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Presentation

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The effect of emotional intelligence on job engagement and organizational performance

El efecto de la inteligencia emocional en el compromiso laboral y el desempeño organizacional

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Abstract

Emotional intelligence is a matter that attempts to describe and change the position of emotions, feelings and capabilities of human being. What differentiates every organization's human resource from other rival organizations is employees' job engagement. Organizations have been set up for the purpose of getting to specific objectives, and getting to objectives (organizational effectiveness) and proper usage of resources (efficacy) would entail staff's performance. From the view point of applied purpose and data gathering this research is descriptive/survey. The statistical population includes employees of the banks of Famenin, consisting of 90 people. According to Morgan table the sample size was determined to be 80 individuals. The sampling method was stratified sampling. Questionnaire was used for gathering data. For validity assessment, content validity and confirmatory factor analysis was used, and the results showed that factor analysis was proper for identification of factor model structure. For reliability assessment Cronbach's alpha was used and the results showed that each component of the research questionnaire was more than 0.7.Data analysis was done through Modeling of structural equations by LISREL and SPSSsoftwares. The results indicated that emotional intelligence had a positive and significant effect on the employees' job engagement and on their performance of the banks of Faminin. The results of other sub-hypothesis of 1 and 2 indicated that all components of emotional intelligence (self-awareness, self-management, social awareness, relationship management) had a positive and significant effect on the employees' job engagement and on their performance of the banks of Faminin.

Emotional Intelligence, Job Engagement, Organizational Performance, Managers, Organizational Staff

Resumen

La inteligencia emocional es una cuestión que intenta describir y cambiar la posición de las emociones, los sentimientos y las capacidades del ser humano. Lo que diferencia al recurso humano de cada organización de otras organizaciones rivales es el compromiso laboral de los empleados. Se han establecido organizaciones con el propósito de alcanzar objetivos específicos, y lograr los objetivos (eficacia organizacional) y el uso adecuado de los recursos (eficacia) implicarían el desempeño del personal. Desde el punto de vista del propósito aplicado y la recopilación de datos, esta investigación es descriptiva / encuesta. La población estadística incluye empleados de los bancos de Famenin, que consta de 90 personas. De acuerdo con la tabla de Morgan, se determinó que el tamaño de la muestra era de 80 individuos. El método de muestreo fue muestreo estratificado. El cuestionario se utilizó para recopilar datos. Para la evaluación de la validez, se utilizó la validez del contenido y el análisis factorial confirmatorio, y los resultados mostraron que el análisis factorial era apropiado para la identificación de la estructura del modelo del factor. Para la evaluación de confiabilidad se utilizó el alfa de Cronbach y los resultados mostraron que cada componente del cuestionario de investigación era más de 0,7. El análisis de datos se realizó a través del modelado de ecuaciones estructurales por LISREL y SPSSsoftwares. Los resultados indicaron que la inteligencia emocional tuvo un efecto positivo y significativo en el compromiso laboral de los empleados y en el desempeño de los bancos de Faminin. Los resultados de otras subhipótesis de 1 y 2 indicaron que todos los componentes de la inteligencia emocional (autoconciencia, autogestión, conciencia social, gestión de relaciones) tuvieron un efecto positivo y significativo en el compromiso laboral de los empleados y en su desempeño de los bancos de Faminin.

Inteligencia Emocional, Compromiso con el Trabajo, Desempeño Organizacional, Gerentes, Personal Organizacional

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Introduction

One of the most important and interesting areas of research in recent years has been the issue of emotional intelligence, which is widely used in the field of occupational and social affairs. Emotional intelligence involves the ability to receive emotions; to coordinate emotions and feelings;to understand emotional information; and tomanage emotions (Sobhaninejad, Pozbashi, 2008).As in the human world and in the turbulent life of human beings, people enjoyinga high level of intelligence aresuccessful and efficient,it will definitely be the same in the organizational world especially because as time passes and with the advent of science and technology and the emergence of new needs and challenges, organizations are getting more complicated and more difficult to manage.

This makes sense when we accept that in today's organization, in addition to the vast and creative source of human intelligence, intelligent machines also play an important role in the organizational processes (Raisey et al., 2008).Awareness of the emotional intelligence of individuals in an organization can help managers solve many problems because when they admit that humans differ in terms of emotional intelligence, they will not seek to expect the same behavior from all employees. Many managers tend to be strict and cannot establish a good relationship with employees.They cannot change the business environment; organizational culture; work and technology process. Despite having a good technical knowledge, these managers cannot be successful (Cooper, Sawaf, 2006).

The future of organizations is in the hands of their employees and staff. This reveals the importance of human resources more than ever. Attracting people, training them, using and keeping them in order to achieve organizational goals are strategic tasks.One of the important structures and having recently attracted psychologists' attention is the employees' occupational commitment that can distinguish the human resources of any organization from that of other competing organizations. Job engagement refers to energy, occupational attachment, and professional effectiveness, and it is characterized by strength (activity), self-devotion (high identity), and attraction (Maslach,Leiter, 1997).Job engagement means a positive affective state characterized by three dimensions of power (force), sacrifice, and absorption.

Evidences from other job groups suggest that most of the employees with better physical conditions and employed in a more productive state of affairs have a more positive attitude to their work; are more committed; have more job satisfaction and engagement; and are less incentive to quit or change their jobs (Schaufeli, Bakker, 2004).Empirical research on occupational engagement states that high levels of commitment contribute to increase the organizationalcommitment; job satisfaction; health and wellness development; over-role behaviors; higher performance; learning motivation; personal innovations; and to reduce absenteeism and intent to quit (Schaufeli, Salanova, 2007).

Function is one of the most commonly used words in various sciences, especially management. Organizational performance refers to the degree to which employees perform the tasks given to them under certain working conditions (Georgellis, et al., 2012).Functionality is defined as the total values expected by the organization and consisted of distinct behavioral elements that a person performs over a given period of time. The current and future era is the age that Peter Drucker called the "lack of continuity" or the era of open organizational systems.None of the organizational phenomena and societies today can survive and grow out of an environment that is constantly in a state of change.

The function of an individual in an organization depends on his personality and the role of the organization, as well as on the organizational success and conditions.These conditions have been studied and considered as environment, culture, feeling, communication skills, empowerment, and job performance. Resulting from employees' perceptions of the objective and tangible aspects of the organization,these structures have a positive impact on the organizational intrinsic quality, work ethic, commitment, and conscience of the individual (Aslanpour, Maleki, 2012).From the social point of view, the most interesting point for organizations is to have staffs that do their jobs well. Good performance increases the productivity of the organization, which ultimately leads to an increase in the national economy.

Effectiveness in the tasks creates a desirable job performance; therefore, organizations must focus on factors that lead to an optimal organizational performance (Barzegar, Mohammadi, 2012) in order to achieve efficiency and effectiveness in fulfilling their duties, and ultimately improve the performance of their staff.

By studying the studies and foundations related to the present research, one can see the lack of research of this kind, especially in financial institutions including banks. This research aims to investigate the effect of emotional intelligence and its components on job engagement and organizationalperformance in Famenin'sbanks in order to find out which of the factors of emotional intelligence is more effective on job engagement and organizational performance; Therefore, the fundamental question of the present research is whether emotional intelligence has a positive and significant effect on job engagement and the organizational performance (case study: employees of the banks of Famenin city).

Research Background

Several factors affect the individuals' effectiveness in the organization. One of these factors affecting individual's behavior is emotional intelligence. Emotional intelligence seems to be an evolved form of human attention in organizations and a new and desirable tool in the hands of business executives and market theorists to guide andsatisfy individuals within organizations and external customers.

Emotional Intelligence

Emotional intelligence is a subject that attempts to explain and change the position of human emotions, excitements, and abilities. IQ is not able to explain the destiny of the different people who have similar academic opportunities and conditions.At most, IQ causes only 20% of life success; 80% of successes depends on other factors, and people'sfate, in many cases, depends on the skills formed by emotional intelligence or EQ.John Mayer and Peter Salvey, in 1989, responded to the question of what contributes to the success of individuals in life, and introduced the term emotional intelligence as: Emotional intelligence is the ability to understand our emotions and excitements and others'and to use them as a guide for our thinking and actions (Golman, 1995).

Occupational Engagement

The importance of the role of human resources in organizations is undeniable, and the lack of attention to this can cause major problems for organizations.

Therefore, the need for the preservation of human resources is urgent and important (Rahimi et al., 2011).Having recently attracted the psychologists'attention and one of the important structures is the employees' occupational engagement that can distinguish the human resources of any organization from other competing organizations. Job engagement refers to energy, occupational attachment, and professional effectiveness, which is characterized by dimensions such asstrength (activity), self-devotion (high identity), and attraction (Maslach,Leiter, 1997).Job engagement means a positive affective state characterized by three dimensions of power (force), sacrifice, and absorption.

Evidences from other job groups suggest that most of the employees with better physical conditions and employed in a more productive state of affairs have a more positive attitude to their work; are more committed; have more job satisfaction and engagement; and are less incentive to quit or change their jobs (Arthur,1993).Employees' engagement is characterized by a distinct and unique structure and combination of cognitive, emotional, and behavioral components, which is, of course, related to the function of individual roles. Employees' engagement in fact involves their long-term emotional partnership and participation, and a greater proportion of employees' feelings, such as job satisfaction and commitment are of particular priority (Engardio, 2006).

Organizational Performance

Organizations have been created in order to reach specific goals and achievement of goals (organizational effectiveness) and optimal use of resources (efficiency) depend on the employees' performance.The employees' performance in an organization is examined from two perspectives: On one hand, in some studies, it is evaluated by the employeesthemselves (self-assessment method), and on the other hand, in some other studies, performance evaluation is done by managers (De& et al., 2009).Paying attention to the employees and to their job performance,in particular, as the largest and most important organizational capital is a phenomenon that has grown over the past few decades.

Having taken place in the current years and having arisen in the form of decentralization of management and directorship; the reduction of organizational layers; employee participation in the decision making process; etc., many of the changes are due to the fact that the organizations' attitudes have changed towards the work force, and employees of the organizationshave been freed from their old and deficient definition of the aftermath of the Industrial Revolution, and they are defined based on the renowned definition of valuable resources.Nowadays, industrial, commercial and even service organizations have increasingly turned to their specialized expertise; employees' satisfaction; and attachment to their human resources in order to enhance their productivity, and have connected productivity to improving the staffs' job performance and the quality of their work life (Ghasemzadeh et al., 2011).

Experimental background

- Manteghi et al. (2016) investigated the effects of job engagement on employees' performance (Case study: National Bank of Khorramabad). The results of their research show that job engagement and its affirmations have a positive and significant effect on employees' job performance.

- Marzouqi and Heidari (2016) conducted an investigation into the role of employees' commitment in the regulatory oversight relationships and their innovative self-efficacy. The results of this research showed that the employees'commitment has a positive and significant effect on the sense of innovative self-efficacy and the mediating role also influences the supervisory oversight relationships and the staffs'innovative self-efficacy.

- Barabadi et al. (2015) conducted a study on the role of job demands, job resources and, job burnout in predicting task performance. Regression analysis showed that only job burnout was predictive of task performance (p <0.01). The results of this study showed that burnout is a factor in weakening the level of duty performance.

- Heydari (2015) did a research on the role of organizational entrepreneurship in the relationship between emotional intelligence and business performance (case study: companies located in industrial towns of Sanandaj city). The results of this study showed that there is a positive and significant relationship between emotional intelligence variables such as social awareness, relationship management, self-awareness and self-management and organizational entrepreneurship,but there is no significant direct relationship between emotional intelligence and business performance; Nevertheless, using the role of mediation of organizational entrepreneurship in the conceptual model of research, the relationship between emotional intelligence and business performance (indirect relation) was confirmed.

- Gomez et al. (2015) investigated the relationship between employees' job engagement and innovation in the organization. The results of the research show that there is a positive and significant relationship between employees' job engagement and organizational innovation.

- Lenn et al. (2015) investigated the relationship between emotional intelligence and mood status. In this research, the components of emotional intelligence are self-awareness, self-management, social awareness, and relationship management. The results of this study indicate that two variables (emotional intelligence and mood status) have a significant relationship with each other.

- Band et al. (2014) investigated the relationship between emotional intelligence and organizationalflexibility. The results of this study showed that emphasis is on the importance of encouraging emotional development as a way to eliminate work stress and increase sellers' turnover.

- Gamg et al. (2014) in a research, entitled "The Study of Job Satisfaction and Job Performance in Garment Workers", concluded that job satisfaction has a positive and significant effect on employees' performance.

- Mohammad et al. (2013) did a study entitled "Assessing the Impact of Customer Relationship Management on Organizational Performance Dimensions: A Case Study in Malaysia's Hospitality Industry." The results of the research showed that all dimensions of customer relationship management are positive and have a significant impact on hotel performance from different viewpoints.

- Mangus et al. (2013) investigated the impact of supervisory oversight on employees' job engagement. The research results indicated that supervisor's support has a positive and significant impact on the level of employees' job engagement.

Conceptual Model of Research

Regarding the main variables of the research and the purpose of this study, which is to identify and investigate the relationship between these variables, the conceptual model of the research is suggested as follows:
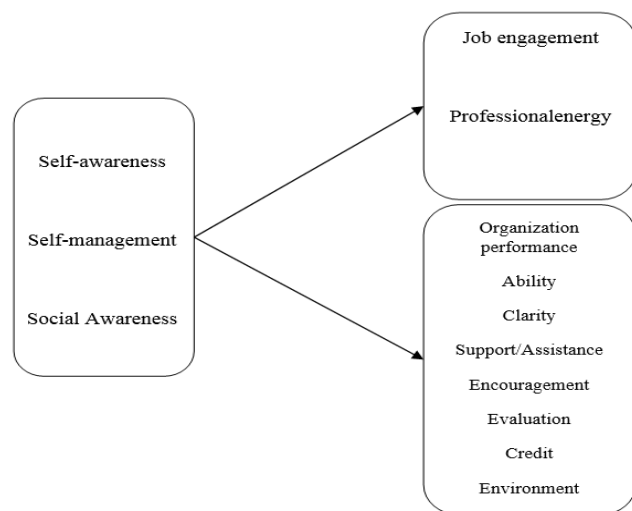
Figure 1 Conceptual model of research

On this basis, according to the conceptual model of research, the following hypotheses are tested:

- **The first main hypothesis**: Emotional intelligence has a positive and significant effect on the employees' job engagement in the banks of Famenin.

- **The second main hypothesis**: Emotional intelligence has a positive and significant effect on the employees' performance in the banks ofFamenin.

First Sub-hypotheses:

1. Self-awareness has a significant effect on the employees' job engagement in the banks ofFamenin province.
2. Self-management has a significant effect on the employees'job engagement in the banks of Famenin.
3. Social awareness has a significant effect on the employees'job engagement in the banks of Famenin.
4. Relationship management has a significant effect on the employees'job engagement in the banks of Famenin.

Second Sub-hypotheses:

1. Self-awareness has a significant effect on the bank employees' performance in Famenin.
2. Self-management has a significant effect on the bank employees' performance in Famenin.
3. Social awareness has a significant effect on the bank employees' performance in Famenin.
4. Relationship management has a significant effect on the bank employees' performance in Famenin.

Research Methodology

In general, the present research isan applied research in terms of purpose, since the purpose of the applied researches is to obtain the understanding and knowledge necessary to determine the means by which a specific need is resolved.The research is also a descriptive-survey research in terms of collecting data. In this research, the type of relationships is based on the technique of structural equations and the basis of the structural equation technique is cause and effect: Therefore, it can be said that the research method is causal.The statistical population is the bankemployees of Famenincity including 90 people. According to Morgan's table, the sample size was 80 and the questionnaires were provided using the relative stratified sampling method.

The questionnaire was arranged in four sections as follows:The first part is about demographic characteristics; the second part addresses the questions of emotional intelligence (adapted from Goldman's four-dimensional model (1995) in four dimensions of self-awareness, self-management, social awareness, and relationship management).

The third part is about the occupational engagement questions (taken from the 3-Dimensional Scheffley and colleagues (2002) in three dimensions of professional energy, dedication, and absorption);and finally the fourth part of the questionnaire deals with organizational performance (adapted from the 7-dimensional model of Hurray and Johnson (2008) including the seven dimensions of ability, clarity, support / assistance, encouragement, evaluation, credit, environment) in Likert'sfive-degree scale.Using the related theoretical foundations and the experts' views on the content of the questionnaire and in order to investigate the validity of the questionnaire, a confirmatory factor analysis method was used.

The results showed that factor analysis is suitable for identifying the structure of the factor model.Cronbach's alpha was used to measure validity of the questionnaire; its value for the emotional intelligence variable was 0.892, the job engagement variable was 0.832 and the organizational performance variable was 0/903. These values (greater than 0.7) indicate the relatively good validity of the questionnaire.

Confirmatory Factor Analysis of Emotional Intelligence
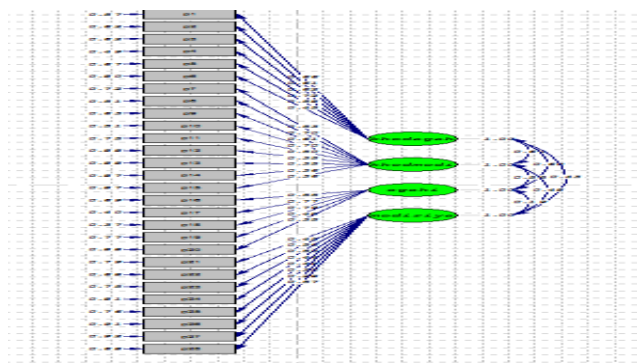
Figure 2 The results of confirmatory factor analysis of emotional intelligence questionnaire (standard coefficients)
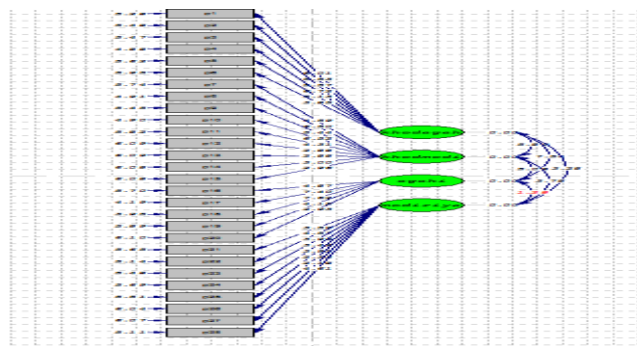
Figure 3 The results ofconfirmatory factor analysis of emotional intelligence questionnaire (t values)

As it seen in diagrams at above, all path coefficients or factor loadings have higher values. Significance t-test shows that all derived path coefficients or factor loadings are significant.

Chi-square	Degree of freedom	x^2/df	Root mean squared error of approximation(RMSEA)	Goodness of fit index (GFI)	Adjusted goodness of fit index (AGFI)	Normed Fit Index (NFI)	Comparative fit index (CFI)
599.73	344	2.44	0.09	0.65	0.59	0.56	0.71

Table 1 Summary of goodness fit indicators of Emotional Intelligence Questionnaire

The above table indicates the results of analysis in emotional intelligence questionnaire administered by confirmatory factor analysis. The suggested model was measured by LISREL software (v 8.8) through factor analysis of maximum likelihood. RMSEA indexis the mean of residues between covariance/observed correlation for the sample and expected model estimated from the population. The quantities smaller than 0.08 indicate goodness of fit while the values 0.08 through 0.10 show fitness at medium level and the quantities greater than 0.10 denote low fitness.

