we must also realize that in the face of ever-increasing demands on New Public Management, engagement appears as a resource more for the teacher than for the institution (León-Jaramillo, Méndez-Solarte, & Ruíz -Gutiérrez, 2015).

6. Annexes

We appreciate the support of the Secretary of Education through the PRODEP program that provided the resources for this investigation.

7. Conclusions

At the beginning of this work, we have analyzed the macrosocial characteristics in which the work of the university professor is immersed. The proposals derived from the trends of the New Public Management have placed a series of psychosocial complications to the work of the teacher. However, when analyzing the between teachers of a Mexican and a Colombian sample, we identify that their answers are at a high level.

This opens up the possibility of valuing the resources that each teacher has to be able to face the different demands that are presented in their work, at the same time that it places a reflection on the need for educational institutions to support the development of their workers. On the other hand, they also set the precedent of continuing with these investigations to identify those resources that allow teachers to have a positive status for the performance of their work and that also serves, as previously mentioned as an element of resistance to the vicissitudes of an increasingly demanding and exhausting context derived from government demands in the education sector.

It follows that, for future research, it will be relevant to expand the sample to identify and implement interventions both individually and at the group level, with which to complement what the teacher has been developing throughout his professional practice and make a synergy between the teacher and the institution.

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Sustainability and Corporate Social Responsibility from the Administrative Management in the Agricultural Sector of the Évora Region, Sinaloa

Sustentabilidad y Responsabilidad Social Empresarial desde la Gestión Administrativa en el Sector Agrícola de la Región del Évora, Sinaloa

INZUNZA-MEJÍA, Patricia Carmina†*, ESPINOZA-DURÁN, Francisco Arturo and CASTRO-CUADRAS, Dulce Livier

Universidad Autónoma de Sinaloa

ID 1[er] Autor: *Patricia Carmina, Inzunza-Mejía* / **ORC ID:** 0000-0001-8789-4972

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Abstract

The interest in the study of Corporate Social Responsibility (CSR) in the academic world during the last three decades is evident. Nevertheless, in the scientific literature, the sectorial research and studies on CSR oriented to the agricultural sector, are scarce and diminished. Based on this reality, this research aims to contribute to the debate and discussion, the basis for the development of an epistemic-empirical-practical model of CSR in agriculture and, more specifically, in the horticultural subsector. To do this, a literature review was made regarding the seminal theories and models of CSR management and the case study method was applied to carry out the empirical research to a company with spatiality in the city of Alhuey Angostura, in Sinaloa México, in a temporality of the last twenty years. The study shows as a result a business diagnosis for the Sinaloan horticultural company. It is concluded that, in terms of social responsibility practices, the company analyzed is more prone to social proactivity than normative and legal reactivity, as it begins to carry out social responsibility practices that it is not obliged to carry out by law. Similarly, it applies a type of strategic social responsibility and, according to the qualitative evaluations of the study, has a medium level of social responsibility with its stakeholders. According to the spatial and temporal context, the present investigation is precursory in the matter and was applied to the agricultural subsector with the longest historical trajectory of the Évora region.

Sustainability, Corporate Social Responsibility, Administrative Management, Agricultural Sector, Évora Region, Sinaloa

Resumen

El objetivo es aportar bases para el desarrollo de un modelo epistémico-empírico-práctico de Responabilidad Social Empresarial (RSE) en el setor agricola. Bajo un enfoque metodologico cualitativo, de orden exploratorio y descriptivo, se hizo la revisión de literatura relacionada con las teorías seminales y modelos de gestión de la RSE y se aplicó el método de estudio de caso para realizar la investigación empírica en una empresa de vocacion horticola, con espacialidad en la ciudad de Alhuey Angostura, en Sinaloa México, en una temporalidad de los últimos veinte años. El estudio muestra como resultado un diagnóstico empresarial para la empresa hortícola sinaloense. Se concluye que la empresa analizada, pasa de la RSE economica a la CSR discrecional, dado que es más proclive a la proactividad social que a la reactividad normativa y legal. Desde la gestión administrativa, llevan a cabo prácticas de RSE a las que no está obligada a realizar por ley, entendiendo que la RSE es realizada a libre elección. De igual manera, aplica un tipo de responsabilidad social estratégica y, según valoraciones cualitativas propias del sector agricola, tiene un nivel de responsabilidad social medio con sus grupos de interés. Según el contexto espacial y temporal, la presente investigación es precursora en la materia y fue aplicada al subsector agrícola horticola con mayor trayectoria histórica en la región del Évora del estado de Sinaloa México.

Sustentabilidad, Responsabilidad Social Empresarial, Gestion Administrativa, Sector Agrícola, Región del Évora, Sinaloa

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* Correspondence to Author (email: inzunzap@uas.edu.mx)
† Researcher contributing first author.

1. Introduction

Traditionally, the purpose of the agricultural companies in the Évora region is to create value for greater profitability and thus strengthen the company economically and organizationally. The central focus of the work lies in the need to respond to what effect do social responsibility practices have on companies in the agricultural sector of the Évora Region? and what aspects influenced to determine the practice and functioning of social responsibility in the company?

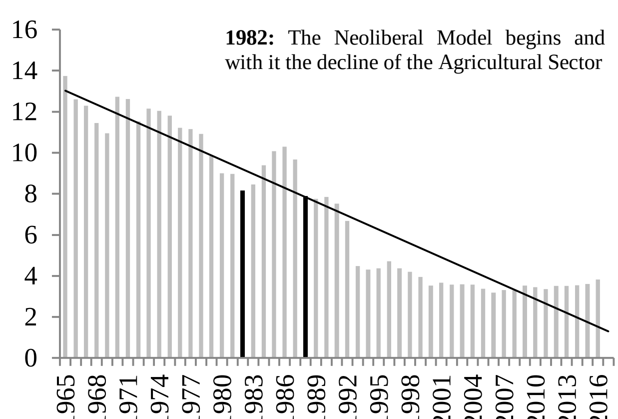
From the pronouncements of Milton Friedman the social responsibility of the company, was to create benefit for the entrepreneurs were of the branch that was; However, with the passage of time, the sciences have integrated new currents of thought that recognized the social vocation of the company and its members, demonstrating that this action in itself transcends entrepreneurs, workers and clients by incorporating groups of interest (stakeholders) as necessary recipients.

This first theoretical and empirical approach is based on scientific expressions from the area of management and business management that focus on a business strategy lowered to social responsibility. Hence, they are considered as seminal theoretical bases, the orientations of Mintzberg, Hamel and Prahalad, Porter, Druker, for their studies on business management; as well as, the scientific expressions of Perdiguero, Hernández, Barroso, Garza and González in their research about social responsibility.

These currents of thought have been gaining relevance within companies according to the characteristics and particularities of each organization and the context in which they are immersed; but there is an indisputable general consensus on the need to broaden the vision that gave rise to social responsibility in companies. Blázquez and Peretti (2012) point out that the viability and competitiveness of any company requires a focus on profitability, image and social good. This contribution presents some points in common with the seminal theoretical expressions mentioned above; given that they focus on guaranteeing the sustainability of companies. Also Duque Oliva and Carvajal Prieto (2016), express that the identity of the companies gains strength from the image. This shows that the management of profitability from the corporate image, is a strategy that has reached its maturity in the administrative sciences.

In the management of the businesses, different authors propose the profit-profitability hexagons as an administrative management tool. Unlike this profit-profitability model, corporate social responsibility is not only about adding a broader idea to manage the company, but about integrating the different aspects involved in sustainable management. In this way, the notion of sustainability is validated from the internal perspective, while the profitability that businessmen expect from an external vision, represented in the image of what society conceives that is and could be of the company, suggesting that a sustainable image reinforces profitability.

However, to achieve sustainability through business management and to make it profitable and have a better image before society, it is necessary to create instruments that allow measuring, evaluating, controlling and making decisions based on profitability and sustainability categories. In Mexico and particularly in Sinaloa, agricultural activity is very important economically and socially. The agricultural sector has a fundamental roll in the economy and the care of the environment of Sinaloa, given that its contribution is significant for the development of our society. However, at the national level, the importance of the agricultural sector is really relative, given that its share of GDP has been falling in real terms. Since the early 80's, the country underwent changes in its economic policy, starting the neoliberal model and with this the decline of the agricultural sector.



Graphic 1 Mexico: Evolution of the agricultural sector with respect to GDP (1960-2016)
Source: Own elaboration with information from the World Bank, https://data.worldbank.org/

From 1982 to date, the agricultural sector has not again surpassed its representation of 8% -10% compared to the GDP that was had in the decade of the 70's until the early 80's. It is observed that their participation was decreasing until stagnating in less than 4% with respect to GDP.

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Figure 1 shows the data on the national accounts of the World Bank and data files on national accounts of the OECD show how the evolution of the Mexican agricultural sector and its added value have been in percentage terms with respect to GDP. Although, in the OECD economies, agriculture represents less than 1.5% of global economic production; given that, the role of agriculture in driving global economic growth varies from one country to another and, in general, its representation and importance is greater in the poorest countries. Mexico being one of the poorest developing countries in Latin America, the agricultural sector represents only about 4% of economic activity from 1999 to 2016, with a strong tendency to decrease.

2. Theoretical Framework: Background and conceptual bases

In the last twenty years, research oriented to the application and management of tools that allow influencing economic, financial, environmental, labor and social outcomes of companies has become relevant and pertinent.

These instruments range from implementing and evaluating administrative management systems with a social sense, through the design of sustainable development indicators for tourism or forestry purposes, to promote the "voluntary" donation or rounding initiative in Mexican companies that are "socially responsible".

Empirically there are records that show that since 1920 companies were concerned about performing charitable practices that could be considered as socially responsible humanitarian practices. Scientifically, it is observed that the first antecedent of the coinage of the concept dates from 1916 with the contribution made by Jean Maurice Clark, considering that there are certain relationships between social concerns and the assumption of certain economic responsibilities, for Clark begins to include the concept of solidarity and social concern within the business world.

It is with Howard Bowen (1953), when the first approaches to the concept of corporate social responsibility are given, and refers to it as the philanthropic purpose that the company links with society, considering that the main reason occupation of the company is not only economic, it must meet the needs of the interest groups around it.

However, companies prioritize and undertake an economic value, above social and environmental value; despite this, it seeks to reconcile them. However, it was Milton Friedman (1970) who reflected that the profitability of companies is incompatible with social concerns and needs, because the sole objective of the company must be to maximize the economic benefit and act in the interest of shareholders.

The concept of corporate social responsibility (CSR) has been analyzed in detail since the last decade of the 20th century. As part of the ethical culture of the companies, it has gained recognition and ample academic and business relevance in the first two decades of the 21st century; by virtue of, the criteria and practices of social performance of the company.

CSR is defined as the social responsibility of top management to undertake actions that improve the welfare and interests of society and the company, developing a new way of generating and applying business strategies that allow maximum profits. However flat this definition may be, it may be difficult to understand the concept of social responsibility, due to the diversity of aspects and perspectives with which actions that could improve social wellbeing are applied along with the economic improvement of the company. . However, in all this transit of the CSR, a fundamental part is observed for its understanding from its application and development.