The value of this index amounts to 0.09 in the present analysis which signifies fitness at medium level. Indices of CFI and NFImeasure fitness of suggested model versus independence model and they are based on this assumption that there is no relationship between data. The quantity of this index may vary from 0 to 1 and they are better as they are closer to 1. The amounts of these indices are 0.71 and 0.56 in the current analysis. Similarly, Goodness of Fit Index (GFI) was also derived 0.65 i.e. at medium level.

Confirmatory Factor Analysis of Job Engagement
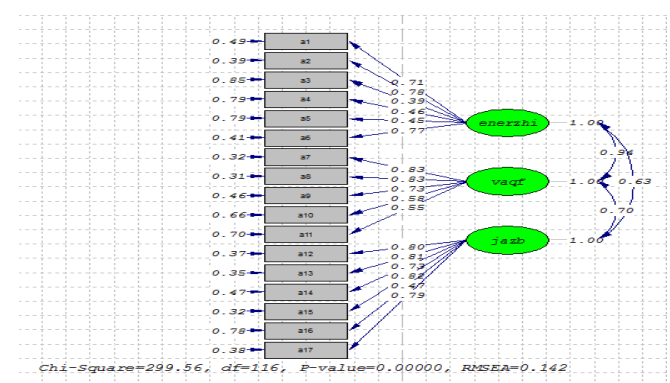
Figure 4 Confirmatory factor analysis of job engagement questionnaire (standard coefficients)
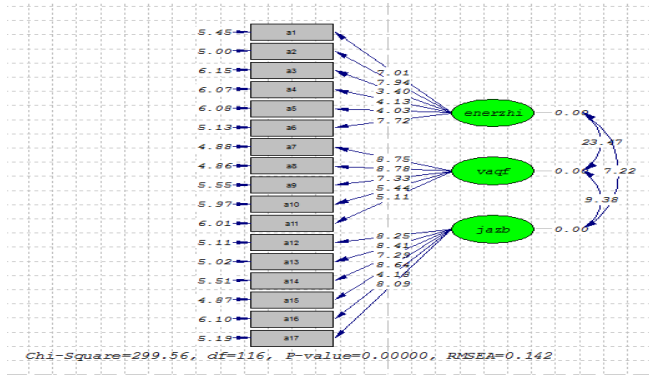
Figure 5 Confirmatory factor analysis of job engagement questionnaire (t values)

As it observed in diagrams at above, all path coefficients or factor loadings have higher values. The t-test significance indicates all of derived path coefficients or factor loadings are significant.

Chi-square	Degree of freedom	x^2/df	Root mean squared error of approximation(RMSEA)	Goodness of fit index (GFI)	Adjusted goodness of fit index (AGFI)	Normed Fit Index (NFI)	Comparative fit index (CFI)
299.56	84	2.47	0.142	0.69	0.59	0.85	0.90

Table 2 Summary of goodness fit indicators of job engagement questionnaire

The RMSEA index is the mean of residues between covariance/ observed correlation for the sample and the expected model estimated from the given population. The values smaller than 0.80 show goodness of fit at high level while the quantities of 0.08-0.10 show fitness at medium level and the values greater than 0.10 denote low fitness.

The quantity of this index amounts to 0.142 in the present analysis which signifies low fitness. Indices of CFI and NFI measure the fitness of the suggested model versus independence model and they are based on this assumption that there is no relationship among data. The quantity of these indices may vary from 0 to 1 and it is better as it is closer to 1. The values of these indices are 0.90 and 0.85 in the current analysis. Likewise, Goodness of Fit Index (GFI) was also derived 0.69 i.e. relatively good.

Confirmatory Factor Analysis of Organizational Performance
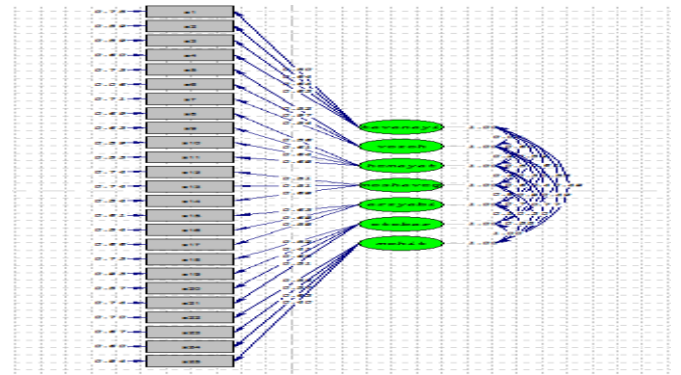
Figure 6 Confirmatory factor analysis of organizational performance questionnaire (standard coefficients)
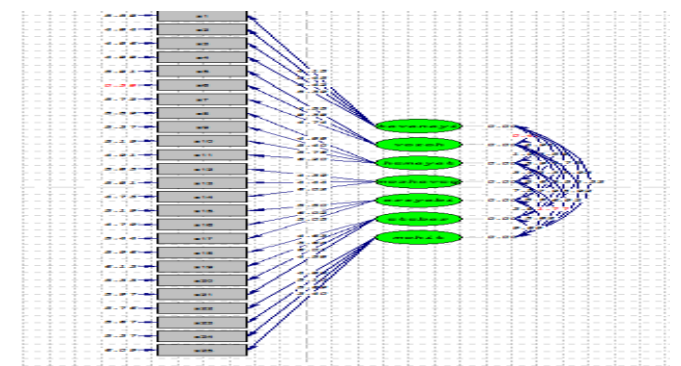
Figure 7 Confirmatory factor analysis of organizational performance questionnaire (t values)

As it seen in diagrams at above, all of path coefficients or factor loadings have higher values. T-test significance shows all derived path coefficients or factor loadings are significant.

Chi-square	Degree of freedom	x^2/df	Root mean squared error of approximation (RMSEA)	Goodness of fit index (GFI)	Adjusted goodness of fit index (AGFI)	Normed Fit Index (NFI)	Comparative fit index (CFI)
369.29	254	2.51	0.076	0.73	0.65	0.74	0.89

Table 3 Summary of goodness fit indicators of organizational performance questionnaire

The RMSEA index is the mean of residues between covariance/ observed correlation for the sample and the expected model estimated from the given population. The values smaller than 0.80 show goodness of fit at high level while the quantities of 0.08-0.10 show fitness at medium level and the values greater than 0.10 denote high fitness. The quantity of this index amounts to 0.73 in the present analysis which signifies low fitness.

Indices of CFI and NFI measure the fitness of the suggested model versus independence model and they are based on this assumption that there is no relationship among data. The quantity of these indices may vary from 0 to 1 and it is better as it is closer to 1. The values of these indices are 0.89 and 0.74 in the current analysis. Similarly, Goodness of Fit Index (GFI) was also derived 0.73 i.e. good.

Findings of the Research
Internal Correlation of Variables

Analysis in structural equations is based on correlation between research variables.Table 4 shows the correlation between research variables and their significant level. Correlation shows the type of relationship and the direction of the relationship between the two variables, and the fact that increase or decrease of one has an effect on the increase or decrease of another variable, but this correlation does not necessarily indicate the causal relationship between the variables.

Variables	(1)	(2)	(3)
(1) Emotional Intelligence	1		
(2) Job engagement	0.644**	1	
(3) Organizational performance	0.537**	0.728**	1
Number of samples	80	80	80
Correlation at the level of 0.05	Significant correlation **	Significant correlation **	Significant correlation **

Table 4 Internal Correlations of Variables

The basis of analysis is founded on the existing correlation between research variables in structured equations. Table 4 displays correlation between research variables and their significance level. The correlation shows type of relationship and its direction among two variables and what the effect of increase or decrease in each of variables is on increase or decrease of another variable but such correlation may not necessarily denote causal relation existing between variables. Table 4 shows correlation between research variables and their significance level. According to the results of Table 4, there is a positive and significant relationship between emotional intelligence andemployees' job engagement (P < 0.05, N =80, r = -0.644).

There was a positive and significant correlation between emotional intelligence and employees' performance (P <0.05, N = 80, r= -0.537).And there is a positive and significant relationship between job engagement and organizational performance (P <0.05, N = 80, r = -0.728).

Fitting the conceptual model

The figures 2 and 3 show the models in the estimation mode and the significance of factor loads and path coefficients. According to these models, we can estimate factor loads or path coefficients and then test them.The coefficients in these charts are divided into two categories: The first category is the relations between hidden variables (ovals) and obvious variables (rectangles), and these equations are called factorized loads.The second category is the relationships between some hidden variables and other hidden variables, which are referred to as structural equations and are used to test assumptions. All path coefficients are tested using T statistics.
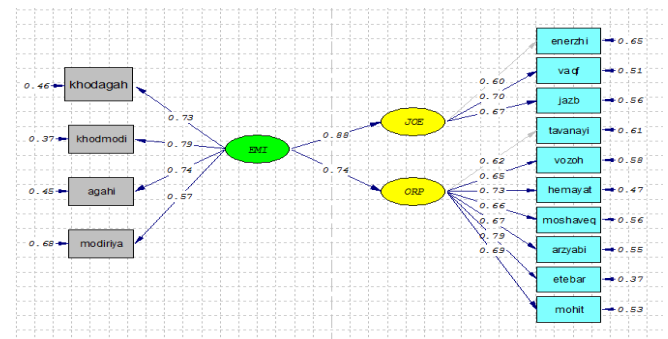
Figure2. Model of research in estimation mode or standard coefficients
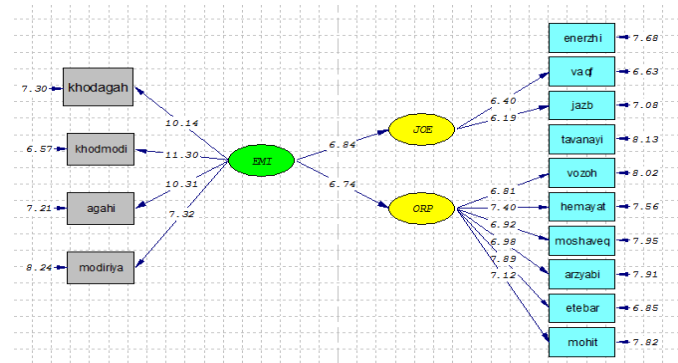
Figure 3 Model of research in the meaningful mode (t values)

The above diagrams show the research models in the modes of approximation and significance of factor loadings and path coefficients.

With respect to these models, one can estimate factor loadings or path coefficients and test them. The existing coefficients in these diagrams are divided into two groups. The first group includes relations between hidden variables and visible ones which are called structured equations and used for testing of hypotheses. All of path coefficients are tested using T-statistic. With respect to factor loadings, it can be implied which variable plays greater role in measurement of the given construct and which variable has the less portion. In other words, the index with greater factor loading plays greater role in measurement of the related construct and index with smaller factor loading has lesser portion.

Goodness of the Fit of the Model

To fit the structural model of research hypotheses, a number of goodness-fit indicators have been used.

Chi-square	Degree of freedom	x^2/df	Root mean squared error of approximation (RMSEA)	Goodness of fit index (GFI)	Adjusted goodness of fit index (AGFI)	Normed Fit Index (NFI)	Comparative fit index (CFI)
0.94	0.91	0.78	0.84	0.11	2.88	75	206.89

Table 5 Goodness of the fit of the final model

According to Table 5, it can be said that the data collected provides the necessary support for the given model. Based on the model calculation results, the value of the goodness of fit index of chi-square was206.89x2with a degree of freedom equaling 75 and a significant level of P = 0.000.Since Chi-square is susceptible to increase in sample size and correlations between variables, in most cases, this index is statistically significant. Therefore, other indexes were used to understand the fitting of the model.

Other fitting features of the model included the root mean squared error of approximation (RMSEA = 0.11);goodness of fit index (GFI = 0.84); adjusted goodness of fit index (AGFI = 0.78); normed fit index (NFI = 0.91); and comparative fit index (CFI=0.94). All of theseindexes indicate that the fit of the model is appropriate.

Review of Research Hypotheses

Another relationship between the hidden variables in the structural equation model is of the direct-effect sort. The direct effect, which is actually one of the components of the structural equation model, shows the direction of relationship between the two variables.This type of effect actually represents the assumed casual linear effect of a variable on another one. Within a model, each direct effectexpresses and indicatesa relationship between a dependent variable and an independent one.

Review of Main Hypotheses of Research

The first and second main hypotheses of the research	Path Coefficient	T statistic	The result of the hypothesis
The first hypothesis: Emotional intelligence has a significant effect on the employees' job engagement in the banks of Famenin.	0.88	6.84	Confirmed
The second hypothesis: Emotional intelligence has a significant effect on the employees' performance in the banks of Famenin.	0.74	6.74	Confirmed

Table 6 Results of reviewing the main research hypotheses

As shown in Table 6, the main hypotheses of the research are positively and significantly confirmed. The path coefficient of the first main hypothesis was 0.88 and the second main hypothesis was 0.74.The t-statistic shows a meaningful amount that is 6.84 for the first main hypothesis and 6.74 for the second main hypothesis and this confirms, at 95% confidence level,both of the main research hypotheses.

Therefore, it can be mentioned that whereas the related t-value for the first major hypothesis of study (6.84) is excluded from this range (-1.96, +1.96) thus the first major hypothesis of study is verified. In other words, variable of emotional intelligence can justify 88% of variance of job engagement in personnel of banks in Famenin city. Hence, the research first major hypothesis is approved. Namely, it can be expressed that emotional intelligence has positive and significant effect on job engagement between personnel of banks in Famenincity. Thus, no evidence was seen regarding rejection of research first major hypothesis so no one can disprove this hypothesis.

Whereas the value relating to the second major hypothesis of this study (6.74) is out of range () -1.96, +1.96) thus the second major hypothesis of study is confirmed. In other words, it can be implied the variable of emotional intelligence may justify 74% of variance for performance of personnel of banks in Famenin city. Therefore, research second major hypothesis is approved. In other words, the emotional intelligence has positive and significant effect on performance of personnel of banks in Famenin city. Hence, no evidence was observed regarding rejection of research second major hypothesis so it may not be rejected. Review of the First Sub-Hypotheses of Research

Source Of change	SS	df	MS	F	Sig	R	R2	AdjR2
Regression	2462.091	3	615.523	106.699	0.000	0.92	0.851	0.843
Error	432.659	75	5.976913					

Table 7 Calculating one-way variance analysis for predictor variables

According to the results of Table 7, the significance level is less than 5%, indicating that the independent variables have a linear relationship with the dependent variable. In other words, since significance level is lesser than 0.05 thus this assumption is verified that there is linear relation between predictor variables included in this model with criterion variable. It should be noted that value of F-statistic is very high it signifies high significance of regression (Bayazidi et al., 2011: 120). Namely, regression test is suitable for research minor hypotheses because the research variables are linearly related. Thus, significance of regression has been computed by F-statistic in table at above (F= 106.699) that is significant at confidence level 95% (sign = 0.000).

The calculated correlation coefficient between the predictor variables in the model and the criterion variable is equal to 0.922 and the coefficient of determination equals to 0.851.This means that about 85 percent of the changes in the criterion variable (employees' occupational engagement) are explained by independent variables (self-awareness, self-management, social consciousness, relationship management).of course, there is a problem with this coefficient in that it may not consider number of degree of freedom.

For this reason, the adjusted determination coefficient (Adj.R2) is usually utilized to solve this problem (Kalantari, 2012: 178). The value of adjusted determination coefficient amounts to 0.843 (with respect to degree of freedom).

Predictor Variables	B	SE	Beta	t	Sig
Constant	1.414	2.747	-	0.515	0.608
Self-awareness	0.591	0. 136	0.240	4.351	0.000
Self-management	0.752	0.107	0.413	6.8	0.000
Social Awareness	1.069	0.129	0.433	8.253	0.000
Relationship Management	0.245	0.1	0.127	2.447	0.017

Table 8 Simultaneous regression analysis to predict job engagement

According to the results of Table 8, since the significance levels for predictor variables (self-awareness, self-management, social awareness, relationship management) wererespectively the values (0.000); (0.000); (0.000) (0.017), assuming the regression coefficients of these variables equaling zero is rejected and they do not need to be removed from the regression equation; Therefore, based on the above results, no evidence was found to reject the first sub-hypotheses of the research and these hypotheses cannot be rejected.

− Concerning the first minor hypothesis of study (self-awareness), It can be said that this variable can predict job engagement in personnel of banks in Famenin city. According to the results of beta coefficient (β), the value of variable of job engagement is increased 0.240 among personnel of banks in Famenin city versus one unit increase in variable of self-awareness.

− Regarding the second minor hypothesis of study (self-management), it can be mentioned that this variable may predict job engagement in personnel of banks in Famenin city. Based on results of beta coefficient (β), value of variable of job engagement is increased 0.413 in personnel of banks in Famenin city by one unit increase in variable of self-management.

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−   Relating to research third minor hypothesis (social awareness), it can be said that this variable may predict job engagement in personnel of banks in Famenin city. According to the results of beta coefficient (β), the value of variable of job engagement is increased 0.433 in personnel of banks in Famenin city as the variable of social awareness is increased one unit.

−   As regards the research fourth minor hypothesis (relationship management), it can be implied that this variable can predict job engagement in personnel of banks in Famenin city. Based on results of beta coefficient (β), by one unit increase in relationship management, variable of job engagement is increased 0.127 in personnel of banks in Famenin city.

Source of change	SS	df	MS	F	Sig	R	R²	
Regression	5507.610	4	1376.902	86.534	0.000	0.907	0.822	0.812
Error	1193.378	75	15.912					
Total	6700.987	79						

Table 9 Calculating One-Way Variance Analysis for Predictor Variables

According to the results of Table 9, the significance level is less than 5%, indicating that the independent variables have a linear relationship with the dependent variable. In other words, since significance level is smaller than 0.05 therefore this hypothesis is verified that there is linear relationship between predictor variables included in the model and criterion variable. It requires noting that if value of F-statistic is very high, this denotes high significance of regression (Bayazidi et al., 2011: 120). Namely, regression test is suitable for research second minor hypotheses because research variables are related linearly. Therefore, significance of regression has been calculated in above table by F-statistic (F = 86.534) that is significant at confidence level 95% (sig = 0.000).

The calculated correlation coefficient between the predictor variables in the model and the criterion variable is equal to 0.907 and the coefficient of determination equals to 0.822.

This means that about 82 percent of the changes in the criterion variable (employees'performance) are explained by independent variables (self-awareness, self-management, social consciousness, relationship management).of course, there is a problem with this coefficient in that it does not consider number of degree of freedom. For this reason, adjusted determination coefficient (Adj.R²) is usually used for solving of this problem (Kalantari, 2011: 178).

The value of adjusted determination coefficient amounts to 0.812 (with respect to degree of freedom). Basically, the value of adjusted determination coefficient calculates a little amount of inflation caused by error existing in R² in normal size. As quantity of sample size achieves more reasonable ratios (20 items or more for any predictor variable), inflation of R² will become more insignificant (Meyers et al., 2012).

Predictor Variables	B	SE	Beta	t	Sig
Constant	0.108	4.506	-	0.025	0.981
Self-awareness	0.673	0.205	0.188	3.289	0.002
Self-management	1.192	0.169	0.453	7.033	0.000
Social Awareness	1.217	0.227	0.339	5.349	0.000
Relationship Management	0.509	0.156	0.175	3.263	0.002

Table 10 Simultaneousregression analysis to predict employees' performance

According to the results of Table 10, since the significance levels for predictor variables (self-awareness, self-management, social awareness, relationship management) wererespectively the values (0.002); (0.000); (0.000) (0.002), assuming the regression coefficients of these variables equaling zero is rejected and they do not need to be removed from the regression equation; Therefore, based on the above results, no evidence was found to reject the second sub-hypotheses of the research and these hypotheses cannot be rejected.

−   Concerning the first minor hypothesis of study (self-awareness), it can be said that this variable can predict performance in personnel of banks in Famenin city. According to the results of beta coefficient (β), the value of variable of performanceis increased 0.188 among personnel of banks in Famenin city versus one unit increase in variable of self-awareness.

−   Regarding the second minor hypothesis of study (self-management), it can be mentioned that this variable may predict performancein personnel of banks in Famenin city. Based on results of beta coefficient (β), value of variable of performanceis increased 0.453 in personnel of banks in Famenin city by one unit increase in variable of self-management.

−   Relating to research third minor hypothesis (social awareness), it can be said that this variable may predict performance in personnel of banks in Famenin city. According to the results of beta coefficient (β), the value of variable of performance is increased 0.339 in personnel of banks in Famenin city as the variable of social awareness is increased one unit.

−   As regards the research fourth minor hypothesis (relationship management), it can be implied that this variable can predict performancein personnel of banks in Famenin city. Based on results of beta coefficient (β), by one unit increase in relationship management, variable of performance is increased 0.175 in personnel of banks in Famenin city.

Conclusions and Suggestions

The purpose of this study was to investigate the effect of emotional intelligence on employees'job engagement and their organizational performance in Famenin's banks.The first main hypothesis of the research was that: Emotional intelligence has a significant effect on the employees' job engagement in Faminin's banks.The results of analyzing this hypothesis showed that according to the path coefficient (0.88), the effect of emotional intelligence on employees' job engagement is positive and the hypothesis $H_0$is rejected while the hypothesis $H_1$is confirmed.

The value of the t-statistic of this hypothesis (6.84) is outside the range -1.96 to +1.96, so the first main hypothesis is confirmed.The results of this research hypothesis match those of Marzoukhi and Heidari (2016), Heidari (2015), MalekShoaar (2015), JalaliNejad (2014), Sa'ei et al. (2012), Ahmadi (2012), SeyyedJavadin et al. (2012)); Gomes et al. (2015); Len and et al. (2015); Band et al. (2014); LeBard et al. (2011); and Martin (2010).

The second main hypothesis of the research was that: Emotional intelligence has a significant effect on the performance of employees of Faminin's banks.The results ofanalyzing this hypothesis showed that according to the path coefficient (0.74), the effect of emotional intelligence on employees' performance is positive and the hypothesis $H_0$is rejected while the hypothesis $H_1$is confirmed.The value of the t-statistic of this hypothesis (6.74) is outside the range -1.96 to +1.96, so the secondmain hypothesis is confirmed.The results of this research hypothesis matchthose of researches by Manteghi et al. (2016); Marzouqi and Heidari (2016); Brabadiet al. (2015); MalekShoaaar (2015); Ghasemi (2014); Arizi and Barati (2014); JalaliNezhad(2012); Nicyet al. (2011); Yousefi (2010); Gomez et al. (2015); Gamecet al. (2014); Mohammed et al. (2013); Mangos et al. (2013); Chiang Watsong (2012); and Martin (2010).

The results of analyzing the first sub-hypotheses showed that self-awareness by about 0.240 is able to predict the employees' job engagement in the banks of Famenin; Self-management by 0.413; the social awareness by 0.433; and relationship management by 0.127 is able to predict the employees' job engagement in the banks of Famenin.The results of these hypothesesmatch those of Manteghi et al. (2016); Marzouqi and Heidari (2016); Barbadiet al. (2015); MalekShoaar (2015); Derakhshideh and Kazemi (2014); Ghasemi (2014); Arizi and Berati(2014), JalaliNezhad (2014); Nicy et al. (2011); Yousefi (2010); Gomez et al. (2015); Gamec et al. (2014); Mohammad et al. (2013); Mangas et al. (2013); Chiang and Tesoung (2012); and Martin (2010).

The results of analyzing the second sub-hypotheses showed that self-awareness by about 0.188is able to predict the employees'performancein the banks of Famenin; Self-management by 0.453; the social awareness by 0.339; and relationship management by 0.175 is able to predict the employees'performancein the banks of Famenin.The results of these hypotheses match those of Manteghi et al. (2016); Marzouqi and Heidari (2016); Barbadi et al. (2015); MalekShoaar (2015); Derakhshideh and Kazemi (2014); Ghasemi (2014); Arizi and Berati(2014), JalaliNezhad (2014); Nicy et al. (2011); Yousefi (2010); Gomez et al. (2015); Gamec et al. (2014); Mohammad et al. (2013); Mangas et al. (2013); Chiang and Tesoung (2012); and Martin (2010).

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¿Why tequila is named tequila? An approach from the regional economic history

¿Por qué el Tequila se llama Tequila? Una aproximación desde la historia económica regional

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Abstract

The investigation approaches, in a historical way, the conformation of the tequila region of the state of Jalisco; making the precision that currently said region is composed of the states of Jalisco and the south of the state of Nayarit, derived for the latter's separation from the state of Jalisco. It is exposes that it was the economic and geographical conditions of the analyzed historical moment that offered the circumstances so that the drink known as mezcal or burn water began to be denominated: the mezcal of tequila. A reflective analysis of fundamental aspects is exposed, such as: the independence of Mexico, the merchant port of San Blas, the rugged geography of Plan de Barrancas, the political and economic power concentrated in the city of Guadalajara, the royal road of San Blas -Tepic-Guadalajara passing through the Villa de Tequila and the need to generate a national identity after independence. From the argument of the present work, all the above is combined so that, tequila, it is appointed tequila. Work that reveals a link, non linear, between the aforementioned elements, so that the national identity drink coined that name.

Regional economic history, Mexican independency, Port of San Blas

Resumen

La investigación aborda, de manera histórica, la conformación de la región tequilera del estado de Jalisco; haciendo la precisión que actualmente dicha región se encuentra compuesta por los estados de Jalisco y el sur del estado de Nayarit, ante la separación de éste último del estado de Jalisco. Se reflexiona que fueron las condiciones económicas y geográficas del momento histórico analizado las que ofrecieron la configuración para que la bebida conocida como mezcal o agua ardiente comenzara a ser denominado: el mezcal de tequila. Se expone un análisis reflexivo de aspectos fundamentales, tales como: la independencia de México, el puerto mercante de San Blas, la accidentada geografía de Plan de Barrancas, el poder político y económico concentrado en la ciudad de Guadalajara, el camino real de San Blas-Tepic-Guadalajara pasando por la Villa de Tequila y la necesidad de generar una identidad nacional después de la independencia. Desde el argumento del presente trabajo, todo lo anterior se conjuga para que, el tequila, se llame tequila. Trabajo que revela un encadenamiento, no líneal, entre los elementos anteriores señalados, para que la bebida de identidad nacional acuñara dicho nombre.

Historia económica regional, Independencia mexicana, Puerto de San Blas

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Introduction

The existence of economic regions are part of the reality of the national economy and the nations of the world; in the particular case of Mexico, where its diversity of climate and production is vast, a variety of economic regions of the most diverse orientation are formed; some of them are so ancient that they go back to the beginning / middle of the colonial period, when Spain had the political, territorial and economic domination of Mexico. This is the case of the region producing maguey, or agave, and tequila in the western half of Mexico, currently made up of the states of Jalisco and the south of the state of Nayarit; but this economic region has its historical reference in the heart of New Galicia, it is a very old economic region. The origin of a drink used by the natives, based on the maguey plant, dates back to the pre-colonial era, but it is until the arrival of the Spaniards, and in the first years of the 1500th century, that the process of distillation it is implemented.

When carrying out a historical analysis, it is possible to observe that the name of tequila, to refer to the drink made with blue agave, is not, for any reason, a spontaneous manifestation or lighting of a producer; but it was several contextual-historical material and dialectical elements that generated the configuration of the historical moment for it to occur.

The document is made up of an initial section called theoretical-analytical pulpit that exposes the method under which the reflection and analysis of the object of study is made, in turn present the theoretical-conceptual, base categories that are used in the writing for Build the explanation and present the findings of the investigation. Likewise, the background section continues, in which the matter concerning the production of the ardent water, the region established from the foregoing and the separation of the state of Nayarit from the state of Jalisco is specified. A third section, makes more detailed explanation about the conformation of the tequila region. The fourth section, makes an analysis of the importance of the real road between the merchant port of San Blas-Tepic-Guadalajara, through the town of Tequila and the role played by the geographical part of Plan de Barrancas in historical contextual construction so that the known drink, simply as mezcal or hot water, will begin to be called: Tequila mezcal.

The fifth chapter, exposes a study of the geostrategic importance of the location of the town of Tequila to serve as a center concentrating the production of mezcal, regardless of whether it was produced, or not, in the town of Tequila. Finally, we present the conclusions to which we arrived from the research.

Theoretical Pulpit – Analytical

The evolution and construction of economic contexts are historical, it allows to establish a process of re-construction of the general conditions of capital accumulation under which a certain economic context was established, that is, it is the material analysis of history what shows this evolution. But before this, should not be drawn, but on the contrary, complement, that the economy, and especially if history is analyzed, is dialectical in nature, is not line under the idea of one to one, it allows to look for multiple contradictions , in its dynamic expression, that configure a certain historical context that results in the emergence of a set of elements that allow explaining the object of study and analysis,

"The importance of dialectical logic (logic of differences and oppositions) mediation between pure formal logic and dialectical analysis of the contradictions in the movement, which has a history ... this same dialectical thinking, wrong situated, little cultivated, it has darkened, its field disappears, or rather seems to disappear, before the pure logic and before the logic of the oppositions, polarities, complementarities, etc. " (Lefebvre, 2009, p. back cover)

Of this, that when examining an economic element, be it abstract or concrete, in its historical manifestation, certain social relations of production are established that are part of the general conditions of capital accumulation.

"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, relations, policies and ideological relations ... but these modes of production do not exist or present themselves more than in historically determined social formations " (Poulantzas, 2005, p.21).

However, the conformation of a certain mode of production is not, in itself, immovable in time, but on the contrary, it is dynamic in nature as changing and passable to some mode of production different, both in itself and passable to another , socio-economic history gives evidence of this

"Capitalism as an object of study, evolves as waves of successive and different growth, which in turn go through different phases, some chaotic, others more synergistic, none lasting" (Pérez, 2004, p.217).

And it is in this one, where the concrete exposes eventual manifestations. 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 aforementioned dimensions, transiting from the international to the regional and in the opposite direction, passing 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.It is specified that the above explained, takes up only the analytical method of the present investigation, which is briefly known as: historical-dialectical-materialist. It is stated, that the method used is quite clear. But, the method is accompanied by conceptual categories to explain and transmit the findings.

When talking about merchandise, reference is made to the set of work in the process of construction of a social satisfaction, that which is of social need to be able to dedicate time and space for its elaboration, in order that what is produced satisfies a human need, since that, otherwise, it would not have the essence that social work was dedicated to the generation of a thing, physical or intangible, without satisfying the social need.

"The merchandise is, in the first place, an external object, a thing apt to satisfy human needs, of whatever kind they may be in. The nature of these needs, the one that springs from, for example, the stomach or fantasy, does not interest Neither is it of interest, from this point of view, how that object satisfies human needs, whether directly, as a means of life, that is, an object of enjoyment, or indirectly, as a means of production " (Marx, 2010, p. 3).

But the object produced, to achieve its character as a commodity, must have a use value that allows it to be exchanged, that is, the transfer of value manifested in a certain production by another production that equally satisfies a human need; in merchandise; it is thus, the manifest form of the exchange of values of the produced thing that establishes the merchandise; It does not matter if the value is represented by coins or by another form of exchange of value.

The production of goods can be observed from different dimensions; one that allows us to see the integration of the different elements that contribute, in whole or in part, to the production of a commodity that can already be used for the satisfaction of a social need, is the dimension of the regional; the region understood as the physical space that from a determined criterion generates elements of homogeneity of production before its regional similarity that marks a heterogeneity with respect to the first, under the selected criterion of study. From the above, the region exists under the comparison, of an element, between the dissipation of the element coined as a homogenizing criterion, with respect to the emergence of differentiated elements. But, when talking about social production, this refers to the social valorization of production,

"The region can not be conceived in itself, that is, the features, whether of homogeneity or heterogeneity, of a region where an infinity of vertical and horizontal relationships are linked are identifiable only if there is an opposite that has different features, or the same features but quantitatively different to the region with which it is compared " (Villa, 2003, p. 23).

The identification of the region, under the object of production, is in any case the manifest form that takes the set of relations that are gestated from production; relationships that are established in the collective, political, cultural and orientation of the productive skills of society.

The above, takes concrete form in the production process and the construction of the merchandise. It is stated that the economic region has two fundamental characteristics: it is the historical-social construction of production and therefore it is dynamic at its most exact possible limit. Two, of origin the region is dynamic, as changing as the process of valorization of social production; it is thus, that the construction and concrete delimitation of the economic region finds its historical limit, even though the region may endure for longer or shorter periods of time, it is of dynamic essence.

The production is the relation that gestates of the man with the nature, is the appropriation of the same one for its transformation that allows to cover a social necessity; appropriation and transformation of nature through the work printed by the muscles and brains of society,

"In the process of production, we find above all the work process, which designates, in general, the relationship between man and nature, but this work process always presents itself in a historically determined social form. in its unity with the relations of production " (Poulantzas, 2005, p. 17).

That is, by itself, the appropriation of nature does not determine, in many cases, the creation of social satisfiers, with a value of use, since production requires a set of appropriations and transformations of nature so that, later, they are integrated among themselves, to give shape to the finished production in its useful form; Observe, then, as a curious fact, that implicit is the social division of labor itself.

The construction of identity, from this perspective, stands on par with the process of appropriation of nature itself; the transformation of the natural elements molds not only the natural physical environment, but at the same time the man who carries out the process of physical transformation of nature is molded; This is how, in its social relationship, for example, man, at the regional level, is an agent of the transformation of his natural physical environment and also agent of social transformation in his region. "Production implies the transformation of the environment and transformation of man, this symbiosis is the context in which social values (ethical, cultural, moral) are characterized, that is, regional identity."

(Gonzalez and Villa, 2002, p.93) is how man, part of nature, and generator of the transformation of it, during the production process, man is the transforming force of himself; it is, in such a way, the origin and result of its own identity transformation. From this, it can be said that the consciousness of man, of himself and his environment, is determined by his material environment, and these first individuals, who are part, and material social group, of a second individuals of the regional social conformation ; of it, the consciousness of man feeds and transforms by himself; regional identity is the transforming result of man by man.

A major challenge in the explanation of the economic, under the aforementioned, is established when the objective of study is the concrete elucidation of the material historical evolution of a commodity, as the convergent point of the multi-dimensional and multi-dimensional. Directional, which in turn transits from one social organization to another, as it was caste, in the Mexican colonial era (or the New Spain), to one of social classes, achieved independence; this, to explain a fundamental question Why Tequila is called Tequila ?.

Background

The city of Tequila, is located north of the state of Jalisco; the municipality of the same name has an adjoining border with the state of Nayarit, which until before 1917 also belonged to the state of Jalisco. When speaking of the tequila region, in terms of historical construction, it does not refer precisely to the city of Tequila, but to the region that, since pre-colonial times, a drink is produced based on the maguey plant; drink of strong flavor and that in excess generates a state of frenzy among its consumers. Said region, historically, covers from the mountainous areas of the state of Jalisco, or Province of the New Galicia during the colonial period, to the high and semi-desert part of the seventh canton of Jalisco, current state of Nayarit.

Today it can be considered a region between northern Jalisco and southern Nayarit. This without ignoring that there are regions of Jalisco interlocked towards the south-east and west that equally produce a drink of the same, or similar, characteristic.
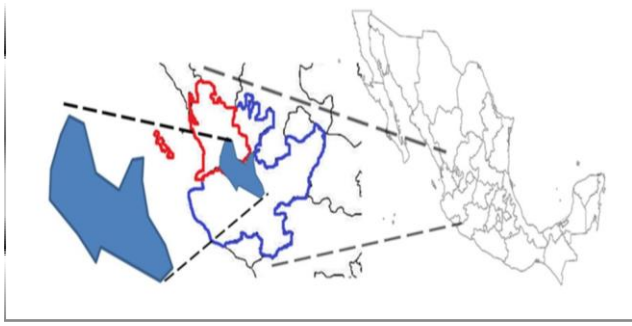
Figure 1 Micro-location of the agave and tequila production region in the north of the state of Jalisco and south of Nayarit; Mexico.
Source: Own Elaboration.

The previous figure shows the region, from the north of the state of Jalisco and south of the state of Nayarit, where there is a combination of economic activities related to the production of the drink that is now known as Tequila; from the production of the maguey or agave plant, to the distillation and embassing process. Here we must reiterate that it is not the only part of Jalisco that has an economic activity similar to the one exposed, since, to the south, east and west, there are municipalities that make this activity one that distinguishes them, just to mention the municipalities of Arandas, Atotonilco el Alto and Tonaya,respectively.

As previously noted, the region has a historical process; on the production of a drink based on a plant with characteristics very similar to what is currently known as maguey or agave, the variant is its size and certain characteristics, dating from pre-Hispanic times,

"The name of raicilla seems to be due to the frequent prohibitions suffered by the distillates, so that the authorities were confused about the true nature of said liquor (...) Today, the tendency to use the word maguey prevails. designate only the larger model, with wider leaves and a darker green color, from the plant from which pulque is extracted, an ancient product resulting from the fermentation of the very sweet mead, called Tlachkititl in the original language of this earth (...) once fermented his name was Teoctli-divine drink- " (Muriá, 2016, p. 20,21).

The discovery of America, by the crown of Castile, and later its unification with the kingdom of Aragon, to create the kingdom of Spain.

It was essential for the traditional drink elaborated by the native population and that it was part of their rituals, it was not common for the population to consume this drink as part of a daily social development "Its use was carefully monitored and severely punished the excess, to the extreme that repeated drunkenness could even be sanctioned with the death penalty "(Muriá, 2016, p.21) then the arrival of the Europeans brought with them a distillation technique that was used during the production of the agave drink; knows that this technique was coined by the Moors, during the period that dominated the territory that currently corresponds to Spain "However it must have been before the middle of the sixteenth century (...) when the mezcal brandy began to be manufactured by idea and certainly by the work of a Spaniard who longed for the strong drinks that could be cast in the south of the Iberian Peninsula "(Muriá, 2016, p.53)" Tequila is One of the many creations that resulted from the meeting of two worlds began with the first voyage of Christopher Columbus across the Atlantic in 1942, as it results from the miscegenation of a technique that Europeans had learned from the Arab world and used in the Americas with a product native to this land "(Op. Cit., P.47)

In this way one transits to a drink that is also obtained from the agave but with a distillation process in its elaboration, which was given the name of hot water and mezcal (in fact mezcal comes from nahualt mexcalli, or cooked maguey) as a general name; Remember that we did not even talk about brands or anything similar, but that it was used so that the day laborer, miner, etc. they felt the day less heavy, and even the hot water was used in the Mexican revolution in larger quantities. "Of the role he played in the Mexican revolution and in other war scenarios, when it was distributed in sufficient quantities-it is said that even mixed with gunpowder or marijuana-to exacerbate the spirits of those who would fight "(Muriá, 2016, p.128) this drink was taking great acceptance for such purposes, even for a number of discomforts, was then something like the healing and" energizing "remedy " of the poor. It was not always the refined and even ostentatious drink, in certain brands, which is now known. "Likewise from Tequila they could attend to the anxious gaznates of those who worked in the not so distant, but yes comebacks, mines of Bolaños that both prospered at the end of the XVIII century." (Regulating Council of Tequila, A)

During the course of the time of elaboration of beverages derived from maguey or agave, some techniques were used, according to their historical moment, from the use of the resulting drink in religious rituals, and their cooking of maguey or agave in well on land, until the sophisticated techniques of double distillation, going through the technique of steam cooking and its subsequent extraction in chile mills.