This part corresponds to the collaboration of employers and workers, as agents of change to achieve competitive advantages in organizations facing economic and business challenges. The report of DIRSE[1] of the year 2016, poses 2 important challenges of business competitiveness: 1. The lack of knowledge of CSR by managers or owners of companies and workers, and 2. The lack of business, labor and economic resources in companies.

Another aspect that is undesirable in companies in general and in horticulture in particular, has to do with the lack of commitment from top management to motivate workers in the implementation of CSR. Possibly this absence of motivation, is the consequence of the ignorance of the benefits of a good administrative management of CSR. This perspective of the problem that surrounds the CSR is that represented by both employers and workers, since, CSR should be implemented jointly employer-employees which is not easy.

[1] DIRSE is the acronym that refers to the Spanish Association of Directors of Social Responsibility.

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Hence, the purpose of directing this research to study the role of CSR in the agricultural sector as a particular element is the necessary adoption of an environmental perspective under the revolutionary idea of sustainability.

Authors such as Steiner (1971), Sethi (1975), Carroll (1979), Drucker (1984), Cochran and Wood (1984), Husted and Allen (2000), Porter and Kramer (2002), and Daft and Marcic (2009), Daft (2010), Wesselink et al. (2017), López-Pérez et al. (2017), Souza and Alves (2018), Norberg (2018) and Schaltegger and Burrit (2018) agree on prioritizing social and environmental concerns as a source of competitive advantage in companies, where the ethics of sustainability and care for natural environment take importance in the administrative management for CSR.

On the other hand, Castillo (2015) states that corporate social responsibility activities are criticized for the lack of integration in the core business processes; so it alludes, the need for a reengineering of processes from CSR, which leads some organizations to look for CSR strategies that align profitability with social value.

This is based on the experience of a global social consulting firm based in São Paulo, Brazil, which introduces systemic thinking with a focus on CSR in business models to boost economic success. The experiences of the firm with the main multinational companies, show that the reengineering of business models to consider the social impact of operational decisions, can improve profitability and benefit the surrounding community.

3. Literature review

The classification of CSR at the international level has been analyzed in several seminal studies such as Levitt (1958), Friedman (1962 and 1970), Murphy (1978), Zenisek (1979), Wartick and Cochran (1985), Carroll (1991).), Wood (1991a), Wood (1991b), Sethi (1995), Nasi, Nasi, Phillips and Ziglidopoulos (1997), Gerde and Wokutch (1998), Lantos (2001), Joyner and Payne (2002), Van Marrewijk (2003), Watson and MacKay (2003), Garriga and Melé (2004), Waddock (2004), McWilliams, Siegel and Wright (2006), Windsor (2006) and Cochran (2007). More recent studies such as Norberg (2018), Schaltegger and Burritt (2018), Dilling and Harris (2018), Rath et al. (2018), Schaltegger and Burritt (2018), Iqbal et al. (2018) Utgård (2018), Youn, et al. (2018).

Manasakis (2018), Diddi and Niehm (2017), Nejati et al. (2017), Shao et al. (2017), Mamum et al. (2017), O'Connor et al. (2017), focus on identifying the main motivations for CSR actions in the company, which has allowed to know the conditions and behavior of companies in terms of the application of CSR.

Norberg's study (2018) shows that the Swedish financial industry carries out CSR activities that justify its annual sustainability reports and in which it reveals the ethical nature of the financial industry. In a complementary manner, Iqbal et al. (2018) identify as the main engine of administrative management of CSR the global initiative to save the environment with respectful practices of technology and green banking services that promote CSR actions for customers through the channels of delivery of financial services.

In the case of companies of the financial system, it is observed that amorality stands out in most of the justifications granted by banks to undertake CSR activities, disharmonizing the responsible image that the contemporary financial industry wants to portray and disarticulating with the principles of sustainability and CSR; However, when factors such as punctuality, ease of financial management conditions and expectations of effort are linked with the interest of administrative management of CSR to care for the environment, expectations and conditions of sustainable performance are created, which generates a positive perception of customers about green banking.

For its part, Schaltegger and Burritt (2018) highlights the diverse existence of ethical motivations and different types of CSR operational activities that are linked to the sustainability of the company, for which it identifies 4 versions of ethical management: 1). The one that arises from the reactionary concern to the interests of the business, 2). The one that arises from the narcissistic concern to protect the image of the company, 3). It is the one that responds to the social and environmental concern that goes from the inside out, and 4). The one that arises from the motivation of collaboration to vulnerable groups from abroad.

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Dilling and Harris (2018), explain that gaining trust with external agents is the main reason to implement CSR for the creation of long-term value of 19 Canadian public energy and mining companies listed on the stock exchange, emphasizing that the performance of CSR generates long-term value and has a positive impact on sustainability, observing improvement in the quality of disclosure in areas of governance, practical work responsibility, external relations and risk management linked to the materiality of sustainability and high exposure to environmental risk.

Regarding the mining sector, a case study is highlighted to one of the main mining companies. This study was conducted by Rath, et al. (2018) and emphasize that the main motive for conducting CSR practices are the initiatives of community development programs aimed at the mining industry, with the purpose of offering health services through the construction of hospitals, construction of roads, schools and support to small local businesses through sustainable procurement policies to local suppliers and sustainable livelihood projects that serve to reduce economic dependence and create employment opportunities. The findings suggest that the community development initiatives taken by the mining company have a positive impact on the community surrounded by the industry.

Deswanto and Siregar (2018) carry out an analysis in companies from different sectors that are listed on the Indonesian stock exchange and that participate in the environmental management performance program with the main motivation of increasing the value of the company and giving relevance to activities environmental measures to influence the financial and sustainable performance of companies.

While Chaudhary and Akhouri (2018) by studying 219 employees of various IT organizations in India recognized for their commitment to CSR, explains the intrinsic and extrinsic motivations of worker participation in CSR, the intrinsic part being which has more impact from creativity as a result of work commitment, while skepticism prevails from the extrinsic side. Likewise, Souza and Alves (2018) identify CSR actions as an engine of sustainability and propose an innovative model of administrative management for sustainability that is based on CSR actions through an environmental quality management system and occupational safety in harmony with the production system adjusted to make it cleaner.

Similarly, in the Lamboglia document, et al. (2018), is considered as the main motivation at the time for the adoption of CSR practices oriented to sustainability and also to the maximization of profits in waste collection companies in Naples, where time and profits become the driving forces of sustainability through CSR strategies that affect the performance and profits of public service companies.

The motivation for social license is that Bickford, et al. (2017) document. In their study they show that in the last two decades, the main biophysical, economic and political changes in the Arctic regions come from commitment and social responsibility, which gives them greater commercial opportunities in ecotourism activities. They emphasize that the sustainability approach has allowed them to develop ecotourism as an environmental conservation experience and the sustainability of resources that come from the local culture of CSR, which is what allows them to acquire the social license to carry out commercial activities in the sector.

The studies by Nassivera et al. (2017), show that in Italy, the main reasons for developing CSR strategies is the organic consumer culture, so that companies that offer organic goods in Italy rigorously take care of the purchase of sustainable raw material; that is, they are concerned that their supply chain manages the consumption of environmental resources responsibly and supports sustainability. In the investigations for Latin American countries that Correa, Flynn and Amit (2004), Castillo (2015), Rovira, Patiño and Schaper (2017) have recorded, it is clear that most governments allow CSR to be a response from companies to its market needs and to its relevant economic counterparts, a kind of free choice, leaving sustainability out of reach.

Carroll (1991) considers that CSR practices are grouped into four categories: 1). economic responsibilities, which have a triple purpose of satisfying the client with good quality products, generating good jobs for employees and improving profitability for the shareholder; legal responsibilities, which focus on compliance with laws and government regulations of business activity; the ethical responsibilities, which are guided by the company's moral and imply a correct, fair and equitable performance with the different interest groups, and 4) the philanthropic responsibility, which seeks in an altruistic and voluntary way to contribute to the improvement of society through specific actions, such as donations.

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On the other hand, Lantos (2001) also exposes four categories of CSR intervention. The first under the generation of profits as a sole purpose, complying only with the explicit rules and regulations to which business activity is bound.

The second, based on compliance with legal regulations for the generation of profits in a limited scope, since the company, in addition to complying with the law, respects the laws of business activity. The third groups social welfare actions, which make the company address the threats and opportunities as negative externalities and take into account all stakeholders in their decisions.

The fourth category corresponds to social benefits in a strategic way, for which the company must be at the service of the community and use its resources in a more efficient way. Likewise, Garriga and Melé (2004) classify the activities and approaches of CSR into four theoretical categories related to benefits (instrumental theoretical perspective), political performance (political theories), social demands (integrative and intervention theories) and ethical values (ethical theories).

According to Friedman (1970), Murray and Montanari (1986), Lizt (1996), Porter and Kramer, (2002, 2006 and 2011), in instrumental theories, the company is seen only as a means to create wealth and, for this, it focuses on the social activities that allow this objective to be achieved. From these, three theoretical subcategories related to the maximization of value for the shareholder (as the maximum criterion for evaluating the company's social activities), the strategies for achieving competitive advantages (such as social investments in a competitive context, dynamic capabilities) that are based on natural resources and inclusion of the base of the economic pyramid) and marketing related to some cause.

While in political theories, Davis (1960), Donaldson and Dunfee (1994), Wood and Lodgson (2002) emphasize that the social power that the company is acquiring as it is inserted into society is related through a social contract implicit between the company and the community in which it participates, whose conditions are given by the influence that each company has on the economy.

These researchers have managed three theoretical subcategories, which corresponds to the theory of corporate constitutionalism that focuses on social power and the iron law of responsibility; as well as, the integrating theory of the social contract that focuses on the macrosocial theoretical contract and microsocial empirical contract, and finally the relational theory of corporate citizenship in its three levels (corporate philanthropy, initial CSR and CSR as a contribution to development and solution of the global problems of the society).

Within the categorical categorization of Garriga and Melé (2004), Integrative theories are also found that based on what was expressed by Carroll (1979), Jones (1980), Vogel (1986) and Wilcox (2005) it is highlighted that the company it focuses on the identification, classification and response to social demands, such as compliance with laws, public policies and the balanced management of the interests of the company's stakeholders (entrepreneurs, workers, customers and suppliers). Under integrative theories, companies generally seek to legitimize themselves socially and acquire greater social prestige. To achieve this goal, four theoretical subcategories based on the management of social issues, the principle of public responsibility, the management of stakeholders or stakeholders and social performance or corporate social action are proposed.

Finally, Freeman and Reed (1983), Habermas (1987), Kaku (1997), González (2002), García-Marza (2005) build ethical theories based on business activities that respond to the fulfillment of human rights, labor rights, protection of the environment and the consolidation of sustainable development for society. They argue that in order to achieve this, the company must develop concrete ethical practices, values and principles that demonstrate what is and is not to be done, in order to build a stronger and better society.

In this regard, Peña Miranda and Serra Cantallops (2013), explain that in general, ethical theories promote that companies build the common good and contribute to the development of a more solidary, just and equitable world for all. It can be inferred that the different theories exposed make it clear that CSR is a practice with solid theoretical and empirical bases on which strategies are designed and apply actions of business economic agents, but also, the concept has not yet been admitted and defended in a homogeneous manner generating confusion in its application, Peña Miranda, Serra Cantallops and Muñoz González (2017).

Based on this, one can then consider that CSR is an overcrowded concept; However, due to the epistemological anarchic function with which it is perceived, assimilated and applied, it is not yet a plain concept, nor is it a homogenically accepted concept.

3.1 CSR in the agricultural sector

The most recent scientific information consultation, registers that Lasorella and Siggia (2018), Deswanto and Siregar (2018), Wolff, Gondran and Brodhag (2017) recognize that the main challenge of the agricultural sector is the growing change of food preferences of the population , along with the degradation of the soil of these last 20 years, water contamination and food insecurity; however, they emphasize that the adoption of CSR to address environmental initiatives, leads to transfer their production to more developed markets, so they consider that social and economic environmental strategies through CSR for sustainability, are a key factor in the growth of the agricultural sector

On the other hand, Bakos and Dumitrascu (2017), in support of agricultural ecosystem services and with multi-agent modeling, propose a risk and crisis management model in which sustainability, administrative management and CSR are merged to lead agricultural organizations towards a sustainable business behavior that allows them to describe the emerging behavior of these business systems, resulting in a crisis communication model, based on the adaptability characteristic of holons in agricultural production.

Also, Sánchez-Hernández, Robina-Ramírez, and De Clercq (2017), maintain that CSR for the sustainable management of water are an opportunity for companies in the South African field to obtain competitive advantages in the market. Similarly, Arnold (2017) documents the most current research reports, highlighting through the case study method that the practice of CSR in water supply and distribution companies in Germany and its link with the agricultural sector and others sectors is conditional on the ISO 26000 regulations.

In these analyzes, as a result of the increasing contamination of water, it is exposed that CSR focuses on business impacts on society by applying the normative constraints of ISO 26000 and management tools, demonstrating that the elements of this standard regarding sustainable use of energy and sustainable water management systems for agriculture, are marginally communicated and therefore, applied with little seriousness, making CSR is little credible.

Nassivera et al. (2017) highlight the importance of consumer attitudes towards CSR in the processing industries of agricultural products and their willingness to pay for organic agricultural products. In Castilla-Polo and Gallardo-Vázquez (2016), under the qualitative methodology with case study approach, they present the case study of two agricultural cooperatives recognized for their socially responsible actions but different in their attitude, before the dissemination efforts showed that the perspective of social outreach is convergent in both cooperatives, but not its practical application as social recognition, what the variables of social disclosure are little highlighted, regardless of the territory or economic sector of the companies.

Kader et al. (2016), are limited in making a study about the international debate and the perception of consumers about the scarce benefit in the production and consumption of food from genetically modified organisms or transgenic foods and its relationship with the CSR that suppliers implement in the treatment of these foods, in order to create consumer awareness of genetically modified foods, as well as serving as a basis for strategic decision making by CSR providers and the public sector to formulate policies that promote social benefit and commercial of genetically modified products; However, they do not clarify the social impact of CSR.

On the other hand, Famiola and Adiwoso (2016), analyze CSR in the institutional diffusion of the multinational subsidiaries of companies of the agroalimentary industry of Indonesia, finding that the internal pressures (institutional cognitive and local regulations) within the multinational organizations are the main drivers of their CSR practices.

It has been seen that while regulation in a host country is essential for SRE compliance of its subsidiaries, this does not contribute to good CSR practices. The symbiosis and similarity of CSR patterns among subsidiaries and subsidiaries had less to do with institutional pressures, but more with the pressures of the agricultural sector on food production. Likewise, Hartmann (2011) considers that CSR is of great relevance for agri-food companies due to its high dependence on the economy, the environment and society, Poetz, Haas and Balzarova (2012) propose "new" CSR initiatives in agroindustry with a sustainable perspective, highlighting that agribusiness companies have become more proactive in applying CSR towards sustainability, which allows them to compete with traditional niches.

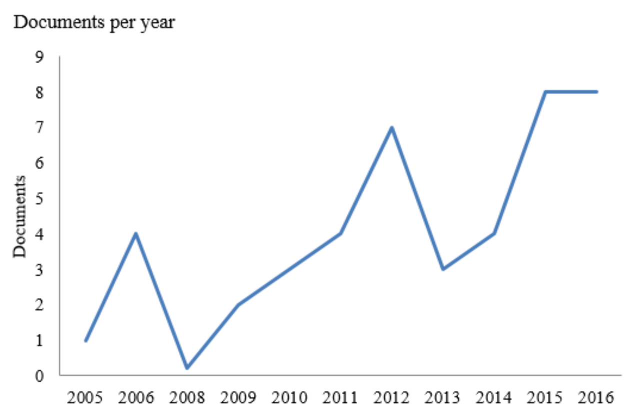
This while recognizing that in perspective, the agro-food company has various challenges due to the heterogeneity of the companies and the diversity associated with CSR approaches. Another aspect related to CSR is food security, in this respect Seminur Topal (2005), Sajardo and Serra (2009), from a global perspective, make an introspection from the past to the future about the depletion of natural resources and the necessary apologetics production and consumption of food, finding that the lack of uniformity in the application of the regulation puts at risk not only food security, but also, food production systems, the improvement of the quality of life and education with ethical values for a better world.

In this perspective, it is substantial to indicate that the most finished and ordered theoretical reviews of articles related to CSR in the agricultural sector for their ethical vision and critical judgment have been made by Victoria (2005) in Spain, Seminur Topal (2005).) in Turkey, Avendaño Ruiz, et al. (2015), Caamal Cauich, et al. (2010) in Mexico, Cañizares (2016) in Argentina, Famiola and Adiwoso (2016) in Germany, Arnold (2017) in Austria, and also what was done by Strandberg (2010) of the IESE Business School of the University of Navarra, perform a final and explicit work to review and analyze the articles on the subject of the issue have been published between 2005 and 2018 in scientific journals, academics and business magazines in the field of agricultural study.

Likewise for Mexico, in the study of Villafán Vidales and Ayala Ortiz (2014), by means of the multicass study method, the level of CSR of the avocado companies of Uruapan Michoacán is analyzed for what they built an CSR index and sustainability based on the CEMEFI model under the process of analytical hierarchy in twelve avocado companies that were interviewed and evaluated during July and December 2010, found a medium level of application of CSR (51.58%) of the application of standards or indicators of CEMEFI (Mexican Center for Philanthropy). Also for Mexico there are a couple of more studies, that of Campos López (2016), and Avendaño Ruiz, et al. (2015), in which it is emphasized that corporate social responsibility is the vehicle for companies to move towards sustainability. Under the specific theme that links CSR with the horticultural activity itself in Sinaloa, we find a work by Verdugo López (2012), which describes the development of the CSR process in the Sinaloan company under a case study, with which It is recognized that it has been a topic that has not been widely explored in the academic field.

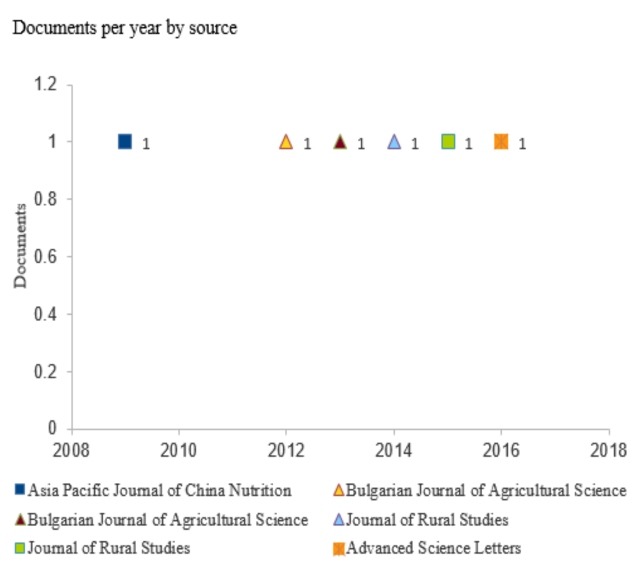
It also highlights the need for the adoption of effective practices that guarantee the safety of food production, concluding that putting CSR into practice is limited for the horticultural sector, due to the cost, times and movements involved in developing it, losing motivation to do so.

In addition, by means of an exploration by Scopus, using a search profile with the keywords "social responsibility" and "agricultural sector", for the period from 2005 to 2018 a result of 221 documents was obtained, among which 46 scientific articles stand out.



Graphic 2 Document management per year about social responsibility in the agricultural sector
Source: Scopus

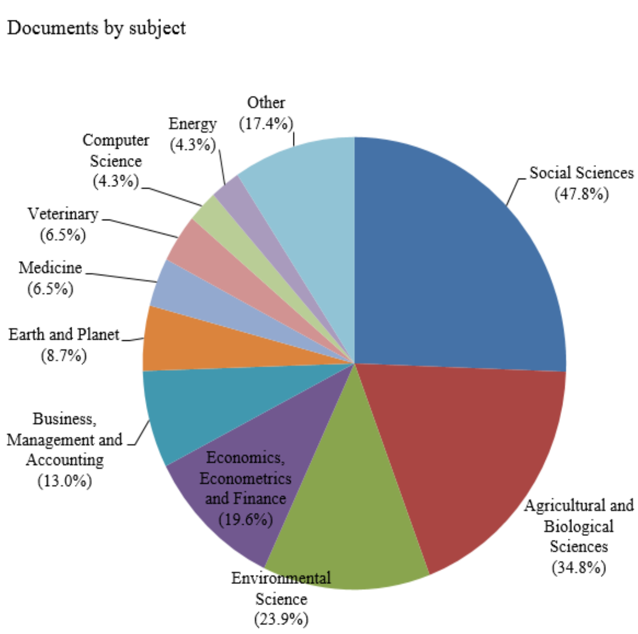
Subsequently, the analysis of the query was revised by year and by source.



Graphic 3 Document management by year and source about social responsibility in the agricultural sector
Source: Scopus

Average production was not significant, being the social responsibility journal, the source in which most scientific articles are recorded. There is very little research about the CSR process linked to agricultural organizations.

The exploration carried out through Scopus, indicates that in 12 years very few articles of CSR have been written in the agricultural sector, which have been grouped into 4 business and social categories as follows: Unethical actions (22), Profitability and corporate responsibility (9), Caring for the environment (11), Agri-food problems and challenges (4). As can be inferred from Figure 4, the part of the labor perspective and the application of CSR from its operating scheme, is left aside. From this group of categories, the fields of knowledge in which they are most affected were analyzed, and the social sciences were found to be the main field of study with 22 articles (47.8%), agricultural and technological sciences with 16 published articles (34.8%), followed by the field of the environment with 11 articles (23.9%) and the economic and business sciences with 15 articles (19.6% and 13.0% respectively). This registry review of articles in scientific journals of the four main categories identified, properly indicates its impact on five areas of knowledge.



Graphic 4 Document management by field of knowledge about social responsibility in the agricultural sector
Source: Scopus

This shows that on average there are just under 4 articles published on CSR in the agricultural sector worldwide per year, highlighting a greater participation of scientists from the United States, Germany, Spain, United Kingdom, Australia, Indonesia, Bulgaria, Canada, China and France Internationally, a very poor figure for a subject as relevant as CSR, in one of the most important economic sectors worldwide, such as agriculture.