Today, after a history that is more than evolutionary and interesting, the beverages that are the product of maguey, blue agave, wild agave or lechuguilla, are known by different names; is no longer the generic name of hot water or mezcal for all the distillation of the plants mentioned above, now it is known that to make tequila blue agave is the favorite raw material, lechuguilla and wild agave is used for drinks of lesser quality. Here it is worth making a small but significant precision, on agave and maguey, since many readings indicate that they are synonyms,

"Agave is the scientific name given to the maguey by the Swedish naturalist Carlos de Linneo in the mid-eighteenth century (from the Greco-Latin word agavus.) In the Nahuatl language the maguey is called" metl "or" mexcalmetl. "The words maguey and agave are The difference is in the use that is given to the plant: aloe (or aloe) is used to make oils or soaps.The henequen (agave fourcroydes) is the one used to produce fibers. Pulque is produced, a fermented drink very popular in Mexico and low in alcohol content (maguey manso or agave atrovirens Kawr.) Agave is the plant whose fermented and then distilled juices produce mezcal or tequila. (FICSA, 2009, p. s/n).

The difference between mezcal and tequila resides with the variety of agave or maguey that is used in its production, and the subsequent reduction of alcohol grades in the beverage for the case of tequila, but not for mezcal. While tequila is produced exclusively, in theory, by the blue agave or tequilana weber agave; The mezcal can use any of 12 other varieties of agave or maguey for its production, you can even use a mixture of agaves to give it a unique taste assembly. It is considered that this is the main difference between tequila and mezcal, although there are those who maintain that another difference, apart from the denomination of origin, is the way of cooking the pineapples during the process of making the drink.

"The third difference is in the process of cooking the pineapples of the agaves, in the case of tequila, it is done in masonry ovens or in autoclaves, while the mezcal process follows more traditional methods and is carried out in conical stone ovens, hence the smoky flavor that gives mezcal such personality " (Lalanne, 2017, p. s/n).

The appellation of origin Initially, to address, briefly, the subject is required to make explicit what is meant by Domination of Origin, here you can consider what Muriá (2016) points out "The geographical name of a country, a region or a locality that would serve to designate a product of its origin and whose qualities or characteristics were exclusively or essentially the geographical environment, including natural factors and human factors "(P. 119); or, others with similar meaning, "We understand as denomination of origin, the name of a geographical region of the country that serves to designate a product originating from it, and whose quality or characteristics are exclusively due to the geographical environment" (Ministry of Economy , A).

About the Denomination of Origin of Tequila (DOT) it can be pointed out that it is relatively young, since its antecedents occur in the dawn of the decade of the 70's.

"Since May 10, 1973 the declaration of protection of the denomination of origin had been made public in the Official Gazette of the Federation and on December 9, 1974 the territory of origin, composed of all the states of Jalisco and various municipalities of Guanajuato (six), Michoacán (29) and Nayarit (eight). " (Miriá, 2016, p. 121).

The municipalities, of each of the above-mentioned states, that comprise the denomination of origin are:

"For the purposes of this declaration of protection is established as the territory of origin comprised by the State of Jalisco, the Municipalities of Abasolo, Manuel Doblado Cueràmaro, Huanimaro, Pènjamo and Purìsima del Rincòn, the State of Guanajuato, the municipalities of Briseñas from Matamoros, Chavinda, Chilchota, Churintzio, Cotija, Ecuandureo, Jacona, Jiquilpan, Maravatìo, New 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 State of Nayarit " (Tequila Regulatory Council, B).

Even though the previous citation shows the initial denomination of origin, it has had slight changes over time, particularly with the expansion of this denomination towards the north-east of the Mexican republic, with some municipalities of the state of Tamaulipas, " On December 9, 1974, it was published in the "Official Gazette" of the Federation of the resolution of the then Ministry of Industry and Commerce, by which protection was granted to the Tequila appellation of origin On September 20, 1976 , Tequilera la Gonzaleña, SA, requested the Directorate of Inventions and Trademarks of the Ministry of Industry and Commerce, the extension of the territory that includes the denomination of origin tequila, to include the municipalities of Altamira, Aldama, Antiguo and nuevo Morelos, Gómez Farías, Llera, Ocampo, Xicoténcatl and González, from the State of Tamaulipas On September 23, 1976, an extract was published in the Official Gazette of the Federation. or of the request referred to in the previous point, under the terms of Article 156 of the Inventions and Trademarks Act (...) and the Municipalities of Aldama, Altamira, Antiguo de Morelos, Gómez Farias, González, Llera, Mante, Nuevo Morelos, Ocampo, Tula and Xicoténcatl of the State of Tamaulipas. " (Tequila Regulatory Council, B)

According to Muriá (2016) it is mentioned that although the production of blue agave in the state of Tamaulipas does not have the same quality as the blue agave production of the rest of the states that are within the area of Denomination of Origin, this denomination has not been revoked.

The tequila region

It is correct to point out that all the municipalities that are integrated in the Tequila Denomination of Origin (DOT) can be considered tequila regions, it is worth pointing out two fundamental aspects, with the exception of the municipalities of Tamaulipas that are within that denomination, since the production of blue agave does not cover the total of the characteristics necessary for production,

"As already mentioned, 11 municipalities of the state of Tamaulipas, on the Gulf of Mexico coast, have been officially added, but such places have not yet been eliminated from the list of authorized sites, thanks to which, as stated, along the border with the United States circulate some local brands that, in the best of cases, their contents are made in Jalisco " (Muriá, 2016, p. 121).

First, this study focuses on the analysis of the relationship that occurs in the state of Jalisco, particularly in the production of hot water, as a process of history to give the name of Tequila to the beverage produced in that state ; here it is worth noting that it should not be forgotten that Nayarit stands as a state until the year 1917, so when referring to the state of Jalisco, before 1917, it is added to that state the territory that is currently part of the state of Nayarit.

Second, the study investigates the regional economic history of the eighteenth and nineteenth centuries to find the thread that led to the hot water produced in Jalisco was coined with the name of Tequila, so for those centuries there is no evidence or reference to the fact that Tamaulipas was an important producer of a drink with the same characteristics as that produced in Jalisco, because of a land property issue that leads the agaves of Tamaulipas to grow in smaller size and different properties compared to the produced in Jalisco. Therefore, this status is not contemplated for the present study.[i]
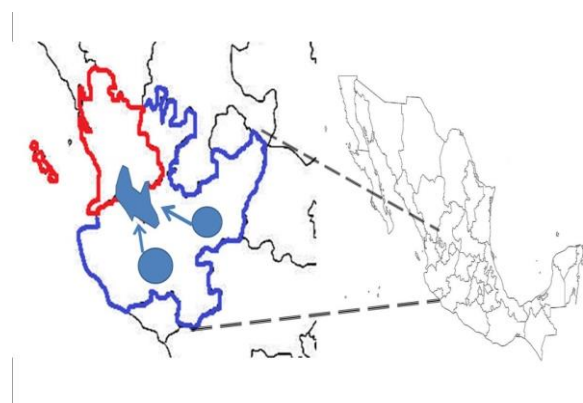
Figure 2 Regions of tequila production in the state of Jalisco for the late eighteenth and nineteenth centuries
Source: Own Elaboration

Within the background, for the end of the eighteenth century and the beginning of the mid-nineteenth century, it is possible to consider the polygons marked as dark colored, which include the northern part of the country, as the regions of greatest importance for the production of hot water or mezcal. state of Jalisco (Tequila, Magdalena, Amatitán, among others), towards the highlands (Arandas, Atotonilco el Alto, Tepatitlán, among others) and to the west-south (Tonaya, Tuxcacuesco, Ejutla, among others).

It must be remembered that for those dates Nayarit still did not exist, but it was the Seventh Canton of Jalisco; Of this, municipalities such as Ixtlan del Rio, Jala, Ahucatlan, Amatlan de Cañas, Santa Maria del Oro, Tepic and Jalisco municipality (now called Xalisco) were part of the state of Jalisco, where mezcal production was also given, in smaller scale.

In this regard it is worth making a spatial reference, although the municipalities of the then, Septimo Cantón de Jalisco, also produced mezcal or brandy, and eventually having better water availability conditions than the Villa de Tequila, there are not many referents or vestiges that they have been large producers of this beverage, it can be said that they did produce, but for some reason the tequila industry, large scale, did not settle in this region, which had better raw material conditions than the one located in the town of Tequila, it can be inferred that the relative closeness with the state capital, Guadalajara, or before it the Intendance of Guadalajara, had political and administrative influences; since, even, the main way of commercializing hot water or mezcal was the maritime one, exclusively by the Port of San Blas, which is located in the North Pacific of the, then, Septimo Cantón de Jalisco, in recent dates to the fall of empire of Iturbide.

And the route for it was the one that marked the royal road that connected San Blas to Tepic to Guadalajara. Of course it can not be ignored to point out that the region around the Villa de Tequila was, and still is, the one with the highest production of the mezcal or agave plant. From the above, we reach a preliminary preliminary conclusion, namely: The tequila industry, of large scale, had preference to settle in the region of Villa de Tequila, by:

– The relative closeness with the capital of the state or the intendancy of the kingdom of Nueva Galicia (which consists of 3 provinces, included the current state of: Jalisco, Nayarit, Aguascalientes, Zacatecas and Colima) which meant power and political relations, in turn for administrative aspects. -For being a space where all the production of the regions of Tonaya and Arandas could be covered and accommodated, which necessarily, for those dates, its production had to leave by the Port of San Blas.

– And for being a comfortable space before crossing the tortuous and rugged geographic region of Plan de Barrancas, which was crossed by the royal road of the Port of San Blas-Guadalajara.

That is to say, from the analysis of the authors, were political-administrative conditions, strategic location to capture the production of the regions of Tonaya and Arandas; and the physiographic conditions of the legendary Plan de Barrancas, which converged to determine that the tequila industry would have a greater preference to settle in the Villa de Tequila

The importance of the royal road between the Port of San Blas, the town of Tepic, the town of Tequila and the city of Guadalajara

The importance acquired by the royal road from the Port of San Blas to the city of Guadalajara is predominantly of an economic nature, on which the trade that occurred in the kingdom of Galicia particularly during the period of independence, when the Port of Acapulco is taken by the independentistas, led by Father Morelos, in the year of 1813; This historical antecedent is the one that detonates to the Port of San Blas like the most important merchant port of Pacific during this stage.

"The official history of San Blas, writes Luna (2012) begins in 1768 when in May of that year by order of José de Gálvez the naval department of San Blas is officially declared, which has two main purposes, one political and the another economic: the first had to do with curbing the pirate expeditions that prowled the Nayarit coasts, even causing informal trade activities, and the second purpose was to expand the domain of the crown commercially, making it possible to exchange goods from San Blas with the Californias, with Acapulco and even being able to connect with Asia " (García, 2015, p. 37)

Practically all the commerce of the colony was carried out by the Port of San Blas, so much for the exit as entry of merchandise, and because not to indicate it, some of it by means of the contraband

"In the year of 1810, year in which the independence of Mexico begins, the port of San Blas is taken by the priest José María Mercado, nevertheless the port is recovered at the beginning of 1811, on the other hand Acapulco was being besieged and attacked by Morelos, which caused that in 1813, the year in which Morelos manages to take the port of Acapulco, a real Spanish cedula transfers all the trade to San Blas and confirms it in 1817, from 1811 until 1821 when independence is consummated, it will be San Blas the main port of New Spain in the Pacific, are the years of greatest splendor for the commercial activity of the western region, the Nao of China begins to arrive regularly at San Blas and with it the economic activity from San Blas to Guadalajara reaches an impressive dynamic. " (García, 2015, p. 38).

It is worth noting that even though in 1768, San Blas was declared a naval department, there is historical evidence that this status does not, by itself, lead to San Blas being the most important port of the Pacific as it happened in the period of independence. and a few years after it was achieved, Meyer (1990) mentions that agricultural activity, as it is not profitable, is entrusted to the indigenous people of the region; the landowners of the area were dedicated to livestock, in addition the tobacco plantation stands out as an important activity within the period from 1740 to 1771.

However, Meyer does not mention anything about the commercial activity of the port as a relevant economic activity; of it, by simple elimination, it is deduced that the status of the most important merchant port of the western part of the colony occurs in the period of independence.

All the economic reconfiguration that was experienced during the independence stage entailed transformation of the most diverse nature; Obviously, for the subject of this document, it opened the possibility of exporting the mezcal drink produced in the region under study, but it also brought social transformations, from a caste social structure to another social class.

"During the period from 1810 to 1825 San Blas reached its greatest splendor as a commercial port, while living a social and political crisis, San Blas is used to handle all the commerce of the pacific of New Spain, it becomes a strategic point of economic and political control " (García y Camelo, 2014, p. 1684).

This is how the economic and political power is accumulated by a new class dedicated to trade settled in the city of Tepic and Guadalajara, at that time both belonging to the kingdom of New Galicia and also to the state of Jalisco with independence, the West of the colony and even of nascent Mexico maintains a transcendental commercial predominance, during a period of approximately 10 years.

"However, it is a time of processes of reconfiguration of the structure and economic superstructure, they are the moments of crisis product of the capital / labor conflict, due to the contradictions of the economic system, there is a process of adjustment of the economic structure due to a new positioning or configuration of the class structure, by changing the class structure, changes the superstructure, because the superstructure is always conditioned to the ruling class, at the end of the period of independence, the colonizers cease to be the dominant social class and this is due to processes of adjustment of the economic structure, product of the new class structure of the independent Mexico (…) In this second period the economic structure of San Blas is controlled mainly by two economic agents:

The merchants who use the port for the import and export of goods, and the administrative authorities of the port, which As they do not have adequate supervision by the Crown, they have the opportunity to manage the port with their own interests, including, exposes Cárdenas de la Peña, beginning a stage of corruption regarding the commercial control of the port; the first are those who maintain the economic activity of the western region afloat, and even manage to strengthen the consulate of Guadalajara to try to compete with that of Mexico and even try to transfer the powers of the crown to this city, the economic dynamics of Mexico must be to a large extent to the existing trade of the Pacific, practically exclusive of the port of San Blas " (García y Camelo, 2014, p. 1685).

It is convenient to point out that the decline of the Port of San Blas as a merchant port, was not sudden, but was developed as a process due to the lack of infrastructure for larger vessels, the reopening of the Port of Acapulco in 1816, the beginning of the boom of the Port of Mazatlán, a network of corruption, among some other elements, Meyer (1990) For 1853 to 1853 the commercial life of the Tepic region is determined by the families of the Menchaca, Barrón and Forbes, San Blas is still in operations, having the textilera as the main transportation merchandise.

But with the reopening of the port of Mazatlan in the mid-nineteenth century, annex the operation of the port of Acapulco, San Blas enters a decline as a merchant port which will not overcome, highlights Meyer that in 1873, the president of the republic , Sebastián Lerdo de Tejada requests the closure of the port, however, it does not stop operating until the first quarter of the 20th century. However, throughout the period of independence until 1830-35, it was very convenient to make Tequila mezcal known; here it is worth noting that it is already named as the mezcal from the Tequila region, already opaque to the other regions producing the drink, it was not specifically recognized to the mezcal of the region of Tonaya, Arandas, or even of the Ahucatlán region , which was already past the rugged geography of Plan de Barrancas.

"In this way, we have the mezcal from Oaxaca, the Cotija, the Quitupan, the Tonaya, the Tuxcacuesco, the Apulco, etc. But there is no doubt that the most famous of all is the mezcal de Tequila, whose name is due to an ancient and dynamic population located about fifteen leagues from Guadalajara, on the way from this city to the north is the port of San Blas de Nayarit, on the Pacific coast. , and for all the land that corresponded during the colonial era to the Corregimiento de Tequila, the blue agave is very well done, and in many parts there are large and small factories of the prestigious liquor known before the simplification of advertising as mezcal wine of Tequila " (Tequila Regulatory Council, B).

Here takes the Camino Real relevance that served to mobilize all that amount of merchandise that was traded by the booming Port of San Blas, since it left San Blas, passed through Tepic, Ahucatlán, Tequila until arriving at the city of Guadalajara; and, to the latter, goods arrived from all over the colony, and later Mexico, to export / import.

Figure 3 Plan of the Viceroyalty of New Spain 1579.
Source: New Galicia Cartography, p. 3. Taken from: García, 2006
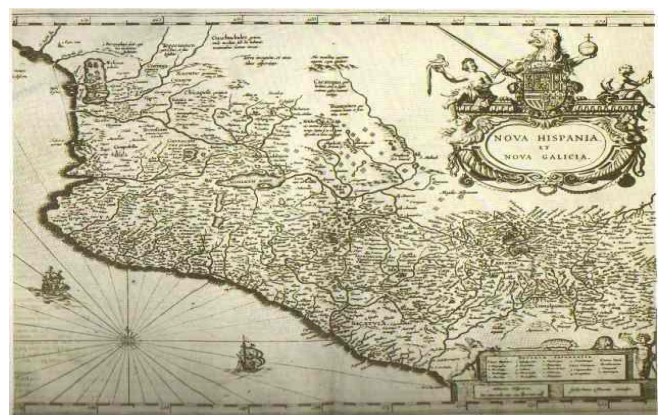
Figure 4 Map of the western zone of the Viceroyalty, coming from the atlases of Janssonio and Blaew (XVI Century).
Source: New Galicia Cartography, p. 5. Taken from: García, 2006.

After independence, national pride leads to reduce the importation of alcoholic beverages in Europe, an annex to the fact that it was no longer a colony to which trade could impose, this fundamental fact leads Tequila mezcal to increase its demand in all over the country "In 1821, Spanish spirits stopped coming and the Mexican market recovered a lot" (Muriá, 2016, p.72) is how Tequila mezcal also begins to have a greater consumption in the nascent Mexican Republic

"With the consummation of Independence in 1821, the Spanish liquors began to have greater difficulties to get to Mexico, which gave an opportunity for the tequila manufacturers to increase their sales in Guadalajara itself and begin marketing them in Mexico City and all the center of the country. "(Tequila Regulatory Council, A)

But note that it was the mezcal of Tequila, no matter if it was produced in Tequila or any other part of the state of Jalisco, it was the mezcal of Tequila.

"In the shadow of such growth, in 1814 the town of Tepic officially became a city and a trade fair began to take place there, which would greatly contribute to the development of this town and its entire region, which, as Of course, the local demand and the foreign sale of tequila mezcal would also increase " (Muriá, 2016, p. 71).

What can be considered the preamble of the birth of the name of the drink that is now so well known and demanded in Mexico and other latitudes of the world, the Mexican Tequila.

The village of Tequila, a geostrategic location in the tequila region

The geostrategic location as the bottleneck of all commerce to be Tequila the last villa of relative importance before starting the road to San Blas by the winding and steep trail of mules to pass Plan de Barrancas. Being the bottleneck the entire marketing production, including the fiery water, later called tequila, stopped there. Although the production of agave or maguey occurred in several places in this region (certain territories of Nayarit, Durango, Zacatecas and of course in the highlands and southern Jalisco, until reaching Colima) in the development of mezcal production occurred in the Region of Tequila.