It should be noted that studies conducted by Mexican researchers have located two housed in indexed scientific journals and 1 under the modality of book. After the analysis of the CSR literature in the agricultural sector, the evidence of scarce CSR research in the agricultural sector is recorded, in comparison with other areas that link CSR and, what is more alarming, the low level of business practices of CSR that occurs in the agricultural sector that is linked to food security, the environment and social welfare.

The above is attributed; among other things, the ignorance of the practices and benefits of CSR, as well as the fact that government structures in the Sinaloan agricultural system have minimized the decision to apply CSR concepts in agricultural production, which has originated, example, that the dialogue between groups and interests, mainly workers, businessmen and NGOs (Non-Governmental Organizations), in CSR matters is represented by ignorance, distrust and prejudice among the participants.

4. Methodology developed

The research methodology used for this work is based on the case study method, considered a proven approach for its application in highly temporally and spatially focused studies. It is recognized the existence of abundant bibliography on this type of research method, ranging from Yin (1989 and 2003), Eisenhardt (1989), Stake (2000), Voss, Tsikriktsis and Frohlich (2002), Bisquerra (2009), Peña Miranda and Serra Cantallops (2013) and Peña Miranda, Serra Cantallops and Muñoz (2017).

Following the guidelines of Yin (2003), the case study of this empirical research is oriented to the analysis and study of a current and contemporary fact within its context of business life. In practice, the foundation of this method for the context of business research is that its objective is to analyze the company in a comprehensive manner, by describing situations, explaining times and movements based on theories, hiring the same and the identification of causes and effects of business management that is carried out to achieve profitability and social viability for example.

The mechanisms of social structures change constantly in time and space, which suggests that generalizations about social systems should be considered fundamental contributions to proceed to generate causal explanations of the past, which could be considered valid in the present effects and future situational predictions.

Under this notoriety, agricultural activity is, by its nature, a primary activity of the economy, but also, due to its mechanisms and social links, it is an activity with broad social ties; so, considering that agricultural activity has a strong social component, it is pertinent and scientifically valid to study it from the case study approach.

Research under this method allows to collect evidence in situ application of CSR in the field or "establishment" where agricultural activity takes place. At first, a diagnosis of CSR of San Pedro Hortícola Brothers and qualitative classification categories to consider as central contribution of the study is done. For further understanding, we continue with the exhibition of the four stages that were developed:

Once an exploration of the international and national context of the agricultural sector has been carried out, a review of the scientific literature on the main theories of social responsibility is made, aimed at its practical application, for which the management and use of scientific information housed in databases was made of scientific information. The analysis of practical cases of CSR developed by international horticultural companies was continued. Likewise, secondary information was collected from the company chosen for the study and the published information on CSR was analyzed. Immediately, primary information was obtained through a situational diagnosis regarding Social Responsibility in the horticultural companies of the Évora region. The diagnosis was made through a questionnaire applied to 25 horticultural entrepreneurs of a total of 98 with permanent establishment in the region.

The research instrument focused on the analysis of the different areas in which the horticultural company could apply or apply social responsibility. The last stage corresponded to the observation, analysis, systematization and drafting of the case study. Once the information was obtained and processed, the general diagnostic document for the horticultural sector of the Évora Region was prepared.

An additional stage consisted in choosing a case study of the 98 detected, making periodic visits to the horticultural company San Pedro Hermanos, located in the union of Alhuey Angostura, Sinaloa. With a total of twelve visits, during four months in a row, the situation of social responsibility practices in the company was recorded.

4.1 Case study

As previously mentioned, it is evident that in the scientific literature there are few works and researches that link the CSR with the agricultural sector and even more in regional companies of the sector. In this context and with the aim of contributing to the discussion and construction of practical epistemic CSR models, an applied research was carried out in a horticultural company in the community of Alhuey Angostura, in the state of Sinaloa, Mexico.

This research is a pioneer in the matter from the context of the Évora region, configured by 3 municipalities of Sinaloa (Angostura, Salvadora Alvarado and Mocorito). The horticultural company "San Pedro Hermanos" was born in 1978 with the production of green beans, Italian squash, eggplant, tomato, melon and watermelon, its processes were conditioned by its main financial partners (investors from the United States), guaranteeing this, that the production was distributed by them.

Over the course of fifteen consecutive years, it was considered one of the leading companies in the production and marketing of vegetables and legumes. In addition, considering a family business with greater experience and recognition, has been exposed to the development of public and private projects with dual economic and social purpose that allowed the continuous improvement in their processes to achieve greater profitability and welfare of its workers.

This activity that showed it as a socially responsible company, has been carried out under empirical and non-normative knowledge, which has meant non-certification in CSR processes. With the present study, the horticultural company "San Pedro Hermanos" or better known as "Empaque San Pedro", becomes the first agricultural company in the Évora region that participates in an applied research project in CSR, with the objective of central to reincorporarse again successfully to the agricultural sector and also with the purpose of linking the academy with entrepreneurship.

The results presented are important for all companies in the sector, since it can become a specific sequence route in the start-up and execution of the CSR from a formal and regulatory perspective.

5. Results

The company Hortícola San Pedro Hermanos, has as mission to guarantee a socially responsible horticultural production in benefit of the market and society in particular. With a vision oriented to be the best horticultural company in the Évora Region, with export vocation.

Specifically, in Empaque San Pedro, an integral analysis was carried out of four (4) areas of socially responsible management related to its stakeholders (Stakeholders) and related to the CSR, both internally and externally the company. These areas are: Social environment, Environmental environment, Workers and Competition.

For this, a diagnostic instrument was used, based on 10 international guidelines and the sustainable development model, for two fundamental reasons:

The first, because it is a company in the agricultural sector and, in this sense, the model of sustainable development has been carried out and promoted by the World Labor Organization, to verify conditions for continuous improvement in the development of the agricultural sector.

On the other hand, a qualitative classification has been made for the company based on the CSR practices carried out, with the aim of identifying in a practical way the different actions that the company executes in relation to the CSR.

The classification allows knowing the formality of their CSR actions; that is, to identify how close it is to the recommendations of the accrediting bodies of CSR, and thus to know the level of CSR application in which it is developed, for which, it is analyzed from the gestational and progressive stage (historically speaking), for then continue with the development stage.

The classification of socially responsible companies that is used more generally in recent studies of CSR is the one that has been proposed by Caroll (1991 and 1999) and extended by Peña Miranda and Serra Cantallops (2013) of those who follow these criteria for the present study.

Hence, companies that develop CSR practices, regardless of the business or economic activity carried out, can be classified into 6 groups: Inactive, Reactive and Philanthropic, Reactive legal, Active, Proactive and Leader.

It is striking that each type of company is identified by its classification in the evolutionary stage, and also, the type and level of CSR is defined according to its commitment.

Type of company	Application feature of the CSR
Inactive company	It is the one that does not perform and does not show evidence of the practice of CSR, since it does not conceive the term Social Responsibility in a formal and disciplinary way.
Philanthropic Reactive Company	It is one that performs and demonstrates isolated practices of philanthropy.
Reactive Legal Company	It is the one that is limited to strict compliance with the rules and current legislation.
Active Company	It is the committed company that carries out CSR practices with a strategic nature, to which it is not obliged by law and with which it seeks greater profitability.
Proactive Company	It is the one that integrates the CSR to the business strategy by initiative and without proper order; that is, without observing compliance with laws and regulations because they are not obliged to do so. It is very similar to the active company.
Leading Company	It is the one that is committed to the public policies of the government, which implies attending the orientations of the 17 sustainable development objectives (SDGs) proposed by the United Nations with the purpose of achieving economic and sustainable development.

Table 1 Type of Company according to the social commitment when applying the CSR. *Source: Caroll (1991), and Peña Miranda and Serra Cantallops (2013)*

Next, the management area of the company is analyzed. To describe the main results, four categories are determined: a). Social environment, b). Environmental environment, c). Workers, and d). Competition. These categories are measured from the levels of reliability of CSR that is exposed in the model of Peña Miranda and Serra Cantallops (2013) of maximum, high, medium high, medium low, low and zero.

Type of company	CSR level	Type of CSR	Quantitative Assessment
Inactive	Null	Null	Qualitative
Reactive Philanthropy	Low	Philanthropy	0-19
pica	Medium low	pica	(Null)
Reactive Legal	Medium high	Basic	20-39
Active	High	Tactic	(Deficient)
Proactive	Maximum	Strategic	40-59 (Insufficient)

Table 2. Level of CSR practices in organizations
Source: Peña Miranda and Serra Cantallops (2013)

In the previous table quantitative assessment criteria are established that refer to CSR practices that a company applies, represented in a percentage. These criteria, standardized by international organizations, also denote a qualitative assessment. In this sense, the following comprehensive analysis of the level of CSR applied in the company Agricola de estudio is presented.

a). Social Environment: Within the positive, in the studied company, one has clarity of the productive processes and of the economic and administrative activities; the limitations that the company has in the rural community where it is developed are identified; we act in good faith by supporting special people (Down syndrome and older adults), giving them the opportunity to carry out a simple "work" and "remunerated" activity; actions of solidarity and social action are carried out, such as simulations of firemen and red cross.

Among the negative aspects of the social environment, it is observed that there is no record or documentary evidence of the social relations that are exercised in the community of influence or with its interest groups; the social security of special persons who perform simple and remunerated activities is not formally guaranteed; there is no operating manual for social action practices nor are technical reports prepared that detail them and that contain the objectives that are achieved; In addition, there is no record of compliance with goals. Hence, the horticultural company San Pedro Hermanos, is at a low average level in the application of the CSR with respect to the social environment.

b). Environmental environment: The positive aspect is that in the company, behaviors characteristic of the care and protection of the environment are identified, such as the disposition they give to solid waste when separating garbage; however, the negative is that no documents are registered that show the disposition that is given to the solid and toxic waste that they use; the commitment of caring for the environment in the mission and in the vision is not declared; no records and evaluations of the actions that affect or erosions in the environment (soil, air, natural resources and waste disposal) are identified; no environmental audits are carried out to verify the adequate use of natural resources, water treatment, gas emissions to the atmosphere (very little activity in the company), or adequate disposal of toxic waste.

In addition, in the practice of packing and packaging the products, environmental impacts are minimized; there is no evidence of risk and contingency plans, nor attention to environmental management programs or smoke-free company. In this sense, the horticultural company San Pedro Hermanos, is at a low level with zero tendency in the application of the CSR with respect to the environmental environment.

c). Workers: The positive thing is that they manage value training workshops with the company's staff, showing that the relationship with the workers is cordial and respectful; compliance with the fundamental rights expressed in our constitution is met, which is complemented with respect for human rights; Attention is given to the adequate working conditions; Equity and equality are promoted; the hiring of minors is rejected; the principles of solidarity with disgraced workers are promoted; the preparation and training of workers is promoted and carried out; it is financially supported by a scholarship to workers who wish to train at the higher level; In addition to the salary, support is given for the construction of modest homes, religious, political, ethnic and racial affiliation are respected; there are conditions to reconcile work life with personal and family life, adapting schedules and conditions; health is assured through medical attention with individuals; contingency plans are applied that allow the prevention of risks and accidents at work.

The negative is that it is not possible to guarantee the social security of all 68 workers. Therefore, the company is at a high average level of application of the CSR with respect to the category of workers.

d). Competitors: The positive thing is that there is camaraderie and cordiality among the horticultural colleagues of the region; absolute respect is retained in the production and commercialization of the others, given that they are members of the Association of Farmers of the Rio Mocorito that establishes the conditions of purchase sale; you always have the willingness to make economic integration agreements to strengthen the commercialization conditions; it participates in a common way in regional agricultural forums in which the prices and mechanisms of commercialization of its products are discussed and their experiences of success and failure are exchanged.

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The negative is that there is no evidence of collaboration agreements and agreement of conditions. Based on this, the horticultural company is in high level of application of CSR in terms of competitors; you only need to document and formalize the agreements that require these conditions of collaboration.

6. Conclusions

The pronouncements of Lasorella and Siggia (2018) are retaken to leave open some questions that to date the agricultural sector should consider. Can we produce enough food to feed the population growth that is expected to be 9 billion projected by 2050? How can the CSR refer to companies that move to developing markets, assuming responsibility for their impact on society and the environment and guaranteeing food production? What is the role of companies in facing the critical problems of human development and environmental sustainability in developing countries?

In this context, according to Lasorella and Siggia (2018) the possible research priorities in CSR are to increase the competitiveness of companies through the intensification of sustainable agriculture, quality of life, new improved technologies and innovation capacity with a modus operandi different in Europe and in developing markets such as Asia, Africa and Latin America; without forgetting the fundamental role of sustainable development that constitutes one of the greatest opportunities in the history of trade.

It is important to mention that the studies of the CSR in the Mexican agricultural sector are very scarce, those that have been analyzed are interesting in the orientation and practice of the CSR, which will allow Mexican agribusinesses to maintain a competitive position and apply improvement actions continues to meet economic, environmental and social expectations. All the analyzes carried out agree that the practice of CSR in business management, It encompasses economic, administrative, political and social aspects that make the company adopt ethical, moral, cultural, efficiency, competitiveness and high profitability characteristics.

Although, at the international level, the CSR has been a topic of great interest for the academy for more than 20 years, for entrepreneurs it has been an issue that implies an additional cost and to which they do not attribute profitability benefits.

It is also observed that the CSR as a practice of continuous improvement is accepted in a generalized way, but not easily adopted; due mainly to the lack of knowledge of its scope and benefit, in addition to incurring additional costs, which discourages the employer.

The concept is divergent among scholars of the subject, and among the enabling agencies to certify this practice. The CSR is considered from several perspectives that by the fact of performing a single practice, in only one of the aforementioned categories, the company is already considered socially responsible. In addition, it is observed that CSR practices, by definition, have generated inaccuracies and confusions, to the point of applying and implementing it in a different way.

Even though the purpose of the CSR is to guarantee that the company has a good image before the society that allows it to compete and remain in the market, this is not a guarantee of increasing its profits. While the benefits are greater for workers and the environment, this does not guarantee that employees will see their salary and benefits increased; nor is permanent social security guaranteed by contracting them with tax regimes that are similar to salaries and under the fee scheme.

From the theoretical analyzes referred to in this document, it can be shown that the way of understanding and applying the CSR is different among countries, entities and localities; therefore, it is different between economic activities and business magnitudes. The differences can be attributed to the culture and economic and social conditions between countries. However; It is clear that these differences and the lack of generally accepted CSR application standards are not the pretext for companies to ignore it, minimize it and not apply it. This lack of consensus, both from academia and research, and from the business sector, could be an area of opportunity to improve business management and increase profitability.

For the case of study that concerns us (San Pedro Hermanos Horticultural Company) and under the considerations framed in these 4 categories, it is concluded that with regard to CSR practices, the company is active with a perspective to be proactive, given that it practices CSR to which it is not obligated; likewise, it applies an intuitive and tactical CSR, with purposes of profitability and business stability as aspects that influenced to determine the practice and functioning of social responsibility in the company.

The level of CSR that is valued in the company, according to what was established by Caroll (1991 and 1999), evidences medium-order effects with an orange label and with many possibilities of switching to a yellow label (the optimum would be the green label for compliance) to 100%); therefore, an acceptable CSR is applied qualitatively with many areas of opportunity tending to continuous improvement.

It will only be necessary to adopt the measures of the certifying bodies that issue the badges and certifications in all the areas to be considered (environment, social environment, workers and competitors).

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Analysis of the integration social-economic between the Nayarit and Jalisco states, Mexico; from the tequila industry; for the year 2018

Análisis de la integración socio-económica entre los estados de Nayarit y Jalisco, México; desde la industria del tequila; para el año 2018

CAMELO-AVEDOY, José Octavio*† & RODRÍGUEZ-BAUTISTA, Juan Jorge

Universidad Autónoma de Nayarit, Facultad de Economía. (México)

ID 1° Author: *José Octavio Camelo-Avedoy*/ **ORC ID**: 0000-0002-5722-3032, **Researcher ID Thomson**: H-3981-2018, **CVU CONACYT- ID** 99469

ID 1° Co-author: *Juan Jorge Rodríguez-Bautista* / **ORC ID**: 000-0002-9306-4884, **Researcher ID Thomson**: H-9386-2018, **CVU CONACYT-ID** 121319

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Abstract

The present investigation centers as an object of study the economic region composed by the center-south part of the Nayarit state and the north of the Jalisco state, both states belonging to the Mexican republic. The regional integration referred to considers the tequila industry as the one that generates the economic linkages, in the three economic sectors, namely: primary, secondary and tertiary, to establish the region in question. The hypothesis from which it begins is that there is an economic region that is shaped by the tequila industry. Research that uses the analysis of the economic policy, in its regional approach, to perform the interpretation of the findings. In the same way a mixed, but predominantly qualitative, approach has been used to address the present.

Region, Regional integration, Tequila industry

Resumen

La presente investigación centra como objeto de estudio la región económica compuesta por la parte centro-sur del estado de Nayarit y el norte del estado de Jalisco, ambos estados pertenecientes a la república mexicana. La integración regional a la cual se hace referencia considera a la industria del tequila como la que genera los eslabonamientos económicos, en los tres sectores económicos, a saber: primario, secundario y terciario, para establecer la región en cuestión. La hipótesis de la cual se ha partido es que existe una región económica que se conforma a partir de la industria del tequila. Investigación que recurre al análisis de la económica política, en su enfoque regional, para realizar la interpretación de los hallazgos. De igual manera, se ha utilizado un enfoque mixto, pero preponderantemente cualitativo, para el abordaje de la presente.

Región, Integración regional, Industria del tequila

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* Correspondence of the Author (email: ocameloa@uan.edu.mx)
† Researcher contributing as first author.

Introduction

Mexico has given the world a number of cultural elements that have become national icons, from folk dance, indigenous handicrafts, traditional food, among many others; but without a doubt there is a drink that is tasted by millions of people around the world, known as tequila, and in no less parts of Europe they call it Mexican tequila, it does not matter if it's a pleonasm, it's tequila and it's from Mexico.

"Tequila is generally a mezcal liquor made in the lower north east of the city of Guadalajara, Jalisco; Mexico. This brandi is the distillation obtained by cooking the heart of the agave (agave tequilana and similar species), it is produced in many parts of Mexico but it is concentrated in the Tequila municipality" (Walton, 1977. P. 113).

This drink that is tasted, sometimes with pleasure and, at other times, with sadness; possibly because at all times tequila has even been used as a remedy "heal it all", and it is not because it really heals, but what is very proven is that for the moment it is forgotten, which gives a sense of relief. But knowing the bottled product, from the finest glass container or that with double distilled and stored in barrels, gives a partial knowledge of the drink; Behind the drink and bottles, are around 500 years of Mexican history in its development, from the dawn of the 1500s to the present.

Much has been written about tequila, by national and foreign researchers, each from his vision of the object of study, sometimes with a historical look, in others with a view of the meeting of the two cultures (native and Spanish), others more from a goal of tasters, and many more orientations. But other visions have studied the tequila region of the Jalisco state, and there are almost no researches that have addressed the integration of the region between the Nayarit and Jalisco States from the tequila industry. With the idea of contributing to the explanation and to dimension how it is gestated and at what level the tequila region of Nayarit and Jalisco is integrated, it is that the publication that you now have in your hands is presented, not without noting that it is the second publication, of the authors, addressing this topic; of this, the reader is suggested to review the first publication entitled: *Why is tequila called tequila? An approach from regional economic history,* so that the idea of the investigation as a whole can be followed up.

The document is composed of five sections. In the first category, the conceptual theoretical discussion is framed under which the interpretation of the research that is exposed is suggested; In the next chapter, the methodological process that was applied to carry out the investigation and exploration of the object of study is externalized, from which the information and findings that are made explicit in the fourth unit were obtained.; not without first corresponding to a historical reference of the object of study, in the third section, of the tequila region formed by the South of the Nayarit state and the north of the Jalisco state, antecedent that is transferred, briefly, to the time colonial; Finally, the conclusions are presented.

1 Conceptual theoretical pulpit

Talking about the economic, and more when it is done simply pointing out the local, regional, national and even international, as if they were categories established a priori, without an understanding of the dimensions and their construction, is something that what the authors of the present consider not very serious.

"The economic explanation is not determined unisonously in the abstract, but also is agreed in the concrete relationships of material life; At the same time, the study of economics is expressed in different dimensions; international, national or regional, relations that are gestated and explained in one sense and in another, moving from one economic dimension to another, in a multidirectional manner; on many occasions, the explanation of the concrete economic object entails a driving dynamics in the dimensions referenced above, moving from the international to the regional and in the opposite direction, going through the national. In view of the above, the explanation of the concrete economic, in turn, becomes a multidimensional and multidirectional consequence of the determined historical moment; no matter what, apparently subjective and limited understanding of reality, the concrete, is manifested in a particular point of the national, or, in the regional." (Camelo y Rodríguez, 2018. P. 17,18).

The regional economic is not, by any means, dimension of analysis a priori, as a mere delimiting instrument of space, even to the absurdity of annexing geographic polygons, subsumed at the level of exact science, such as physics, chemistry or mathematics.

Nothing could be more wrong to consider the historical social construction of a production process as such, what determines the region, from this vision, is the dialectical historical construct of the ways of valorization in the production process of capitalist merchandise, which It is dynamic and as changing as society and its way of organizing social production. Seen this way, the economic region is dynamic, changing, totally free of pre-established polygons, as dynamic as society itself and the economy.

"It is established that the validity of the regionalization proposed here will not be perpetual over time, but rather, the only clearly constant and accelerated trend in the municipality is the dynamic, and this dynamism will end up going beyond the reality under the which regionalization was built, and as the new reality goes beyond the generalities of the, now, old reality, proportionally the current regionalization will no longer correspond to the new reality." (Camelo, 2011. P. 44).