For various specialists (Walton, 1977, De León, 2017) the productive strategy that occurred in the municipality of Tequila determined its industrial and business development. Since in spite of the fact that in the 18th century various agricultural products were grown, such as corn, beans, fruit trees and vegetable and vegetable plantations, the crop that predominated was cane. But by the end of that century, agave crops had already appeared and by the beginning of the 19th century, there were large production volumes and the entrepreneurial organization of tequila production began.

This position of geostrategic that had the municipality of Tequila allowed the development of the tequila industry: the obligatory step of the commercialization of products between the port of San Blas and Guadalajara, the business vision that had some characters who saw the mezcal tequila as a commodity that could be positioned in an increasingly nationalistic market and the demand for it by the populations of the region that were used to drinking this product for centuries.

As a first geostrategic condition, it is the obligatory passage to the port of San Blas for the exit and entry of merchandise. In this sense, the merchants saw with good eyes everything that was produced in the region and very special way a product that could compete with European drinks and especially Spanish ones.

For that case the agricultural production of that region was benefited, since several products were demanded in Guadalajara, being one of the main markets of the West, besides that there was a great commercial struggle with the region Mexico City that always sought to control the trade of the new Spain, in the first instance and after Mexico as an independent country.

Taking advantage of the Port of San Blas as port of entry, allowed Guadalajara to control all commerce and in a particular way, Tequila was able to position its products in that market and distribute it to other parts of the West, as well as to the South and North of the country.

But this commercial development of the municipality of Tequila could not be achieved without the vision of people who saw as viable the development of agricultural products and the generation of demanding goods by the local and national market.

The issue of culture or business vision led to certain products such as tequila mezcal to position it in an interesting local market and I take advantage of the situation of nationalism that arose as a result of independence.

"To talk about the story of José Cuervo is to talk about a whole dynasty in the history of tequila, the first mention of the Cuervo family comes from New Spain, in 1768 with Francisco de Cuervo and Valdés y Suárez, but it is their son José Antonio de Cuervo y Valdés and García de las Rivas and later his sons José Prudencio de Cuervo y Montaño and José María Guadalupe de Cuervo y Montaño, who would be in charge of building Casa Cuervo (...) In 1795 José María Guadalupe de Cuervo and Montaño receives the first Real Cédula, to market the mezcal wine of its production outside the Tequila area, thus formally initiating Casa Cuervo. (...) At the beginning of the 19th century José Vicente Albino Rojas and Jiménez Montaño founds La Rojeña which for 1842 began to stand out for its products with a production that reached 400 barrels per week.In 1849 La Rojeña began to stand out among the ten most important mezcal wine factories. " (Casa Cuervo Tradicional, 2018, p. s/n).

This business culture that began to develop in the municipality was thanks to the geographic conditions of commercialization between the port of San Blas and Guadalajara, also, taking advantage of the closeness that was had with the capital and the demand of products such as tequila by rural communities They used it for their festivities and the search to find a drink that gave them the feeling of rootedness and joy that sometimes they did not have in real life.

Under that geostrategic context, it allowed the municipality of Tequila to stand out over all the other agave producing regions that were identified from the colonial era and that today continue to produce this plant and produce the drink, but they can not call it tequila because they are not inside from the area of the appellation of origin; but even some that produce tequila could not stand out like the municipality of Tequila because of the business culture and the technological and organizational innovation that they implemented to position their product in a region of Mexico at the national level and nowadays having an international market, thanks to that denomination of origin.

Conclusions

Annex to some conclusions that have been exposed, within the writing of the chapters, it is considered convenient to make some conclusions that arise from the integration of the investigation as a whole, not of a particular chapter; which are presented below.

In historical terms, it is known that mezcal drink (origin of tequila) has been produced in different regions of New Galicia; However, the population of Tequila showed, for the end of the 18th century and the beginning of the 19th century, a competitive advantage due to the introduction of the development of productive forces related to the production of mezcal or fiery water. Among those that stand out in a business vision of the production of the drink is the family surnamed Cuervo. This competitive advantage makes the region of the Tequila population begin to rebound from the rest of the mezcal-producing regions, such as the regions of Tonaya, the Arandas region in the highlands and the Ahucatlán region, located in the southern part of the region. current state of Nayarit. This advantage is achieved from the introduction of the Chilean mill until, with the passing of time, the cooking of the pineapple of mezcal or maguey with steam drums.

During the process of independence and achieved the same, the nascent republic requires the urgent need to generate an identity that is coined as its own, the acceptance of mezcal drink or hot water as an identity drink produced in the heart of the new West Mexican republic. Increasing consumption in the interior of the republic as a very Mexican drink, and the importation of European beverages ceased to be consumed due to the disengagement from trade and the non-imposition of what to import.

Something that stands out in the course of the document, but that we wish to express explicitly, is that the population of Tequila gives the name to the drink produced and packed in said population; that is, the villa gives the name to the drink, not the drink to the villa. In addition to everything that has been said about the need to lower the production of mezcal, the region of the highlands, and the region of Tonaya, the region of Tequila to be transported to the port of San Blas, passing through the legendary Plan de Barrancas, to leave as a merchandise to other parts of the colony, the nascent republic and Europe.

The name of the drink called Tequila, has its gestation during the first three decades of the nineteenth century, but with greater emphasis on the second and third decade. Much has to do with the fact that during the independence phase the San Blas Merchant Port was the only official port of the Colony to import and export merchandise, even though it was taken very briefly by the priest José María Mercado, a end of 1810.

"On his way to San Blas, the first place he arrived was Tepic on November 20, 1810 and there demanded the surrender of the place whose garrison showed no resistance, taking it without firing a single shot." There he made six pieces of artillery and his forces increased from 50 to 2000. With this first success he continued his way to the port of San Blas, which at that time was commanded by the frigate Captain José Joaquín Labayen and Larriñaga, on November 26, 1810 the priest of Ahualulco was already in front of San Blas, where there were two brigantines, the San Carlos, which was a warship commanded by Jacobo Murphy and El Activo commanded by Antonio Quartara. (Secretaría de Marina, 2012, p. s/n.).

That antecedent, makes the Port of San Blas the most important commercial in the West of the Colony during the period of independence and one to two decades after the same, losing relevance due to the competition that the Port of Acapulco and the Port of Mazatlan. However, during the decades of 1810 to 1830, in the first one still in the status of a Spanish colony and in the second as the nascent republic, there are historical references that indicate that the drink was no longer known as simply mezcal or hot water , since for 1814 to 1824 it was already common to name it as: Mezcal de Tequila, since it bore the name of the town from which, apparently, the drink came, regardless of whether the drink had been made in the region of Tonaya, Arandas or Ahucatlán; all the mezcal that came from this area was called Mezcal de Tequila.

This is the first antecedent found in the history of the name of Tequila, in addition to improving the production and quality to differentiate it from other beverages, by using blue agave as an exclusive raw material, at least in theory, for the production of the Tequila drink.

Of this, circumstances existed that the determined historical moment managed to obtain that a drink took the name of Tequila, to know: the Mexican independence, the Port of San Blas, the town of Tequila, the geographic zone of Plan of Ravines, the way Real de San Blas-Tepic-Guadalajara, and the need for an identity of the nascent republic, are elements that have a role of the most transatlantic so that the drink has coined the name of Tequila.

In this way it is expected to answer the question Why Tequila is called Tequila ?.

Acknowledgment

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Article

Complementarity analysis of the Priority Areas Development Program and the Priority Attention Areas Program in the National Crusade Against Hunger Program in indigenous municipalities in the State of Veracruz Mexico

Análisis de complementariedad del Programa de Desarrollo de Zonas Prioritarias y del Programa de Zonas de Atención Prioritaria en el Programa Cruzada Nacional contra el Hambre en municipios indígenas en el Estado de Veracruz México

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Abstract

Mexico, with the commissioning of the "National Crusade Against Hunger Program" in 2013, aimed at serving the population that presents both extreme poverty and food deprivation. The article aims to analyze whether the criterion of the selection of the municipalities of the State of Veracruz incorporated in the National Crusade Against Hunger Program (PNCH) show complementarity with the efforts in the fight against poverty in the social expenditure strategy applied in the Priority Attention Zones Program (ZAP) and the Priority Areas Development Program (PDZP) and, particularly, the indigenous municipalities that have a greater degree of social exclusion. The adjustment of a binary logistic regression model is presented, in order to assess the incidence of contextual factors to interpret the scope of the strategy adopted by the federal government in the fight against poverty and hunger. As a result, it is evident that there is no continuity in the fight against poverty, since the municipalities included in the strategy Priority Areas of Attention and Program of Development of Priority Zones are not considered in the selection of municipalities incorporated in the National Program of Crusade Against Hunger, a situation that identifies the relationship between programs is not complementary.

Social Exclusion, Indigenous Population, National Crusade Against Hunger Program

Resumen

México con la puesta en operación en año 2013 del "Programa Cruzada Nacional contra el Hambre" se buscó atender a la población que presentan tanto pobreza extrema y carencia alimentaria. El artículo se dirige a analizar si el criterio de la selección de los municipios del Estado de Veracruz incorporados en Programa de Cruzada Nacional contra el Hambre (PNCH) muestran complementariedad con los esfuerzos en el combate a la pobreza en la estrategia de gasto social aplicada en el Programa de Zonas de Atención Prioritaria (ZAP) y del Programa de Desarrollo de Zonas Prioritarias (PDZP) y particularmente, los municipios indígenas y que tienen un mayor grado de exclusión social. Se presenta el ajuste de un modelo de regresión logística binaria, con el fin de valorar la incidencia de los factores contextuales para interpretar el alcance de la estrategia adoptada por el gobierno federal en el combate a la pobreza y el hambre. Como resultado es evidente que no existe continuidad en la lucha contra la pobreza, ya que los municipios incorporados en la estrategia Áreas Prioritarias de Atención y Programa de Desarrollo de Zonas Prioritarias no son considerados en la selección de municipios incorporados en el Programa Nacional de Cruzada Contra el Hambre, situación que identifica la relación entre los programas no es complementaria.

Exclusión Social, Población Indígena, Programa Cruzada Nacional Contra El Hambre

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Introduction

The fight against poverty is a current concerns, its study is addressed from various theoretical and methodological approaches. Thus, in the United Nations document "Millennium Development Goals" signed in New York in 2000, it was established, as a very ambitious goal, to reduce by half the world's poverty by 2015. The World Bank also has directed its policy in order to seek a solution to poverty, from a macroeconomic perspective, through actions that allow countries to alleviate the debt burden, and with it, achieve economic stabilization. Recently, the Resolution adopted by the General Assembly of the United Nations on September 25, 2015 "Transforming our world: the 2030 Agenda for Sustainable Development" establishes, among others, the following paramount: "Objective 1.To put end poverty in all its forms and all over the world" and "Objective 2.

End hunger, achieve food security and improve nutrition and promote sustainable agriculture". It should be noted that recent studies have shown that the indigenous population has been subject to social exclusion, a situation that exacerbates their multidimensional poverty level (Medel, 2106), as well as making it difficult for them to access a formal laboral market, have health services, education and housing. In this sense (Tetreault, 2012, Rionda, 2010, Barba, 2009, Del Popolo et al., 2009, World Bank, 2004, Appasamy et al., 2003) point out that the indigenous population is subject to social exclusion due to factors such as: (i) their ethnic status; (ii) its gender; and (iii) its condition of multidimensional poverty. It is recognized as lacerating, from the point of view of social justice, the existence of conditions of marginalization and social backwardness that occurs in the indigenous population, to which they are conferred, for this fact alone, to be subjects of social exclusion.

The present article seeks to answer if, the criterion of the selection of the municipalities of the State of Veracruz incorporated in PHASE 2 the National Crusade Against Hunger Program (PNCH) shows complementarity with the efforts in the fight against poverty in the spending strategy applied in the Priority Attention Zones Program (ZAP) and the Priority Areas Development Program (PDZP) and, particularly, in the indigenous municipalities that present a greater degree of social exclusion.

To this end, a binary logistic regression model was adjusted in order to assess the incidence of contextual factors to interpret the scope of the strategy adopted by the federal government in the fight against poverty.

Theoretical framework

Multidimensional poverty

Poverty is a subject that has been widely studied; however, the study from a multidimensional approach is relatively new. In (Sen, 2000) poverty is conceived as the deprivation of basic capacities and not only in terms of low incomes. In the logic proposed by Sen (Boltvinik, 2013), poverty is defined as a phenomenon of multidimensional study and (Alkire-Foster, 2007) propose a methodology that identifies the poverty line and the deprivation line in the persons identified as poor.

Currently in Mexico, the strategy for combating poverty, according to social development policy, states that improving the provision of basic social infrastructure will break the cycle of poverty. In other words, in order to reduce regional disparities and reduce poverty levels, the aim is to improve the basic social infrastructure: water, drainage, electricity, basic services (education and health) and the improvement of housing conditions. .

The measurement of improvement under these conditions is measured through the marginalization index and the social lag index, however, it does not consider aspects that generate social exclusion and multidimensional poverty.

The following Graph 1 presents the theoretical, conceptual and referential framework that is used in the present study for the study of poverty, where it is proposed as a way of explaining multidimensional poverty (Alkire-Foster, 2008), the focus of the social exclusion (Rawls, 1995) and the deprivation of capabilities approach (Sen, 2000).
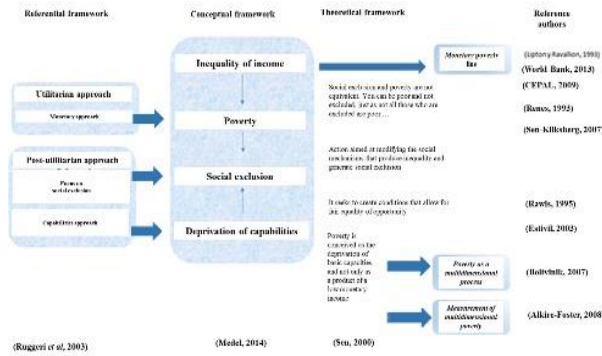
Graphic 1 Theoretical, conceptual and referential framework that is used in the present study for the study of poverty
Source. Own elaboration. Adapted from Medel Ramírez, Carlos (2016), Evaluation of the degree of social exclusion and multidimensional poverty in the indigenous communities in the State of Veracruz: The case of the development program of priority areas. (Doctoral thesis). Economy faculty. Doctorate in Public Finance. Universidad Veracruzana.

With Sen (2000) poverty is conceived as the deprivation of basic capacities and not only as a low income. In this logic proposed by Sen, Boltvinik (2013) defines poverty as a multidimensional process in which the well-being of households and people depends on six sources: current income; the non-basic assets and the indebtedness capacity of the household; family assets; access to free goods and services; free time and available for domestic work, education and rest and knowledge of people.

Alkire-Foster (2008) present a methodology that identifies two cuts, the first identified with the poverty line and the second with the deprivations identified in the people in poverty. This identification allows the targeting of the target population in the strategy to combat poverty. The following section presents the contributions of Sen, Alkire-Foster, and Gordon-CONEVAL, which constitute the basis of the theoretical foundation for the study of multidimensional poverty in Mexico."

Graphic 2, below, presents the evolution of the approach of social policy for the study and fight against poverty in Mexico.

It is emphasized that since 2004, with the promulgation of the General Law of Social Development and the creation of the National Social Development System, the creation, in 2005, of CONEVAL has been sustained. Based on the theoretical contributions of (Gordon, 2007), (Boltvinik, 2007) and (Alkire-Foster, 2008).

The CONEVAL proposes a measurement of poverty from a multidimensional approach, dictating in 2010 the methodological guidelines for the measurement of poverty. In Mexico, responsibility for determining the methodological criteria for the measurement of multidimensional poverty, by mandate of law, rests with the Ministry of Social Development (SEDESOL) and with the support of the National Council for the Evaluation of Social Development Policy (CONEVAL) issues the "Guidelines and general criteria for the definition, identification and measurement of poverty" establishing the technical and legal criteria that define multidimensional poverty, and which is incorporated in the Law of Social Development, and which defines:

Definition 1. "The population in a situation of multidimensional poverty will be one whose income is insufficient to acquire the goods and services required to satisfy their needs and is lacking in at least one of the following six indicators: educational lag, access to services of health, access to social security, quality and housing spaces, basic services in housing and access to food." [1]
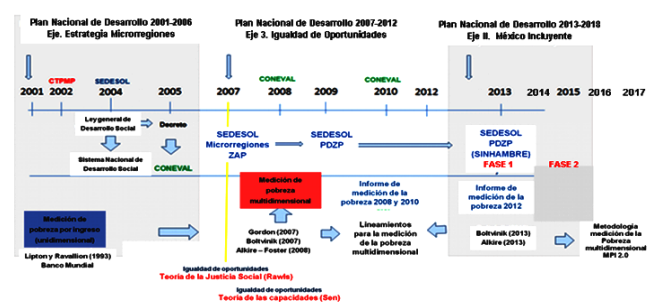
Graphic 2 Evolution of the focus of social policy based on the measurement of multidimensional poverty and the National Anti-Hunger Program in Mexico, 2001 – 2017.
Source. Own elaboration. Adapted from Medel Ramírez, Carlos (2016), Op. cit.

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[1] In 2010, 52 million people are living in poverty, of which 40.3 million correspond to a situation of moderate poverty and 11.7 million to extreme poverty. On the other hand, 84.3 million people have at least one social deprivation and 29.9 have at least three social deprivations, 23.2 million people shw educational backwardness, 35.8 million have a lack of health services, 68.3 million have a lack of access to social security , 17.1 million have a lack of quality and spaces

in housing, 18.5 have a lack of access to basic services in housing and 28.0 million show lack of access to food. It is also noted that 21.8 million people are located with an income below the minimum welfare line and 58.5 million have an income below the welfare line. See CONEVAL Poverty report at the municipality level 2010. Retrieved from: http://www.coneval.org.mx/Informes/Pobreza/Pobreza_municipal/pobreza%20extrema%20y%20alimentacion%20por%20municipio.zip

It should be noted that the evolution of the approach to social policy, are recognized and incorporate the theoretical and conceptual contributions of the Theory of Justice by Rawls.[2] and Sen's Theory of Capacities.[3] In this article, our proposal is to incorporate the index of social exclusion, as an explanatory element of the multidimensional poverty condition in the indigenous population of the State of Veracruz (Medel, 2016), as well as to analyze the scope of the social policy of combating poverty through the National Crusade Against Hunger Program (PNCH).

And complementarily with efforts to combat poverty in the social expenditure strategy applied in the Priority Attention Zones Program (ZAP) and the Development Program of Priority Zones (PDZP).

Social Exclusion

As a social phenomenon in which multiple factors are related, is approached from different approaches (Klanfer, 1965, Donzelot, 1992, Renes, 1993, Castel, 1995, Gazier, 1996, Appasamy et al. , 1996, Barry, 1998, Tezanos, 1999, Sen, 2000, Cabrera, 2002, Estivill, 2003, Sen, 2003, Uquillas et al., 2003, Subirats et al., 2004, World Bank, 2004, Raya, 2006; Laparra et al., 2007; Hickey, 2007; Sen-Kliksberg, 2007; Del Popolo et al., 2009; Rionda, 2010 and Tetreault, 2012). The concept of social exclusion has to do with the process through individuals or groups totally or partially excluded from the society in which they live. This category does not only refer exclusively to the lack of employment.

With (Donzelot, 1992, Renes, 1993, Castel, 1995) and (Gazier, 1996) recognizes that social exclusion its central paradigm of scarcity, leads him to raise the issue in terms of poverty / wealth, equality / inequality in the possession and use of produced goods. Meanwhile (Barry, 1998) indicates that there is an association between the dispersion of income and exclusion and that public policy can make a difference between the degrees of inequality that manifests itself in social exclusion.