As an attached note, it can be seen that there are other ways of approaching the study of the regional, but to some extent there is a coincidence in the vision of the dynamic "In the economic sciences, the urban-regional economy has the purpose of understanding the relations between occupied space and economic life (...) Geographic space, as time, is a key factor in the explanation of human events; however, the frontier of the urban and regional economy, as a field of study, also called space economy, are not fixed or static" (Torres, 2009. P. 12)

Although, the region is the expression of the valorisation of the appropriation of nature for its transformation, be it at the primary and / or industrial level, the same, as we have seen, is not given a priori, but as processes of social production, that is, for this case, by economic processes, and the economic is not pure, it will always be social and at the same time political. From this, regionalization has in its conformation, with processes of integration or disintegration to the regional socio-economic dynamics; it is in itself, this, the fine part of study that gives the characteristic of dynamics to the regional conformations, the integration or disintegration to the productive dynamics in particular belonging to a region. When talking about socio-economic integration, it must be understood that it is not only in terms of production as a finished object, but that in order to achieve this, production, economic linkages, productive chains, purchase contracts are manifested. -sales of raw material and semi-finished products, and others.

"Development is accelerated by investment in projects and industries with strong forward and backward link effects. The backward links lead to new investment in facilities supplying inputs and forward links lead to investment in facilities employing products (...) consumer and fiscal links" (Urrutia, 2008. P. 69).

But it also externalizes with it, the labor force, social relations, the cultural, affective and identity relationships, and others. "(...) labor force, this being any physical and / or intellectual activity that is offered in exchange for a benefit amount, eventually it will be capital, generating a contribution to the total or partial production of a good or service " (Camelo, 2009. P. 19) or as Marx points out (2010) " The total combined worker who forms the living mechanism of manufacturing is, in reality, a sum of partial workers " (p. 274), The study of the regional, seen this way, becomes something more complex than simple.

When it is externalized that the region is the consequence of an integration process, it must be understood, by basic negation, that it is integrated to those who, for a certain moment, are excluded; and the exclusion has to do with various dimensions, from the productive, and in turn the labor, or a certain productive orientation of the locality, which is modified to stop being excluded from certain capitalist production. That is, from this view, regional inequalities and exclusions are given in terms of production and its orientation "In reality, inequalities and exclusions are two sides of a single coin, one thing supposes the other. Our approach shows the exclusions that in each case leads to the existence of a certain inequality." (Morales, 2016. P. 15).

In fact, what is referred to as social dynamics, from the perspective of political economy, is referring to the set of elements that are shaped and configured to make way for production, it is then a set of social relationships that they are established from the production, the social and their relations for the production and the establishment of the economic "when we speak of a mode of production that is an abstract-formal object, we continue to situate ourselves on a general and abstract level, although the concept of the mode of production already covers, as such, the relations of production, the political relations and ideological relations ... but these modes of production do not exist or present themselves only in historically determined social formations” (Poulantzas, 2005. P. 21)

When the volume of production begins to increase, and in a much more pragmatic than scientific or philosophical sense, the dissection of production is made from something that has been called "economic sectors", as an accounting tool of production, but for practical purposes allows to stratify the total volume of production in primary, secondary and tertiary sector. Namely: The primary sector refers to the most basic form of direct appropriation of nature, from direct activities with the land, such as agriculture, aquaculture and others; as well as the use of it, directly, as fishing, the extraction of mineral materials, and other.

In the case of the secondary sector, it reflects the transformation, artisanal or industrial, of the product obtained in a primary way, in the process of capitalist production. Finally, the tertiary sector is conceived as one that is responsible for generating the circulation of capitalist production, known as the services sector, and for production to circulate has to do from the transportation of the produced, like the commerce in smaller and greater scale, as well as the set of financial and governmental institutions required so that the circulation of the merchandise can be carried out, and even, the services related to the legal contracts related to production; this service sector is also intangible production that distributes tangible production; until the haircut, which is in its form a service, takes shape in its material aspect at the same time as the scissors is shaping the desired arrangement of the hair; a bank that in its form gives a service, acquires its material aspect at the moment in which the other person can transform the byte set -deposited- of the bank in notes and coins, even in another part of the world, for the transaction of production in its retail form; or, those same - bank byte - reflect a bank byte sum, before a similar, to give mobility to wholesale trade.

2 Methodology

The method used in the present investigation was the hypothetico-deductive, with an approximate theoretical framework towards political economy in its perspective of regional studies; a cross-sectional study to the year 2018, even though some historical antecedents are rescued but the relevance of these do not make the investigation a longitudinal study. A predominantly qualitative mixed approach was considered as the most pertinent for the orientation of the present investigation, also, some numerical data are handled, as is necessary in economic studies, but they do not determine the total of the research as quantitative; of this, the predominantly qualitative mixed approach is presented.

For the development of the present investigation it was necessary to detect those municipalities of the Nayarit state that produce blue agave, which is used in the production of the tequila drink.

Cultivation / Municipality	Total planted area (ha)	Surface harvested or ready to harvest (ha)	Obtained or planned production (ton)	Obtained or planned performance (ton)	Weighted rural average price ($/ton)
Agave					
Ahuacatlán	**827**	120	**4,584**	**38.2**	5,706.87
Amatlán de Cañas	**236**	61	**2,379**	**39**	5,993.44
Compostela	85	18	**504**	28	6,698.00
Ixtlán del Río	**389**	39	**1,599**	**41**	6,596.15
Pull	40	3	126	**42**	2,600.00
San Blas	2	0	0	0	0
San Pedro Lagunillas	**2,520**	445	**20,025**	**45**	7,754.61
Santa Maria del Oro	**942**	128	**4,493**	35.1	6,060.34
Tepic	**105**	6	356	**64.7**	2,600.00
Xalisco	36	0	0	0	0
Total	5,182	820	34,066	41.569	6,989.69
Total	5,182	820	34,066	41.569	6,989.69

Table 1 Sowing and harvesting of agave in the Nayarit state, for the 2016 production cycle
Source: Nayarit Delegation of SAGARPA (2017)

The above table shows the hectares planted as well as those expected to be harvested in the 2016 cycle, but it is worth noting that the agave production cycle lasts between 5 and 8 years. Of this, a direct comparison between planted and harvested should not be considered, what should be of attention is the yield obtained. Considering for the study those municipalities of greater relevance in terms of agave production, making the review that they also produce other crops, so the relevance is relative to the volume produced in the Nayarit state.

From the above, it was obtained that there are six municipalities that participate in the blue agave producing region in the Nayarit state, namely: Santa María del Oro, Jala, Ixtlán del Río, Ahuacatlán, Amatlán de Cañas and San Pedro Lagunillas; explaining that even though the municipalities of Tepic and Xalisco are part of the denomination of origin of tequila, really these two are very devoted to the production of sugarcane, and their production of blue agave is imperceptible with the total of their production of sugarcane, in the case of Compostela, the production of agave is very much in the limits of the municipality of San Pedro Lagunillas and linked to this region, more than the rest of the municipality of Compostela.

Here it is worth noting that, the production of agave, not necessarily blue, or maguey continues to coincide with the regionalization that has historically been pointed out by Camelo and Rodríguez (2018), where they expose the maguey producing regions since the late 18th century and early XIX century, for the case of the northwest part of the Nueva Galicia or seventh canton of Jalisco, once in the independent Mexico.

Figure 1 Planting of blue agave and sugar cane, in the municipality of Santa María del Oro, Nayarit; Mexico
Source: Own photography

Once the object of study has been determined based on the aforementioned criterion, a further criterion is attached to obtain information, it is considered convenient to have a complete view of those who participate directly or indirectly in the agaverous dynamics. Interview as a source of information acquisition on the subject and, adnexally, it is convenient to interview the municipal administration, in its dependency related to the field, such as the Municipal Rural Development Directorates; on the other hand, to agave producers.

Having enough clarity about the actors to interview, holders of the Municipal Rural Development Directorates (MRDD) and agave producers, from each of the six municipalities under study, we proceed to determine the sample size to be interviewed, as which did not apply any formula, since in the case of the holders of the MRDD a census was carried out, involving each owner of the six municipalities; In the case of the producers, the procedure was different. Initially, the presidents of the ejido commissioners had been interviewed, which was not possible due to various reasons, ranging from being able to locate them to a certain political environment of conflict that was considered could bias the interview.

Therefore, another mechanism was implemented, assisting each of the six municipalities and interning between the paths where blue agave crops were observed and proceeding to interview the producer who was taking care of the crop, from the previous proceeding to interview to two producers per municipality, looking always that they were not in the same plot, and also that the plots were not so close to each other, with the aim of being able to rescue the vision of the producers of different geographical points of the six municipalities; a task that turned out to be quite complex, since locating the producers taking care of their crops is quite complex to coincide, since the blue agave is not a plant that is to be taken care of every day.

Then, the interviews applied were to the six holders of the MRDD of the municipalities under study; as well as, two producers of blue agave by municipality, although in this particular it is highlighted that in the case of the municipalities of Ixtlán de Río and Amatlán de Cañas, there was an opportunity to interact with a greater number of producers.

In terms of the applied interview, it is pointed out that it was guided, at first, by seeking information about the ways of integration, participation in the tequila industry; in a second moment, he left himself to an open interview, leaving the interviewee to present everything he wanted to comment on the subject, to obtain information that could in some way enrich the research.

3 Historical background of a region producing agave and tequila

The production of a drink based on an agave pineapple juice dates back to the pre-colonial era " but what is more important in this case, is the vestige that at least 9 thousand years ago that in the center of Mexico the cooked mezcal was already consumed by its inhabitants " (Muriá, 2016. P. 32) but the creation of the drink that is now known as tequila is considered at the beginning of the 16th century (Muriá, 2016., Camelo and Rodríguez, 2018) expose that to the process of cooking the pineapple of the maguey, still in the earth well, and its juice was annexed the distillation process, presumably devised by a Spaniard, to give life to the brandy or mezcal. Although this drink was produced in a large part of the Kingdom of New Galicia and the Kingdom of New Spain, for the present it will focus on such an important geographical region of the production of the product, which would coin its name; There is a publication by Camelo y Rodríguez (2018) that presents the arguments to explain the particular.

Figure 2 Conformation of the kingdoms during the colonial period of Spain (1492-1810)
Source: Leoncio, 2016

It is then, the tequila region of the middle west of the Spanish colony, in the kingdom of New Galicia, currently of Mexico, in the Nayarit and Jalisco States, one so old that it comes from the colonial era itself.

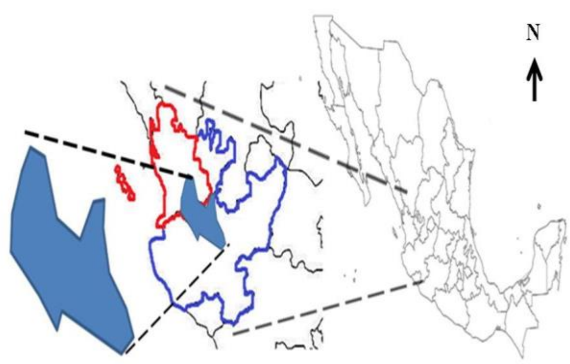

Figure 3 Macro-location of the agave and tequila production region in the north of the Jalisco state and south of Nayarit; Mexico
Source: Camelo and Rodríguez, 2018

Vale states that according to Camelo and Rodríguez (2018) there are other tequila regions within the Jalisco state, towards the highlands of Jalisco and towards the part of the municipality of Tonaya, Jalisco; both regions of considerable size, it is understood that a large part of the territory of the Jalisco state has this production; as well as the Nayarit state that practically serves half of its territory, from the municipality of Tepic to the south of the state.