In (Sen-Kliksberg, 2007) considers that the number of deficiencies or deprivations is not entirely limited to the material or economic, but can be extended to other dimensions that limit the capabilities of people to lead a full, dignified life and a society decent living, what are called social exclusion. Meanwhile, we agree (Hickey, 2007) in the sense that it must analyze the phenomenon of social exclusion, from the perspective of class, ethnic origin and gender, a situation that generates a multidimensional analysis, the study of poverty. (Subirats *et al.*, 2004) proposes the following definition:

Definition 2. "Social exclusion is the result of a specific situation process of dynamic accumulation, overlap and / or combination of various factors of disadvantage or social vulnerability that can affect people or groups, creating a situation of impossibility or intense difficulty access to the mechanisms of personal development, community social inclusion and systems of protection."

Although within the country there are greater conditions of marginalization in the indigenous population[4] that in the non-indigenous, within the indigenous groups there are different levels of marginalization, which identify different degrees of social exclusion. The problem to solve is how to reduce the levels of marginalization and social exclusion in the indigenous population.

Strategy and the determination of the target population and the National Crusade Against Hunger Program (PNCH)

In the social policy of combating poverty, federal public resources are allocated through the targeting criterion for the attention of a target population. As a strategy for the allocation of resources, priority areas for attention (ZAP) were identified in 2007 and subsequently the criterion was modified in 2009 in the Priority Areas Development Program (PDZP), which is currently used. (See Figure 1, presented earlier).

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[2] See John Rawls 1971. The theory of Justice. The Belknap Press of Harvard University Press, Cambridge, Mass. Retrieved from: https://etikhe.files.wordpress.com/2013/08/john_rawls_-_teoria_de_la_justicia.pdf
[3] See Sen Amartya. (1976): "Poverty: an ordinal approach to measurement". Econometrica, 44, pp. 219-213

[4] The municipalities with indigenous population refer to the municipalities in which the population that speaks the indigenous language are registered, and that do not speak Spanish. This information is described in the records of the 2010 Population and Housing Census.

a. **Priority Attention Areas.** In November 2006, CONEVAL presented the criteria for the determination of Priority Attention Zones (ZAP). This methodology allowed defining the areas of attention for the targeting of federal public resources, as well as defining the target population in the operation of social development programs. The Priority Attention Areas (ZAP) approach worked from 2007 to 2008 and was subsequently modified in the Priority Areas Development Program (PDZP) in 2009, currently in operation. In both targeting criteria, factors such as: i) indigenous presence are recognized[5] and ii) level of marginalization, as criteria in the selection of the target population, in the incorporation of social development programs, in accordance with the standards and applicable legislation in the matter.

b. **Priority Areas Development Program**. In accordance with the operation rules, the objectives of the (PDZP)[6] they are basically three:

1. To increase the quality of life in areas of priority attention through the rehabilitation and expansion of the basic social infrastructure and the improvement of housing.

2. Contribute to the reduction of regional inequalities in localities and municipalities of high and very high marginalization, with social backwardness or with a strong concentration of poverty.

3. Contribute to the actions aimed at the municipalities considered in the 100x100 Strategy, which aims to provide comprehensive care for the 125 municipalities with the greatest marginalization and poverty in the country, under inter-institutional coordination schemes and the three levels of government.

The Program for the Development of Priority Areas (PDZP) operates in the 32 states and mainly in the territories defined as Priority Attention Areas (ZAP), according to the following criteria:

1. In high and very high marginalization municipalities that are part of the (ZAP). In predominantly indigenous municipalities, according to CONAPO, regardless of their degree of marginalization Source.

2. In strategic locations for the development of the regions established in the ZAP declaration, and their areas of influence.

3. In localities of high and very high marginalization, located in municipalities of medium, low and very low marginalization, provided that it does not duplicate with the activities of the Habitat program. And support for housing can be given regardless of the territorial criteria provided that the inhabitants of the houses present conditions of poverty, backwardness or marginalization

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[5] The indigenous regions correspond to the CDI catalog. In 2010, the State of Veracruz registered an indigenous population of 969,439 people, whose regional distribution is as follows: 66.51% correspond to municipalities that do not belong to an indigenous region, while municipalities that identify with an indigenous region represent 33.49 % of total municipalities. Of the municipalities that identify with an indigenous region, we have the following:

— The Cuicatlán, Mazateca, Tehuacán and Zongolica regions are integrated by 23 municipalities and represent 10.85% of the municipalities at the state level. According to the characteristic of the indigenous region, it is noteworthy that 17 are indigenous municipalities, 5 are municipalities with indigenous presence and only 1 municipality has scattered indigenous presence. In this region, an indigenous population of 198,914 people was registered.

— The Huasteca region encompasses 17 municipalities and represents 8.02% of the municipalities at the state level. It is composed of 15 indigenous municipalities and 2 municipalities with indigenous presence. In this region an indigenous population of 284,148 people was registered.

— The Tuxtlas, Popoluca-Nahuatl region of Veracruz concentrates 14 municipalities and represents 6.60% of the municipalities at

the state level. It is integrated by 6 indigenous municipalities, 6 municipalities with indigenous presence and 2 municipalities that have scattered indigenous presence. In this region, an indigenous population of 140,861 people was registered.

— The Sierra Norte de Puebla and Totonacapan region concentrates 14 municipalities and represents 6.60% of the municipalities at the state level. It is composed of 9 indigenous municipalities and 5 municipalities with indigenous presence. In this region an indigenous population of 196,705 people was registered.

— And finally, the Chinanteca region which concentrates 3 municipalities and represents only 1.42% of the municipalities at the state level. It is composed of 2 indigenous municipalities and 1 municipality with an indigenous presence. In this region an indigenous population of 26,878 people was registered.

See National Commission for the Development of Indigenous Peoples (CDI). 2006. Indigenous regions of Mexico. Retrieved from: http://www.cdi.gob.mx/regiones/regiones_indigenas_cdi.pdf

[6] See AGREEMENT whereby the Operating Rules of the Program for the Development of Priority Areas are issued for the fiscal year 2013. (Mexico, Ministry of Social Development, SEDESOL). Mexico DF.

c. **National Crusade Against Hunger Program (PNCH).** a) Operation PHASE 1. - In this phase of operation, the National Crusade Against Hunger Program (PNCH) [7] (PNCH) began with the attention of 400 municipalities nationwide in which extreme poverty and food deprivation are present, with a potential population to be served estimated at 57,776,808 million people. At the operational level, this generated 70 federal programs coordinated by SEDESOL to meet the following objectives:

1. "Zero hunger from adequate food and nutrition of people in extreme multidimensional poverty and lack of access to food;

2. Eliminate acute infant malnutrition and improve the weight and height indicators of childhood;

3. Increase food production and income of peasants and small agricultural producers;

4. Minimize post-harvest and food losses during storage, transportation, distribution and commercialization, and Promote community participation for the eradication of hunger. "

It highlights the attention of the states of Chiapas, Guerrero and Oaxaca who concentrate 234 municipalities of the 400 municipalities included in the PNCH program in its PHASE 1, thats is they represent 58.50% of the total of the municipalities served within this program. At the state level, the State of Veracruz in PHASE 1 of the PNCH were selected 33 municipalities, of which 14 are identified as indigenous municipalities, 11 correspond to municipalities with an indigenous population presence and 8 are municipalities with scattered indigenous population.

b) Operation PHASE 2 .- In 2014, in its PHASE 2 of operation the PNCH 612 municipalities are served more in order to reach 5.5 million people in extreme food poverty that represent 78.4 percent of the target population[8] by what total 1,012 municipalities in total.

In PHASE 2 of the PNCH at the state level, 52 municipalities are incorporated into the 33 initial municipalities, making a total of 85 municipalities in the PNCH in this phase of operation. Of the 85 selected municipalities, 37 are identified as indigenous municipalities, 18 are municipalities with an indigenous population, and 30 are municipalities with scattered indigenous populations. PNCH PHASE 1 are 33 municipalities that were included in the PNCH Program. Be PNCH PHASE 1 the first phase of operation of the PNCH in which 33 municipalities of the State of Veracruz were included.

Where:

— The value of 1 is assigned to the municipalities that are included in the PNCH PHASE 1 and
— The value of 0 to municipalities that are not included in the PNCH PHASE 1.

Dichotomous value
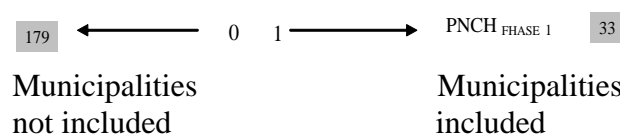
| 179 | ← | 0 | 1 | → | PNCH $_{FHASE\ 1}$ | 33 |

Municipalities not included

Municipalities included

And where:

Selection criteria for the municipality within the PNCH is: PE High extreme poverty and CAA Food shortage. (See Graphic 3 below)
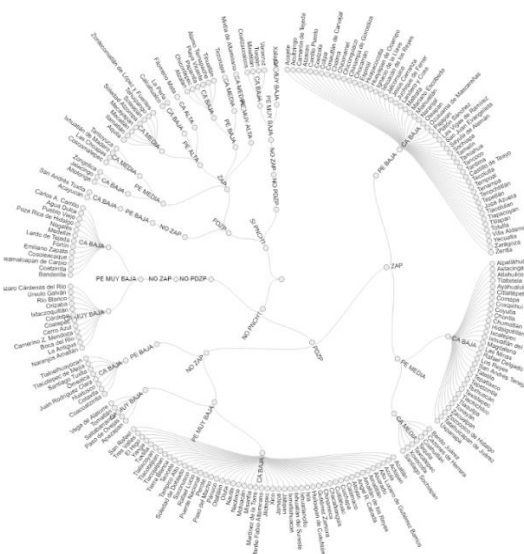
Graphic 3 Municipalities of the State of Veracruz included in the National Program Against Hunger in PHASE 1 according to incorporation to the Priority Zone Development Program, Priority Attention Area, Extreme Poverty Degree and Degree of Food Deficiency. 2013
Source: Own elaboration with information from SEDESOL.

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[7] See DECREE. National System for the Crusade against Hunger. (January 22, 2013. DOF.) Agreement by which the operation rules of the food support program are issued, for fiscal year 2013. (February 26, 2013).

[8] See SEDESOL. National Crusade against Hunger. Recovered from: https://www.gob.mx/sedesol/documentos/cruzada-nacional-objetivos

It is estimated that the indigenous population likely to be served by the PNCH PHASE 1 corresponds to 518,912 people, which represents 53.53% of the total indigenous population in the State of Veracruz. It is important to highlight the orientation in the selection criteria for indigenous municipalities, since 63.64% corresponded to municipalities that correspond to an indigenous region and only 36.36% corresponded to municipalities that do not belong to an indigenous region. See Table 1 below.

INDIGENOUS REGION [1]	Not included	Include [2]
Chinanteca	2	1
Cuicatlán, Mazateca, Tehuacán y Zongolica	18	5
Huasteca	11	6
Sierra Norte de Puebla y Totonacapan	10	4
Tuxtlas, Popoluca-Náhuatl de Veracruz	9	5
Municipalities that do not belong to an indigenous region	129	12
TOTAL	179	33

Table 1 State of Veracruz by Ignacio de la Llave. Number of municipalities according to inclusion in the PNCH PHASE 1 and indigenous region. 2013
Source. Own elaboration with information from CDI[1] and SEDESOL[2]

In Phase 2, 85 municipalities were included in the PNCH Program. Be PNCH PHASE 2 the second phase of operation of the PNCH in which 33 municipalities of the State of Veracruz were included.

Where:

— The value of 1 is assigned to the municipalities that are included in the PNCH PHASE 2 and
— The value of 0 to the municipalities that are not included in the PNCH PHASE 2,

Dichotomous value

127 ← 0   1 → PNCH PHASE 2   85

Municipalities not included   Municipalities included

And where:

Selection criteria for the municipality within the PNCH is: PE=High extreme poverty and CAA= Food shortage. Of the municipalities that are incorporated in the PNCH PHASE 2, 23 identify as indigenous municipalities[9], 7 are municipalities with indigenous presence[10] and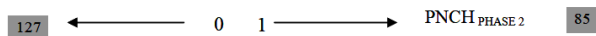 22 are municipalities with scattered indigenous population. As regards its distribution according to the indigenous region, this information is presented in Table 2 and Graph 4, below.

		PNCH [2]
		PHASE 1	PHASE 2
INDIGENOUS REGION [1]			
Chinanteca	1	2
Cuicatlán, Mazateca, Tehuacán y Zongolica	5	15
Huasteca	6	11
Sierra Norte de Puebla y Totonacapan	4	12
Tuxtlas, Popoluca-Náhuatl de Veracruz	5	10
Municipalities that do not belong to an indigenous region	12	35
TOTAL	33	85

Table 1 State of Veracruz by Ignacio de la Llave. Number of municipalities incorporated in the PNCH, according to the operation phase and indigenous region. *Source. Own elaboration with information from CDI[1] and SEDESOL[2]*
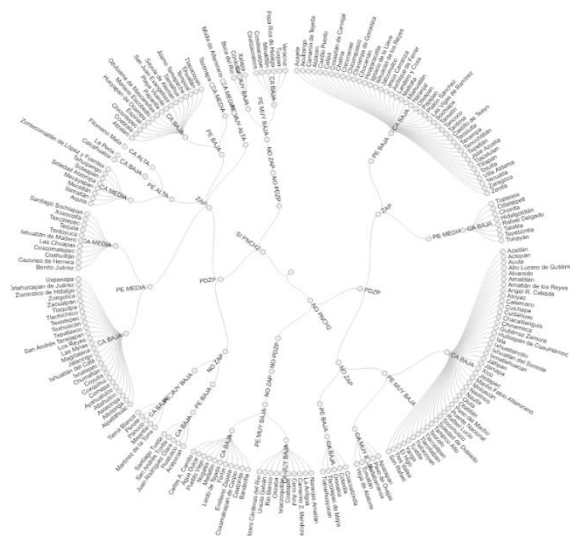
Graphic 4 Municipalities of the State of Veracruz included in the National Program Against Hunger in PHASE 2 according to incorporation into Priority Zone Development Program, Priority Attention Area, Degree of Extreme Poverty and Degree of Food Deficiency, 2014.
Source: Own elaboration with information from SEDESOL.

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[9] According to the information provided by the CDI, it is estimated that of the 23 municipalities that are incorporated in PHASE 2 of the PNCH and that are identified to indigenous municipalities, and in accordance with the index of ethnolinguistic replacement (indicator that measures the condition of that the new generations of the population of an ethnolinguistic group maintain the use of the indigenous language) has 1 municipality shows a degree of ethnolinguistic replacement that qualifies it as an accelerated extinction, 5 municipalities show a degree of ethnolinguistic replacement that qualifies it as a slow extinction , 7 municipalities show a degree of ethnolinguistic replacement that qualifies it as in equilibrium and 10 municipalities show a degree of ethnolinguistic replacement that qualifies it as slow expansion. See Ordorica Manuel,

et al. The ethnolinguistic replacement index among the indigenous population of Mexico. Desacatos, Journal of Social Anthropology, núm 29, 2009. Retrieved from: http://desacatos.ciesas.edu.mx/index.php/Desacatos/article/view/436/305

[10] It is estimated that of the 7 municipalities that are incorporated in Phase 2 of the PNCH and that are identified to municipalities with indigenous presence, 5 municipalities show a degree of ethnolinguistic replacement that qualifies as accelerated extinction, 1 municipality show a degree of ethnolinguistic replacement that it qualifies as a slow extinction, 1 municipality shows a degree of ethnolinguistic replacement that qualifies it as in equilibrium. . See Ordorica Manuel, *et al*. The ethnolinguistic replacement index among the indigenous population of Mexico. Op. Cit. MEDEL-RAMÍREZ, Carlos & MEDEL-LÓPEZ, Hilario. Complementarity analysis of the Priority Areas Development Program and the Priority Attention Areas Program in the National Crusade Against Hunger Program in indigenous municipalities in the State of Veracruz Mexico. ECORFAN Journal-Mexico 2018.

As seen in both PHASE 1 and PHASE 2, the criterion for the selection of the target population is that it presents a high level of extreme poverty, lack of food. Here we must ask ourselves: What is the result of this targeting strategy for the allocation of federal public resources aimed at combating multidimensional poverty and what is the impact on the indigenous speaking population? Is there complementarity in the solution of poverty in the new strategy proposed in the National Crusade Against Hunger Program (PNCH), for the indigenous population that presents high marginalization and social exclusion? To this end, a binary logistic regression model was adjusted in order to assess the incidence of contextual factors to interpret the scope of the strategy adopted by the federal government in the fight against poverty. Our proposal is to incorporate social exclusion as an element to explain the current condition of poverty in indigenous.

Methodology

Definition of the study area.

The study area is the State of Veracruz and corresponds to the 212 municipalities attending the following: Extreme poverty (PE), Food deficiency (CA), Educational lag (RE), Municipal social lag (GRM) , Municipal Marginalization (GMM), Social Exclusion Index (IES) and Income less than the minimum well-being line (PIILBM).

Population of 3 years and more that speaks some indigenous language (PHLI3YMAS), Total current income per capita monthly (ICTPC). The analysis of the municipalities also incorporates the identification and classification according to: the Indigenous Region (REGIND), Type of indigenous municipality (TIPMUNIND) and Degree of ethnolinguistic replacement (GRE). And finally, to the identification or belonging of being a municipality included in the Priority Area Assistance Program (ZAP), a municipality included in the Priority Areas Development Program (PDZP) and a municipality included in the National Crusade Against Hunger Program, corresponding to PHASE 1 or PHASE 2 of operation.

Sources of information.

The data has been obtained from the "Report on poverty measurement in the United Mexican States 2010" of the National Council for the Evaluation of Social Development Policy (CONEVAL), where information corresponding to the following was extracted: Percentage of population in extreme poverty (% PE), Percentage of educational lag (% RE), Percentage of population with lack of access to food (% CAA), Percentage of population with Total Current Income per capita Monthly (% PIILBM), Percentage of population of 3 years and more speaker of indigenous language (% PHLI3 +) and the percentage of municipal social lag (GRM).

From the National Population Council, the information on the Degree of Municipal Marginalization (GMM) was obtained. The National Commission for the Development of Indigenous Peoples (CDI) obtained the classification of the Indigenous Region (REGIND), Type of Indigenous Municipality (TIPMUNIND) and Degree of Ethnolinguistic Replacement (GRE). And from the Ministry of Social Development (SEDESOL) the catalog of municipalities incorporated in the Priority Area Assistance Program (ZAP), the Priority Areas Development Program (PDZP) and Phase 1 or Phase 2 of the Program's operation was recovered. National Crusade against Hunger.

The social exclusion index (ES)[11] it is constructed as a weighted sum of 16 variables. The selection of the variables is an adaptation proposed by (Medel, 2016b) de (Subirats, 2004). The data source corresponds to the statistical information contained in the General Population and Housing Census for 2010.

Regression Model Binary Logistics.

Estimate the result of a categorical qualitative variable (a variable that adopts a limited number of categories, in our study, the value SI = (1) or NO = (0) for a municipality to be included in the National Crusade Against Hunger Program , which is a function of independent variables or predictors.

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[11] See Medel-Ramírez C. (2017). Proposed methodology for estimating the index of social exclusion: the case of indigenous population in the state of Veracruz Mexico. Journal Mathematical and Quantitative Methods. ISSN 2531-2979 Vol 1 December 2017. Retrieved from:

Be:

Definition. Let Y be a binary dependent variable that takes two possible values (0 and 1). Let X1, ..., Xk be a set of independent variables observed in order to explain and / or predict the value of Y. [12]

The objective is to determine:

P [Y = 1 / X1, ..., Xk], where P indicates probability
So:
P [Y = 0 / X1, ..., Xk] = 1- P [Y = 1 / X1, ..., Xk]).

A model is built:
P [Y = 1 / X1, ..., Xk] = p (X1, ..., Xk; β)

Where:

p (X1, ..., Xk; β)
is a function that is called a link function (probability function) whose value depends on a parameter vector: β = (β1, ..., Bk) '.

Likelihood Function

In order to estimate β and analyze the model behavior, we observed a simple random sample of size n given by {(Xi '), Yi; i = 1, ..., n}

Where: Xi = (Xi1, ..., Xik), is the value of independent variables

Yi = {0,1} is the observed value of Y in the i-th element of the sample.
Y / (X1 ...., Xk) is distributed as binomial (1, p (Y = 1 / X1 ...., Xk; β))

The likelihood function is:

$$L \left(\beta / (x_1, y_1), \ldots\ldots\ldots ,(X_n, Y_n) \right) = \prod_{1}^{n} p_i^{y_i} (1 - p_i)^{1 - y_i}$$

Where pi = p (xi ', β) = p (xi1, ..., xik; β) with i = 1, ..., n

The degree of prediction of the binary logistic regression model is a function of 1) the substantive interpretation, where the independent variables that intervene are a function of the research hypothesis, in addition to the interpretation of these relationships must be theoretically relevant; 2) its capacity for statistical prediction, since it must be significant and 3) it must comply with the principle of parsimony, that is, with a smaller number of variables present better goodness of fit.

The binary logistic regression model was processed using the statistical software IBM SPSS Statisc version 24, from which follows the following binary logistic regression model (Logit) to analyze the impact of the incorporation or not of a municipality in the National Crusade Program against Hunger. The binary logistic regression model uses the maximum likelihood method in estimating the coefficients in the model. (Visauta and Martori, 2003). To evaluate the significance of the estimated coefficients, the Wald statistic is used to test the hypothesis of whether the regression coefficients are equal to zero. In this sense, the criterion of statistical significance that is adopted is: α = 0.05

Significance Tests

Once the model coefficients are estimated, it is necessary to verify if the model adequately predicts the dependent variable. To evaluate the goodness of the model, the logarithm of the likelihood ratio and the Hosmer-Lemeshow test are used. [13]

The hypotheses that are posed are:

H0: observed P = estimated P (the model is significant),
H1: P observed ≠ P estimated

Where:

Observed P = Observed value and
Estimated P = Probability estimated by the model.

Testing of coefficients

Once the best set of explanatory variables that predict the dependent variable Y have been found, each coefficient must be evaluated to determine which one or which enter the model, this process is done by the Wald statistic. The hypothesis that arises is the following:

H0: $\beta_i = 0$ The independent variable does not influence pi.
H1: β_i is not equal to 0 The independent variable influences pi.

The interpretation of the results obtained is done from the coefficients of the model. For this, it is enough to take into account that if the adjusted model is adequate, then the model is said to be significant, but in addition, the degree of statistical association that exists in its parameters must be analyzed.

Where:

$\beta_1 > 0$ the risk factor will be greater than 1 and p $(X_1, X_2 ...., X_k; \beta)$ will increase.
$\beta_1 < 0$ the risk factor will be less than 1 and p $(X_1, X_2 ...., X_k; \beta)$ will decrease.
$\beta_1 = 0$ the variable X_1, has no effect on the probability of risk.

Binary logistic regression model.

Initial complete model

Logit P($PNCH_{F2}$) = $X'\beta$
con $X' = (1,$ *Extreme poverty, educational lag, lack of access to food, population with income below the minimum welfare line, ICTPC, PHLI3YA, indigenous region, degree of municipal marginalization, degree of municipal lag, degree of ethnolinguistic replacement, TIPMUNIND, GES, Priority Area of attention, Priority Zone Development Program*))
$\beta = (\beta_0, \beta_1, ...\beta_{30})$

Dependent variable

PNCHF2 = National Crusade Against Hunger Program (Phase 2)
Where:

1 = Municipality included in the National Crusade Against Hunger Program (Phase 2)
0 = Municipality not included in the National Crusade Against Hunger Program (Phase 2)

See Table 3 below.

			Predicted		
			PNCH PHASE 2		
	Observed		0	1	Correct percentage
Paso 0	PNCH PHASE 2	0	127	0	100.0
		1	85	0	.0
	Global percentage				59.9

a. The constant is included in the model.
b. The cut-off value is .500

Table 3 Classification initial complete model
Source. Own elaboration.

Where:

Independent variables

Quantitative variables:

PE = Percentage of the population living in extreme poverty.[14]

RE = Percentage of the population with educational backwardness.[15]

CAA = Percentage of the population with lack of access to food. [16]

PIILBM = Percentage of the population with income below the minimum welfare line.[17]

ICTPC = Total current income per capita per month.[18]

PHLI3YMAS = Percentage of the population aged 3 years and over that speaks an indigenous language.[19]

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[14] See CONEVAL Poverty report at the municipality level 2010. Retrieved from: http://www.coneval.org.mx/Informes/Pobreza/Pobreza_municipal/pobreza%20extrema%20y%20alimentacion%20por%20municipio.zip
[15] See CONEVAL Poverty report at the municipality level 2010. Op. Cit.
[16] See CONEVAL Poverty report at the municipality level 2010. Op. Cit.

[17] See CONEVAL Measurement of poverty. Recovered from: http://www.coneval.org.mx/Informes/Pobreza/Pobreza_municipal/Tablas_dinamicas/TD_Veracruz.zip
[18] See CONEVAL Poverty report at the municipality level 2010. Op. Cit.
[19] See INEGI Intercensal Survey, Mexico, 2015 Retrieved from: http://www.beta.inegi.org.mx/contenidos/proyectos/enchogares/especiales/intercensal/2015/doc/eic2015_resultados.pdf

Categorical variables:

REGIND = Indigenous region.[20]
Where:

Regind 1 = Chinanteca Indigenous Region
Regind 2 = Cuicatlán, Mazateca, Tehuacán and Zongolica indigenous region
Regind 3 = Huasteca Indian Region
Regind 4 = Indigenous Region Sierra Norte de Puebla y Totonacapan
Regind 5 = Indigenous region Tuxtlas, Popoluca-Náhuatl de Veracruz
Regind 6 = Municipalities that do not belong to an indigenous region

GMM = Degree of municipal marginalization.[21]
Where:

Very-high GMM = Very high degree of marginalization
AltaGMM = Degree of high marginalization
MediaGMM = Degree of marginalization
BajaGMM = Degree of low marginalization
Very low GMM = Very low degree of marginalization

*GRS = Degree of social backwardn*ess.[22]
Where:

Very-high GRS = Degree of very high social lag
AltaGRS = Degree of high social lag
MediaGRS = Degree of average social lag
BajaGRS = Degree of low social lag
Very-low GRS = Degree of very low social lag

GRE = Degree of ethnolinguistic replacement. [23]
Where:

GRE1 = Degree of ethnolinguistic replacement in equilibrium
GRE2 = Degree of ethnolinguistic replacement in slow expansion
GRE3 = Degree of ethnolinguistic replacement in accelerated extinction

GRE4 = Degree of ethnolinguistic replacement in slow extinction

TIPMUNIND = Type of indigenous municipality.[24]
Where:

Mi = Indigenous municipalities: those with 70% and more of indigenous population and with a percentage of 40 to 69 of indigenous population.
Mpi = Municipalities with an indigenous presence, those with less than 40% indigenous population but more than 5,000 indigenous people within their total population and with a significant presence of minority language speakers;
Mid = Municipalities with dispersed indigenous population, with less than 40% indigenous population and less than 5,000 indigenous

IES = Index of social exclusion.[25]
Where:

Very-high%% = Very high exclusion
AltaIES% = High exclusion
MediaIES% = Average exclusion
BajaIES% = Low exclusion
Very-low% = Very low exclusion

ZAP = Municipality included in the Priority Areas Attention Program.
Where:

1 = Municipality included in the Priority Zones Program
0 = Municipality not included in the Priority Zones Program

PDZP = Municipality included in the Priority Area Development Program.
Where:

1 = Municipality included in the Priority Area Development Program
0 = Municipality not included in the Priority Areas Development Program

[20] See CDI. Indigenous regions of Mexico. Retrieved from: https://www.gob.mx/cms/uploads/attachment/file/35735/cdi-regiones-indigenas-mexico.pdf
[21] See CDI. Socioeconomic Indicators of the Indigenous Peoples of Mexico, 2015. Retrieved from: http://www.cdi.gob.mx/gobmx-2017/indicadores/12-cdi-base-indicadores-2015.zip
[22] See CONEVAL Index of social lag 2010 at the municipal level and by location. Retrieved from: http://www.coneval.org.mx/Informes/Pobreza/Rezago_Social/Rezago_Social_2010/Rezago_Social_Estados_y_Municipios_2000_2005_2010.zip

[23] See CDI. Index of ethnolinguistic replacement. Retrieved from: http://www.inegi.org.mx/rne/docs/Pdfs/Mesa1/20/MiguelPalacios.pdf
[24] See CDI. Indigenous localities Catalog of Indigenous Locations 2010. Retrieved from: http://www.cdi.gob.mx/localidades2010-gobmx/catalogo_de_localidades_indigenas_2010.xlsx
[25] See Medel-Ramírez C. (2016a). "Evaluation of the degree of social exclusion and of multidimensional poverty in the indigenous localities in the State of Veracruz: The case of the program of development of priority zones." (Doctoral thesis). Economy faculty. Doctorate in Public Finance. Veracruz University. Mexico.

Selected method for the Binary Logistic Regression Model.- Advance in steps (Wald)[26]

Significance omnibus tests of model coefficients.- If the significance is less than 0.05, it indicates that the model helps explain the event, that is, the independent variables explain the dependent variable. In the adjustment of the Binary Logistic Regression Model.- Advance in steps (Wald) for PNCHF2. The level of significance is less than 0.05, so the model explains the PNCHF2 See Table 4.

		Chi squared	gl	Sig.
Paso 1	Step	6.306	1	.012
	Block	6.306	1	.012
	Model	**190.471**	**29**	**.000**

Table 4 Omnibus tests of model coefficients for PNCH F2
Source: Binary Logistic Regression Model.- Advance in steps (Wald) for PNCH F2

Rx-square of Cox and Snell, and R-square of Nagelkerke

It indicates the part of the variance of the dependent variable explained by the model. The higher the R-squared the more explanatory is the model, that is, the independent variables explain the dependent variable. See Table 5, below.

Step	Logarithm of verisimilitude -2	R square of Cox and Snell	R square of Nagelkerke
1	95.047ᵃ	.593	.801

a. The estimate has ended at the iteration number 20 because the maximum number of iterations has been reached. The final solution can not be found

Table 5 Model summary for PNCH F2
Source: Binary Logistic Regression Model.- Advance in steps (Wald) for PNCHF2.

The R squared of Cox and Snell is based on the comparison of the log of the likelihood (LL) for the model with respect to the log of the likelihood (LL) for a model of baseline. Its values oscillate between 0 and 1.

In this case it is a very discrete value (0,593) that indicates that 59,3% of the variation of the dependent variable is explained by the variables included in the model, on the other hand the R squared of Nagelkerke that indicates that 80.1% of the variation of the dependent variable is explained by the variables included in the model.

Hosmer and Lemeshow test

Shows the goodness of fit of a logistic regression model, by evaluating a high value of the predicted probability (p) will be associated with result 1 of the dependent binomial variable, while a low value of p (close to zero) will correspond to the result Y = 0. The value obtained in the Hosmer and Lemeshow test is> 0, so a goodness of fit is estimated in the PNCHF2 explanation. in the Binary Logistic Regression Model.- Advance in steps (Wald). See Table 6 and Table 7.

Step	Chi squared	gl	Sig.
1	4.116	8	.847

Table 6 Test of Hosmer and Lemeshow for PNCH F2
Source: Binary Logistic Regression Model.- Advance in steps (Wald) for PNCHF2.

Table 7 Tes Odd ratio estimation in the binary logistic regression model in the analysis of the National Cross-Hunger Program PHASE 2
Source: Binary Logistic Regression Model.- Advance in steps (Wald) for PNCH PHASE 2

Logit P (PNCH PHASE 2) = *-18.981 Constant + 0.305 Extreme poverty + 0.098 Educational lag + 0.142 Lack of access to food + 0.043Population with income below the minimum welfare line + 0.003ICTPC + 0.007% PHLI3Y + -3.701 Region indigenous (1) + -3,127 Indigenous region (2) + -0,176 indigenous region (3) + 22,737 indigenous region (4) + 3,033 indigenous region (5) + -6,223 degree of municipal marginalization 2015 (1) + -3,090 degree municipal marginalization 2015 (2) + -5,879 Degree of municipal marginalization 2015 (3) + 12,068 Degree of municipal marginalization 2015 (4) + 4,021 Degree of municipal lag 2010 (1) + 5,501 Degree of municipal lag 2010 (2) + 4,275 Grade of municipal lag 2010 (3) + 4.145 Degree of municipal lag 2010 (4) + -2.884*

Article

Degree of ethnolinguistic replacement (1) + 1.151 Degree of ethnolinguistic replacement (2) + 3.187 Degree of ethnolinguistic replacement (3) + -4.283 TIPMUNIND (1) + -25,387 TIPMUNIND (2) + -1,317 Very-high% + 0.017 AltaIES% + -0.021 MediaIES% + 0.011 BajaIES% + 3.179 Priority attention area (1).

Results and Discussion

Overall percentage correctly classified.- This percentage indicates the number of cases that the model is able to predict correctly. Based on the regression equation and the observed data, a prediction of the value of the dependent variable (predicted value) is made. This prediction is compared with the observed value.

Where:

If correct, the case is correctly classified.
If not correct, the case is not correctly classified.

In Figure 4 below, presents for each of the phases of operation of the PNCH the number of municipalities that were selected in each stage, having the following, paragraph 1) and 2) refers to the selection of the municipality according to regulations legal expressed in corresponding decree:

1. In the first phase of the PNCH there are 33 municipalities included in the program.
2. In the second phase of the PNCH there are 85 municipalities included in the program.
3. Projected PNCH estimates whether the selected municipality corresponding to subparagraphs 1) and 2) corresponds to an assigned value = 1 and corresponds to a municipality included in the PNCH, obtaining that 73 municipalities are correctly classified and 12 corresponds to municipalities that They are not correctly classified. As regards the assigned value = 0 and corresponding to a municipality that is not included in the PNCH, it is observed that 119 cases are correctly classified and 8 municipalities that are not correctly classified. According to the information offered by the binary logistic regression model model, it is estimated that the overall percentage of the classification of the cases corresponds to 90.6%, and from this classification it is estimated that the municipalities that should be included in the PNCH are 81 and 131 should not be included. See Graphic 5, below.
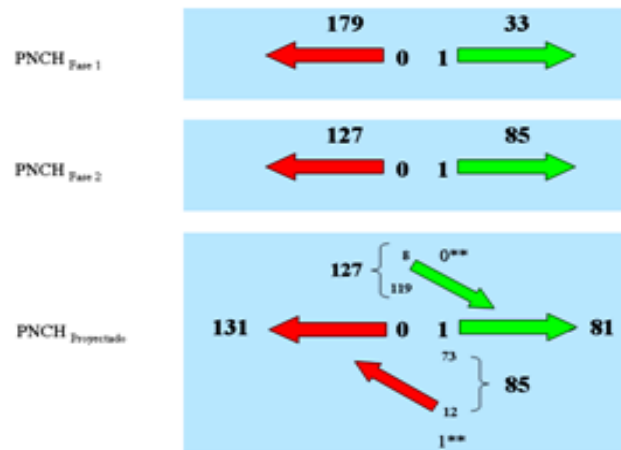
Graph 5 Classification of selected municipalities in the PNCH according to the operation phase and Estimation of Projected PCNH
Source: Own elaboration.

Municipalities included in the Projected PCNH. Of the 81 municipalities whose predicted result refers to the inclusion of the PNCH in Phase 2, 37 are indigenous municipalities, 26 correspond to municipalities with dispersed indigenous population and 18 to municipalities with indigenous presence. It is estimated that the percentage of municipalities that are included in the PNCH is 90.6%.

			Predicted		
			Projected PNCH		
	Observado		0	1	Correct percentage
Step 1	*Projected PNCH*	0	119	8	93.7
		1	12	73	85.9
	Global percentage		131	81	90.6

a. The cut-off value is .500

Table 8 Classification in predicted model for PNCH F2
Source: Own elaboration

Graphic 6 presents the classification tree of the municipalities according to the variable 1 that indicates included in the Projected PCNH and the variable 0 that indicates that it is not included in the Projected PCNH, the importance of the participation of the indigenous municipalities is observed and of the municipalities with indigenous presence in the Projected PCNH.

Graph 6 Classification tree Exhaustive CHAID method dependent variable PCNH Projected according to type of indigenous municipality
Source: Own elaboration

Of the municipalities 85 municipalities of the State of Veracruz included in Phase 2 of the PNCH, it is highlighted that those that meet the condition where (P observed = P estimated) this corresponds to 73 municipalities while 8 municipalities present the condition (P observed ≠ P estimated), so the total number of municipalities in the projected PNCH is 81. Table 9 below presents the information corresponding to the various indigenous regions that meet the condition of (P observed = estimated P) and (P observed ≠ P estimated).

Indigenous region	Included in PNCH PHASE 2 and included in projected PNCH (Observed P = estimated P)	Included in PNCH PHASE 2 and not included in projected PNCH (Observed P ≠ estimated P)
Chinanteca Region	**Playa Vicente.**	
Cuicatlán, Mazateca, Tehuacán and Zongolica regions	Astacinga, Atlahuilco, Magdalena, Mixtla de Altamirano, Los Reyes, San Andrés Tenejapan, Soledad Atzompa, Tehuipango, Tequila, Texhuacán, Tezonapa, Tlaquilpa, Xoxocotla y Zongolica.	Coetzala
Huasteca Region	Benito Juárez, Chicontepec, Ilamatlán, Ixcatepec, Ixhuatlán de Madero, Tantoyuca, Álamo Temapache, Tempoal, Texcatepec, Tlachichilco y Zontecomatlán de López y Fuentes	
Sierra Norte de Puebla and Totonacapan Region	Cazones de Herrera, Coahuitlán, Coxquihui, Coyutla, Chumatlán, Espinal, Filomeno Mata, Mecatlán, Poza Rica de Hidalgo, Tihuatlán y Zozocolco de Hidalgo.	Coatzintla
Tuxtlas Region, Popoluca-Nahuatl de Veracruz	Acayucan, Las Choapas, Hueyapan de Ocampo, Mecayapan, Minatitlán, Sayula de Alemán, Soteapan, Tatahuicapan de Juárez, Uxpanapa y Santiago Sochiapan.	Pajapan, Zaragoza
Municipalities that do not belong to an indigenous region	Alpatláhuac, Altotonga, Aquila, Ayahualulco, Calcahualco, Coatzacoalcos, Comapa, Córdoba, Cuacuamtepec, Huatusco, Ixhuatlán del Café, Xalapa, Juan Rodríguez Clara, Mariano Escobedo, Martínez de la Torre, Las Minas, Oxaluama de Mascareñas, La Perla, San Juan Evangelista, Santiago Tuxtla, Tamiahua, Tepetlaxco, Texistepec, Tuxpan, Veracruz y Zacualpan.	Cuichapa, Hidalgotitlán , Ixhuatlán del Sureste, José Azueta, Tonayán
Total number of municipalities	73	8

Table 9 Municipalities according to inclusion in the PNCH PHASE 2 and PNCH Projected according to indigenous region
Source: Own elaboration.