Of the previous thing, to speak of the producing region of maguey or agave, for this zone of the territory of Mexico, to produce tequila, is to go back to the first years of the Spanish colony; and in turn, to consider this same plant, for the production of native beverages, is to venture into the pre-colonial era, as it is exposed in enough literature, as (Muría, 2016; Casa Cuervo, 2017; Camelo and Rodríguez, 2018).

The precedent for this publication is to observe how the maguey, or agave, region of the Nayarit state integrates or participates in the tequila industry, either by integrating into the economic linkages to the south with the Jalisco state or by generating the production of The drink in the Nayarit state, which as is known, is part of the denomination of origin, according to the Tequila Regulatory Council.

"For the purposes of this declaration of protection, the territory of the Jalisco state is established as the territory of origin; the Municipalities of Abasolo, Ciudad Manuel Doblado Cueràmaro, Huanimaro, Pènjamo and Purìsima del Rincòn, of the State of Guanajuato; the municipalities of Briseñas de Matamoros, Chavinda, Chilchota, Churintzio, Cotija, Ecuandureo, Jacona, Jiquilpan, Maravatio, Nuevo Parangaricutiro, Numarán, Pajacuarán, Peribán, La Piedad, Régules, Los Reyes, Sahuayo, Tancítaro, Tangamandapio, Tangancícuero, Tanhuato, Tingüindín, Tocumbo, Venustiano Carranza, Villamar, Vistahermosa, Yurécuero, Zamora and Zináparo, of the State of Michoacán; the Municipalities of Ahuacatlán, Amatlán de Cañas, Ixtlán, Jala, Jalisco, San Pedro de Lagunillas, Santa María del Oro and Tepic, of the Nayarit state" (Tequila Regulatory Council).

From the historical background, the objective is to observe the current dynamics, by 2018, of how the south of Nayarit participates in this dynamic of productive orientation, either in primary production (agave) or in the transformation in the secondary sector (tequila industry).

This is how a regional economic integration is conceived, between the south of Nayarit and the north of Jalisco, since pre-colonial times and that it continued in the colony, during the independent Mexico, with the seventh canton of Jalisco, and with the nascent free and sovereign Nayarit state in the year of 1917. It is in itself, an economic region of centuries.

4 Findings

The findings that the research exposes, are made up of an intense field work, in the municipalities mentioned in the methodology section, and that rescues the experience and the feeling of daily living, of the actors involved, in their participation in the industry of the tequila.

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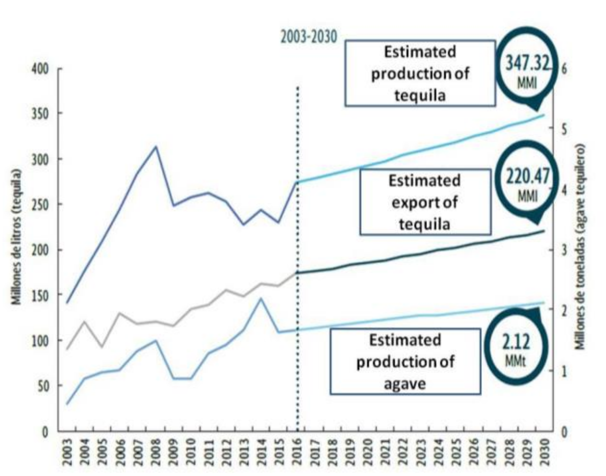
To contextualize the present investigation, it is exposed that, after the dynamics in the tequila industry, in the study region, experienced in the 19th century, the south of Nayarit, during the 20th century, continued participating in the agave production of relatively thin way; however, unlike as it has happened historically during the last century, in the last 20 years, approximately, agave cultivation has increased in the municipalities of the center-south of the Nayarit state, not being oblivious to economic cycles, It can not be ignored that this increase coincides with the periods of scarcity of the raw material for the production of tequila, this scarcity referred to is not due to a net reduction in the production of the raw material, the net behavior of the volume of the production of agave is incremental, but it is a relative shortage because of the increase in the volume of demand for the tequila drink.



Graph 1 Production of the tequila drink and tequila agave plant, from 2003 with projection to the year 2030
Source: SAGARPA, 2017

The graph shows several elements, an incremental process of the production of both tequila and its raw material, during the period indicated, with a contraction during the global crisis cycle of 2008-9 for the case of agave production. In the case of the production of tequila, there is a longer contraction, during a period of stagnation until the year 2010-11 and after a contraction process from 2011 to 2012-13. In the case of exports, it has been incremental after 2007-2008, during that time it has been the domestic market that lost tequila consumption capacity; after these periods of global economic turbulence, it has remained incremental and production is on the rise; without underestimating, which are projections and therefore with a degree of uncertainty.

But note that since 2003 to date, with its cyclical periods, has been an incremental production, not even the lowest point of contraction in 2009 reaches the lower levels of production in 2003, on average has been a period of expansion, of the production of the tequila drink and its raw material, of this the exposure of the relative scarcity of the raw material. A first finding that you want to expose in a graphic way, and that serves the same as a preamble to what is presented below, is the production cycle of agave, very particular and sui-generis, which is carried out in this region producing tequila agave; Observe the following image.

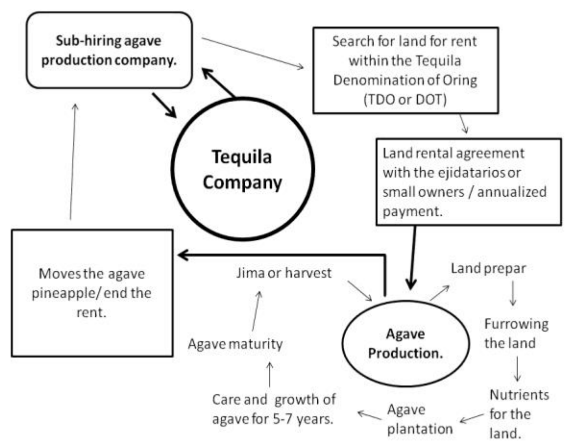


Figure 4 Production cycle of tequila agave in the region formed by the south of the Nayarit state and north of the Jalisco state; Mexico
Source: Self Made

4.1 Social Perception of the object of study

The feeling of the people who are participating in the Tequila Industry (TI), is of considerable diversity; However, there is some agreement between the interviewees. It is stated that some years ago (10 or 15 years), the different municipalities where the interviews were conducted, there were no sources of employment or they were very difficult to access, agave production, mainly, It has been a space where it has absorbed part of the work force that is unemployed, those excluded from the labor market, who locate in the production of agave, and TI in general, the labor redoubt that allows them to sell the power of his muscles and intellectual skills in some space of the productive chain of the drink called tequila.

This fact, finding a space, to be integrated into the tequila capitalist production, where sell their productive capacity, allows those who participate, have an income to be incorporated into consumption in the capitalist market, be it: food, clothing, footwear, education, among others, and of this the population that found in the TI the opportunity to be employed, expresses in a very pleasant and grateful way with the integration in the TI, since it opened the opportunity to be used.

Another element in which there is a certain coincidence in the perception of the interviewees, is a neglect, a neglect of the Mexican government and the Nayarit state to support the field, since they mention that mostly, between 90% to 95% of the planted area of agave, is ejidatarios who rent their land to tequila Cuervo, and to a lesser degree, the Teucer Sauza, since there is no capital to make the investment, since the pure agave plant, to start the plantation, costs between 10 to 12 pesos per plant, and there are no channels for marketing, it was external that did not necessarily expose the agave plantation, but there is no support for other crops, even corn, beans or sorghum; of it, when not having any type of support on the part of the government, that the interviewed ones consider irresponsible, it is happened to rent the lands to the tequileras of Jalisco like an option to receive an economic entrance "The Mexican government has not articulated broader objectives that support its Global Industry (GI) policy, beyond protecting Mexican products from substitutes produced abroad. Therefore, the tequila GI was allowed to be designed and implemented in a way that excludes peasants and fails to protect local resources." (Bowen, 2012. P. 91).

The following is a breakdown of the findings of the interviews, seeking to present the ideas in order from the three economic sectors, in order to present the research carried out with greater structure; of the foregoing, what is external in the wording of each of the economic sectors, does not correspond to a specific interviewee, but rather is the discoveries that come together, of the different consulted, in a certain section.

4.2 Integration of the center-south of Nayarit to the tequila industry in the primary economic sector

The construction of this section has shown a degree of complication, in its preparation, by the amount of experiences and ideas shown by the interviewees. The thirst to expose what is lived becomes palpable in the interviews; this sector, which has to do with primary production, and which some classical authors of political economy expose as the source of wealth.

The desire to expose what is lived becomes palpable in the interviews; this sector, which has to do with primary production, and which some classical authors of political economy expose as the source of wealth. Some of them of greater astonishment, but all of them, systematically oriented to the logic of the accumulation of capital of the tequila companies, not of the ejidatarios. First of all, there is a coincidence in the total of the interviewees that, from the area planted with agave, 90% to 95% of the surface corresponds to land rented by the tequila producers to the ejidatarios, from the above only from the order of 10% to 5% corresponds to ejidal or small property plantation, they are known as independent agave producers; the tequila plants that are mentioned as those that carry out the production of the agave are two, namely: Cuervo and Sauza, with the exception that in the total of the analyzed municipalities all mention that they cultivate for the Tequila Raven; only in the municipality of Amatlán de Cañas, they make reference to the fact that they also cultivate for the Sauza tequila, not to mention that it is a small part of the agave production that is worked with the Sauza tequila, that most of the production of agave goes to tequila Cuervo.

The rent of the land, for tequila plants, is developed in the following way. It is understood by a productive cycle of agave, which is between 5 to 7 years, so that the plant obtains the corresponding maturity to be used as a primary material for the production of tequila; the price paid by tequila producers per hectare of land, is variable depending on two main criteria, namely: the steepness of the land and the accessibility of the communication routes to it; of the above, the price paid per hectare ranges from 5 to 8 thousand pesos per year; This payment is made exclusively by bank transfer, which generates a cultural clash between the ejidatarios and the tequila houses, since, the ejidatario, not accustomed to managing a bank account, must meet such a requirement if he wishes to rent his land to the tequila.

Another element added, which adds to the culture shock, is that the tequila producers ask landlords for a certain registration before the Sistema de Administración Tributaria (SAT). The above, takes material form with an annual payment for the hectares of land rented, there are no monthly or weekly payments, but the tequila companies make the deposit once a year, for the total amount of the leased hectares, in such a way that if the lands are rented for 7 years, there will be 7 annual payments.

Regarding the way in which the production, planting and harvesting of the agave is carried out; it has some variants; that is, an artisanal production or a production with machinery. It is expressed that it can be carried entirely with equipment and machinery; however, it is not possible to be done in such a way because there is a physiographic restriction, It is not due to lack of investment capital of the tequila plants, but sometimes the land where the agave is planted is too steep, which makes it difficult and makes it inconvenient to use machinery to carry out said production, in such case does it in an ancestral or artisanal way; in other cases, the physiography is more accessible and it is where tractors and other machinery are used that accelerate the planting and harvesting-jima of the agave; what is still irreplaceable, until now, is the jima (de jimar) of the agave, once it reaches its point of maturity to proceed to process and industrialize it to produce the tequila drink.

Figure 5 Sowing of blue agave using machinery, as tractor and trailer, in the municipality of Amatlán de Cañas, Nayarit; Mexico
Source: Own photography

It is activated agave production, generates a considerable integration of labor, it has different characteristics in terms of school education levels as there are day laborers who have primary studies, and even without completing, and some others have with undergraduate studies truncated.

This work force, integrated mainly to the work of the field, has a division of functions, and of it, with differentiated wage payments. The division in the structure of work in the field is composed of: Laborer, tractortista or machinist and corporal of cuadrilla. The day laborer is the one who does the direct work in the planting and care of the plant; the machinist is the one who operates the tractors and trailers; the corporal is responsible for organizing the day laborers (a crew consists of 68 day laborers) and machinists to take care of the hectares that are responsible for the production of the agave; there are also the engineers in charge of taking care of the growth and maturity of the plant, and the jimadores responsible for assisting the lands where it is advised that the maguey plant is ready to be jimada. The work schedule of those who participate in the production in the field, regardless of whether he is a day laborer, machinist or gang leader, is from 6:00 a.m. to 5:00 p.m.

Figure 6 Laborers planting blue agave in Amatlán de Cañas, Nayarit; Mexico
Source: Own photography

The payment of the labor force, contracted by the tequila houses, varies according to their insertion in the production of the agave; everything is paid from a wage, which amounts, for the year 2018, to $ 88.36 pesos (corresponding to a minimum wage of the Mexican Republic) for the day laborer, the wage for the machinist is increased to $ 111 pesos and for the corporal of gang amounts to $ 125 pesos. With this base the calculations are made to assess the payments: The day laborer has a remuneration of 3.37 wages, to cover a schedule of 6:00 a.m. to 5:00 p.m., of this multiplies 3.37x88.36 = 297.77 pesos per day, from 6:00 a.m. to 5:00 p.m., worked; in the case of the machinist, he has a payment of 3.5 days' wages, for which the remuneration amounts to 3.5x111 = 388.5 pesos per working day; and for the case of corporal, his payment corresponds to 3.5 days' wages, valued at $ 125 pesos, of which 3.5x125 = 437.5 pesos per working day.

It is worth mentioning that the labor force integrated in this way to the production of maguey, has all the benefits set by the Federal Labor Law. In the case of ejidatarios who are independent producers, who do not rent their land to the tequila houses, the foregoing does not apply, since in this case it is mainly the family that participates in the production of the agave, this can not be done consider a workforce hiring, but it is the contribution and family cooperation to the production for the sustenance of the family, independently of if the obtained production is sold, or not, to the tequila houses; but for this case, of independent production, it has to pass the supervision and certification of the Tequila Regulatory Council (TRC) so that this independent production can be incorporated into industrialization to obtain the tequila drink.

It is important to outline how the production of agave takes place, on the part of the tequila house; note that the above is the productive chain of the tequila drink, from primary production to its subsequent process of industrialization. The strategy used for the production, of the raw material, of tequila is carried out under a subcontracting scheme of another company[2], and it is the subcontracted company that does the whole process of land rental, purchases of inputs and everything related to the production of agave; of it, the workers of the field Do not work, or are contracted, directly by the Tequila house Cuervo or Sauza, but it is done through companies that belong to these firms but has its own business name; mention, among others, to: Agaveros de Magdalena, Farmers and Agaveros de Tequila, Producers and Agaveros of Tepic and Nayarit, and some others.

It is from companies like these, how hiring day laborers, machinists, crew chiefs, jimadores, engineers, clerks, etc are carried out; likewise, they are in charge of making the lease contracts of the lands with the ejidatarios. That is, these companies are responsible for carrying out everything related to the production of agave, from the most basic to the final point, and once you have the primary production its sale is for the Tequila houses Cuervo, Sauza, others, according to work for each of them.

Regarding the perception of those who rent their lands to the companies producing agave, there is a certain discontent when their land has been returned, since they mention that they are given "very salty" (less fertile) by the chemicals that they use so that the agave is achieved with the quality required to be incorporated into the production of tequila.

Each stalk, or pineapple, of mature agave has a weight that ranges from 40 to 50 kilograms (Kg.) And is paid between 20 to 30 pesos per kilo, it also depends a lot on the market. "In the reality of the world, we do not deal with natural resources that can be treated as commodified goods, since these resources are the basis of the reproduction not only of society but also of biological life." (Amín, 2001. P. 16) At the same time, there are theoreticians who since the mid-nineteenth century had the analytical capacity to refer to this last point pointed "Furthermore, every process carried out in capitalist agriculture is not only a progress in the art of fleecing the worker, but also in the art of fleecing the earth, and every step that takes place in the intensification of fertility within a period of time determined time, is in turn a step taken in the depletion of the Perennial sources that nourish said fertility" (Marx, 2010. P. 423).

Finally, it is necessary to highlight that all agave production is commercialized with the Jalisco state.

4.3 Integration of the center-south of Nayarit to the tequila industry in the secondary economic sector

The economic integration of Nayarit with Jalisco, from the tequila industry, to the effect of the secondary sector, is circumscribed exclusively in two dimensions. On the one hand, the sale of the total production of Nayarit agave is made for the Jalisco state, which is the commercialization of primary production, for the transformation into tequila; and eventually, of some amount of tequila production, which is carried out in Nayarit by Tequila Real de Ixtlan, which can be sold and / or bottled in Jalisco, which can be considered more of the tertiary sector; in neither case does it generate, this economic dynamic, a participation of Nayarit, in a dignified manner, in the tequila industry in the secondary sector; and even, the impacts that the Real Tequila of Ixtlán could generate, in the region of Nayarit, is as relevant as the size of the production of the tequila in question, which is not large.

[2] Something that is known as Outsourcing

The above, states that there is not really an integration of inputs that, the tequila industry installs in the Jalisco state, demand, of Nayarit, for the process of production and packaging of the tequila drink, generating industry in Nayarit, generates virtually nothing in the process of tequila industrialization in Nayarit, nor horizontal or vertical linkages of any kind, there is no industry, relevant, in Nayarit from tequila, no barrels are produced, neither the rings of the barrels, nor the cooking tanks, nor the bottles, nor the labels of the bottles, nor the required nails or screws, absolutely nothing, everything is produced in Jalisco. In the total economic dynamics of the Nayarit region, the secondary sector of TI is almost imperceptible.

Figure 7 La Aguirreña Distillery, in Tequila, Jalisco; Mexico
Source: Own photography

It is rescued that in Ahucatlán, Nayarit there was a tequila called Tequilera Miramontes, which closed about 5-7 years ago; Likewise, the interviewees mention another tequila that operated in Jala, Nayarit, called El Ceboruco Tequila, it also closed about 7 years ago. The reasons for the closure of these tequila houses could not be rescued from the interviewees.

4.4 Integration of the center-south of Nayarit to the tequila industry in the tertiary economic sector

The participation of this sector of the economy, in relation to TI, is of greater intensity; but with the peculiarity that it is, mostly, only one direction, from Jalisco to Nayarit. Since it does not generate the commercialization of the required inputs to do everything related to the productive chain of tequila; since, all that it requires, is brought, by the companies producing agave, directly from the Jalisco state, of it, in Nayarit they are only installed to take advantage of the availability of land suitable for production.

But it is external that, the agrochemicals, equipment, spare parts, etc., buy it in the Jalisco state. In the services sector, eventually the rent of real estate to install the offices, warehouses and others is an increase; as well as the use of private banking to perform transactions is also used; Another element that is considered is transport, although companies from the Jalisco state are also contracted here. Occasionally, some local transportation is also hired, but not being the most usual, due to the fact that there are no companies in the region dedicated to the said turn.

Figure 8 Warehouse of a company producing blue agave, in the municipality of Ixtlán del Río, Nayarit; Mexico.
Source: Own photography

5 Conclusions

The price per kilo of agave, is determined by the market, and as it is explained in section III, it is in expansion, according to graph 1, so the lack of agave supply for the tequila industry is relative, the demand for tequila demand more raw material, although it is growing in total volume of production, this imbalance between demand and supply of agave, allows concluding that the price of the same does not experience a contraction in the short and medium term, it can be considered that by the year 2021 there is no reduction in the price of the agave that will make it unaffordable, the problem observed is that the production cycle is from 5 to 7 years, and although the projections of the demand for tequila are incremental, the current global environment does not ensure that this projection is maintained without cyclical contexts.

Section 4.2 and 4.4 The process of regional integration between Nayarit and Jalisco, is a very peculiar one, which allows observing disparities within the same region. The way in which these two states are integrated, starting from the tequila industry, is basically by the sale of the productive capacity of their population, as a labor force, and by the sale of the fertile capacity of their lands.

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Both way of integration to the tequila industry, are the most primary part of the productive chain to obtain the tequila drink. With this form of integration, the economic spillover to Nayarit is evident, it does exist, but potential is not exploited as a trigger for regional development, thus, the image that is the object of regional development is a utopia.

Section 4.2.- Working under a scheme of subcontracted company, or if you like to call outsourcing, has a great disadvantage for people who are employed under that approach, since if, at some time of crisis, the subcontracted company, beyond if it belongs to the same firm of a tequila house, is forced to close and dismiss the total of the hired labor force, it can do it without generating direct responsibility to the tequila house. Likewise, it can be liquidated according to law, but it has no direct effect on the finances of the tequila house, except in the context of a cyclical economic context.

A general conclusion is that, in the regional dynamics of the object of study, only the regional, productive, legal facilities related to the DOT are taking advantage of Nayarit, but there is no income through the transformation of the raw material that allows the distribution of the same in Nayarit; Of course, there is still an advantage in generating jobs for the southern region of Nayarit dedicated to the planting of agave, of which the area in question is very needed; it is considered that this regional integration is being taken advantage of by Nayarit.

6 Dedication

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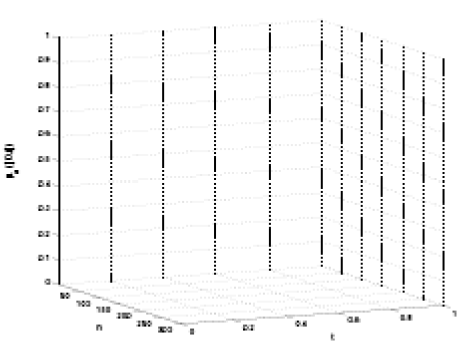

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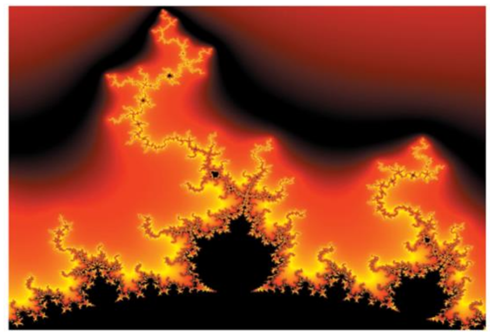

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