As regards the relevance with the PDZP, of the 81 municipalities indicated, 73 belong to a PDZP and present the following distribution: 37 are indigenous municipalities, 26 correspond to municipalities with dispersed indigenous population and 10 to municipalities with an indigenous presence. which present the following characteristics:

1. Indigenous Municipalities.- According to the degree of ethnolinguistic replacement, 8 municipalities are in equilibrium, 19 municipalities in slow expansion, 2 municipalities in accelerated extinction and 8 municipalities in slow extinction.
2. Municipalities with indigenous presence.- 2 municipalities are in equilibrium, 4 municipalities in accelerated extinction and 4 municipalities in slow extinction.
3. Municipalities with dispersed indigenous population. - 12 municipalities in accelerated extinction and 2 municipalities in slow extinction.
4. On the other hand, 8 the municipalities that do not belong to a PDZP correspond to municipalities with an indigenous presence.

Is important to point out that the 8 municipalities that are included in the PNCH but that are not in a PDZP are: Coatzacoalcos, Coatzintla, Córdoba, Xalapa, Minatitlán, Poza Rica de Hidalgo, Tuxpan and Veracruz.

These municipalities have the following characteristics: a) They are cataloged municipalities with an indigenous presence and that have an accelerated ethnolinguistic replacement degree; and b) they are municipalities that do not have the status of PDZP or ZAP, they have very low extreme poverty and very low food deprivation; low, low and very low exclusion rate. This information is presented in Graphic 7.

Graph 7 Municipalities of the State of Veracruz included in the National Program Against Hunger in PHASE 2 according to incorporation into the Priority Zone Development Program, Priority Attention Area, Extreme Poverty Grade and Degree of Food Deficiency. 2014
Source: Own elaboration.

Complementarity ZAP and PDZP.

In the next Graph 8 shows the information of the municipalities of the State of Veracruz according to the pertinence of incorporation in the ZAP or the PDZP according to their status as an indigenous municipality, with indigenous presence or dispersed indigenous population

Graph 8 Dispersion of municipalities of the State of Veracruz included In the PNCH projected according to incorporation in the ZAP and PDZP according to indigenous presence. 2017
Source: Own elaboration.

From the point of view of the rules of operation of the PNCH, in which it is indicated that the municipalities incorporated in the strategy both PHASE 1 and PHASE 2 must be those that present a very high or high level of extreme poverty, one level very high or high food deficiency, as well as belonging to a ZAP or PDZP.

In the graph above you can see that the municipalities of Coatzacoalcos, Coatzintla, Cordoba, Xalapa, Minatitlan, Poza Rica de Hidalgo, Tuxpan and Veracruz do not comply with the regulations set forth in the rules of operation of the PNCH. In the same Graph 7, in the upper right quadrant it is observed in green indicator in "X" which identifies the municipalities incorporated in the PNCH and which are indigenous municipalities that meet the condition of being ZAP and PDZP.

Conclusions

The results of the adjustment of the binary logistic regression model that was conducted in order to assess the incidence of contextual factors to interpret the scope and complementarity with the efforts in the fight against poverty in the social expenditure strategy applied in the Priority Attention Areas Program (ZAP) and the Priority Areas Development Program (PDZP) in the strategy adopted by the federal government in the National Crusade Against Hunger Program (PNCH) in PHASE 1 and PHASE 2, particularly In the indigenous municipalities in the State of Veracruz, it is concluded that:

1. The incorporation of municipalities that have a very high or high degree of extreme poverty and a very high or high degree of food deprivation, even when they are necessary conditions, according to the rules of operation of the PNCH, these are not met, so The efforts in the fight against poverty to which the ZAP and PDZP strategies are directed are not complementary to the PNCH.

2. The indigenous municipalities such as Citlaltépetl, Coetzala, Chalma, Chiconamel, Chontla, Papantla, Platón Sánchez, Rafael Delgado and Tlilapan, even though they participate in the ZAP and PDZP strategy, these have been excluded from the strategy proposed in the PNCH PHASE 2.

3. There is no continuity in the fight against poverty, since the municipalities incorporated in the strategy Priority Attention Areas and Development Program of Priority Zones are not considered in the selection of municipalities incorporated in the National Crusade Against Hunger Program, situation that identify that the relationship between programs is not complementary.

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Recent enviromental dynamics of the High Wave at Icacos Beach, Acapulco, Guerrero

Dinámica ambiental reciente del Alto Oleaje en la Playa Icacos, Acapulco, Guerrero

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Abstract

The objective was to synthesize the effects of High Wave 2013-2018. The methodology was based on cabinet and field work. The toral contribution was to detect the critical points and to propose the semaphore of danger of the High Wave. The main results were: 1) in Icacos, the continental shelf along 25 m presents a minimum inclination of one meter of depth and 2) the Icacos Beach has 48 m in front of the sea and 2 600 m in which High Wave during May-November of each year. The conclusions were a) the risk is built, not respecting the limits of the Federal Maritime Ground Zone (ZOFEMAT in Spanish); b) is one of the most important social challenges in Guerrero, being the main economic asset due to its tourist use and c) Icacos Beach is subject to various human and climatic pressures that physically condition its three basic functions, being a natural habitat for biodiversity, provide protection to the coast and meet human leisure needs.

High Wave, Risk, Global Warming

Resumen

El *objetivo* fue sintetizar los efectos del Alto Oleaje entre 2013-2018. La *metodología* se sustentó en trabajo de gabinete y campo. La *contribución* toral fue detectar los puntos críticos y proponer el semáforo de peligro por Alto Oleaje. Los principales *resultados* fueron: 1) en Icacos, la plataforma continental a lo largo de 25 m presenta una inclinación mínima de un metro de profundidad y 2) la Playa Icacos tiene 48 m frente al mar y 2 600 m en los cuales se presenta Alto Oleaje durante mayo-noviembre de cada año. Las *conclusiones* fueron *a)* se construye el riesgo, al no respetar los límites de la Zona Federal Marítimo terrestre (ZOFEMAT en español); *b)* constituye uno de los retos sociales más importantes en Guerrero, al tratarse del principal activo económico debido a su uso turístico y *c)* la Playa Icacos se encuentra sometida a variadas presiones humanas y climáticas que condicionan físicamente sus tres funciones básicas, al ser hábitat natural de biodiversidad, ofrecer protección a la costa y satisfacer las necesidades de ocio humanas.

Alto Oleaje, Riesgo, Calentamiento Global

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Introduction

At a planetary level, throughout the 20th century, greenhouse gases accumulated in the atmosphere due to human activity, which has resulted in global warming, which means that during the 21st century the temperature will increase by an average of 1.2 °. C in such a way that, one evidence is the increase in sea level observed in the coasts of the different continents (UN, 2016).

In South America, specifically in Peru, it has "more than 2,000 kilometers of coastline used, without control or planning, with a degradation of its increasingly large use that has led to the privatization of the littoral territory" (Cobeñas, 2017: 4). The coastal coastline that covers the countries of the Pacific Basin between the Republic of Chile, Peru and Mexico, where the population settled on the coasts is high to very high density or square meter, which brings with it high vulnerability to the effects of the floods (Villanueva, 2017).

In Mexico, global warming is evident with the changes in temperature seen in the north and south of the country (WWIS, 2016), as well as atmospheric pressure, humidity alteration, rainfall and wind intensity and all This is related to another current phenomenon, climate change, a topic that will be addressed in another manuscript. The state of Guerrero in Mexico is affected by a series of natural risks associated with its coastal location along its 505 km of extension in the Pacific (INEGI, 2005); global warming combined with the interaction of several plates entails anthropic risks, such as loss and / or modification of the strip of littoral sand, environmental pollution, decrease in the inflow of scarcely sustainable sun and beach tourism; coupled with this, poor education in disaster prevention, whatever its nature, generates a negative exponential predisposition to social vulnerability and conscious or subconscious acceptance of the risks that this implies.

At present, knowledge of risks is presented as a priority in the development of economic, environmental, social, and even technological policies. The elaboration of diagnostics, procedures and / or administrative tools, as well as operational techniques, aimed at the prevention and mitigation of disasters, in order to achieve ideal states of certainty, starts from a preconception of what is determined to be "risky", category in which the problem of disasters has been registered.

One of the main objectives of the National Development Plan 2001-2006 that was published in the Official Gazette of the Federation (DOF, 2001), regarding disaster prevention within the framework of the Habitat Program of the Ministry of Social Development, "aims to strengthen actions that contribute to reduce the vulnerability of the population in the presence of recurrent natural hazards, with emphasis on identifying high risk sites "(SEDESOL-Mineral Resources Council, 2004: 4), which was the key to act in the preventive plan, as a foundation of strategies aimed at reducing economic and social costs, as well as human losses.

This study is referred to a natural phenomenon of local presence, but with global effects. The five-year period analyzed was 2013-2018, so the information provided in the document is basic, and enriched by the inhabitants, tourists and tourist service providers, within the coastal strip of Icacos Beach, in the Municipality of Acapulco de Juarez, from an environmental perspective.

The study area is influenced by two types of floods: the first corresponds to the upper part of the continent, where there are narrow streams that in the summer season are revaded as a result of intense rainfall (DOF, 2012); the second has to do with the irruption of marine waters that penetrate the continent caused by cyclonic waves. In the present work, emphasis will be placed on the second type of flood, where the High Surf stands out, formerly known as the "Deep Sea".

Cyclonic waves in particular, are an abnormal growth of sea level, associated with hurricanes or other maritime storms. "Which are caused by strong winds from the open sea towards the coast; by low pressure cells and ocean storms "(OAS, 1991). The level of the waters is determined by the winds, atmospheric pressure, marine currents, waves, topography of the coast, bathymetry and proximity of the storm to the coast especially in the rainy season of the year. Generally, the resulting destructions due to cyclonic waves are attributed to: 1) the direct impact of the waves against hotel structures and furniture, 2) sand deposition occurs simultaneously (Niño, 2015); 3) the indirect impacts translate into floods and 4) undermining in the lower part of the buildings (Niño, 2016). The work is a multifactorial approach due to the need to study this phenomenon that is transcendent for the inhabitants, tourists, tourism service providers and authorities of the three levels of government that are linked to this coastal area under study.

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In this order of ideas, the situation becomes more complex if one takes into account that the Guerrero coast is located in an area with strong influence of cyclonic activity, tropical storms, proximity to the Pacific Ring of Fire, which also makes it susceptible to telluric activity and the threat of tsunamis, generated in the entity or in more distant places such as South America, or the South Pacific (Rodríguez, 2011: 9).

The occupation of soils potentially vulnerable to flooding due to their location and characteristics, raises a controversy; On the one hand, these are considered attractive places for various activities of social and economic interest, without taking into account the consequences that this may cause, since their location is unfavorable, during the summer period, which can cause damage to nearby properties to Icacos Beach.

To understand the effects of hydrometeorological events in situ, it is necessary to know the history of urbanization in the ejido of Icacos, which is an interesting issue because it is the only one in the country that has ejidatarios, but no longer has ejido plots, although it is Constitutionally recognized as such. "The ejido is integrated by 762 hectares that belong to 37 ejidatarios, in which the Convention Center, the Sports Club and the Pemex facilities were built, among others" (Harrison, 2016: 1).

The general objective implied, to synthesize the effects of the High Surf between 2013-2018 in the Icacos Beach of Acapulco, Guerrero. To date there is little culture of prevention to coastal phenomena, as well as minimal literature regarding the High Surf in the Santa Lucia Bay of Acapulco, hence the interest in explaining the causes, presence and effects of this phenomenon. In particular, it was decided to carry out the study at Icacos Beach, since it is the most extensive and boasts the Blue Flag distinction as a clean beach, therefore, the most visited by visitors according to the results obtained in situ.

It is important to take into account the prevention of high waves, since it is a component of the Integrated Risk Management. In addition, preventing is more economical than trying to repair the damages caused by an emergency. Guiding question How has the presence of the High Surf affected the development of in-situ economic activities?

Methodology

Cabinet work, the research was based on data and official sources of printed or electronic information disclosed by different government agencies at the federal, state and municipal levels. This work investigated the negative effects in the sectors of the population involved of the Icacos Beach due to the presence of the High Surf, and even, it was resorted to the revision of the topographic letter E14C57 Acapulco, at scale 1:50 000 (INEGI, 1994 and 2005).

Field work, this work included 12 exploratory and on-site verification tours during the period from June 2013 to July 2018 in different periods, but with emphasis on Easter, winter holidays and summer. These included recognition of facilities and tourist infrastructure, which supports the formal and informal commerce of Icacos Beach. The above was enriched by six meetings with key informants belonging to government agencies and civil society, in addition, 775 questionnaires were carried out, applied to tourists (national and foreign), tourism service providers (PST) (tenants, waiters and informal vendors), as well as local residents.

In order to synthesize the level of information about the High Surf that the members of the sectors involved have and their perception, from this, obtain a broad perspective to conclude opportunities, strengths and even weaknesses in the dissemination and distribution this. The number of interviewees was determined by the formula of the American Psychological Association (APA), which states that the sample is a numerical part that represents an entire population, and since this study is based on the quantitative and qualitative approach, As it has been reflected in the methodological framework, it was important to apply the questionnaire in order to determine the number of tourists, residents and PST, living in the Icacos Beach, so that the results obtained can be representative of the total population that transits the holidays of the year.

Results

The areas susceptible to risk according to the field work are located in bathymetric ranges that go from zero to five meters below the mean sea level, where the risk is medium for people who move on the beach to be hit by the High Surf , whereas, between five to ten meters below mean sea level, the risk is high for people who dive and swim away from the shoreline.

Icacos has a natural flood potential, because it is a plain, as can be seen in the topographic map Acapulco E14C57, scale 1: 50,000 (INEGI, 1988a and 1988b).The almost flat topography at Icacos Beach (CICESE, 2016) allowed the identification of vulnerable zones by High Surf, that is, a close relationship between topography, bathymetry and precipitation was observed, in such a way that the risk increases during the rainy season (May -November), and decreases in the dry season in each year.

The width of the beach is on average 48 m, except where there are walls of hotels or restaurants that reduce the amplitude, so the risk of deteriorating the infrastructure is high accentuated by sand accumulations with a height of five meters.The seabed of this site is of sandy type with scarce rock formations, and a slope of 10 °, the place is suitable for beginners and advanced divers, since its depth goes from four to 18 m; the months of November to February are the most recommended to dive in depth because of the high visibility (SEMAR, 2016).

Icacos Beach is exposed to a series of geological (earthquakes) and hydrometeorological threats (tsunamis, tropical storms, hurricanes, floods, etc.); despite this, the general lack of awareness among the local population of the potential risk in which they live, has caused the city to grow in a disorganized manner, and now the phenomenon known as Alto Oleaje is added to it.

The High Surf indicates that the wave travels and the energy that displaces it, but does not move with it the volume of water as in the case of a tsunami, according to the head of the Mareographic Service of the Center for Atmospheric Sciences of the National University of Mexico (UNAM), Jorge Zavala Hidalgo (Environmental Forum, 2015: 2).

The energy stays until breaking on the beach. In Icacos the transition from high to low energy becomes more noticeable from the beach in front of the Plaza España, and the Naval Base, where the energy conditions are low, thanks to the Las Brisas peninsula, which protects this portion of Strong surf terrain from the open sea. The High Surf affects the Icacos Beach between the months of May to November, where there are waves with an average height of three meters, but in some cases they have reached seven meters (Rosey, 2016a: 5A and 2016b, 2A).

In the field, it was possible to appreciate the accumulation of material in the form of sand escarpments of 1.5 meters high. This is why there are eleven critical sites that are located and identified with the red color in Figure 1.
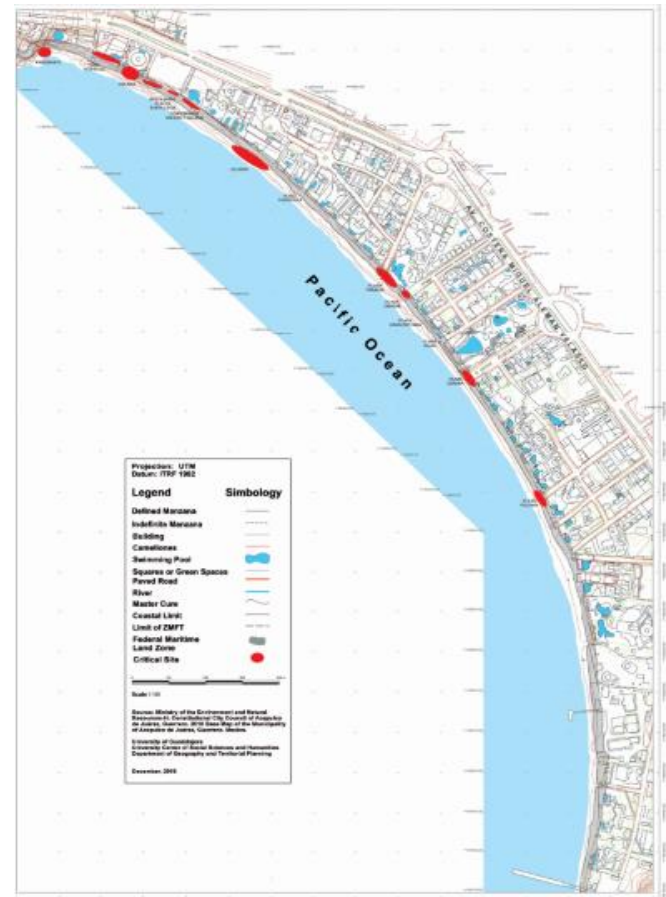
Figure 1 Critical sites affected by High Surf.
Source: Own Elaboration

From the geomorphological point of view, Icacos Beach is located in the alluvial plain of the coastal plain of the Pacific Ocean (Lugo, 2011), with slopes ranging from 0 to 10 °, and in a minimal extension it is undulated, as a consequence of the tides. Specifically in the study area, the maximum slope is 10 °, and has a runoff coefficient of between 20 and 30%, which maximizes the vulnerability to the phenomenon studied.

The Icacos Beach has the character of river water receiver and the accumulation of material transported from the upper part. Therefore, there is laminar water erosion, presence of sedimentary rocks that originate beaches of medium and fine texture, beige. This is attractive for the development of hikes made by national and foreign tourists. The climate is warm subhumid with rain in summer (Aw1), and has influence of the trade winds, most of the year.

Cyclones occur between the months of May to November of each year, and the dry season occurs between December and April; with an average annual temperature of approximately 26.5 ° C. The average number of cloudy days per year is 72. The thermal oscillation is 0.6 ° C. "The presence of the sea plays an important role as a local thermal regulator" (Vidal, 2005: 173).

The average temperature and average precipitation registered in Acapulco in the last 30 years, allow us to appreciate that the coldest month is January with a temperature of 23.3 ° C, and the warmest month corresponds to July with 32.3 ° C; while, the minimum total rainfall corresponded to March with 1.2 mm, and the heaviest rainfall occurred in September with 298.8 mm (SMN-CONAGUA, 2015). The Automatic Meteorological Station (EMA) of the CONAGUA in the port of Acapulco is limited to the one found in the National Park "El Veladero", managed by the National Meteorological System Network (SMN), said station is located at an altitude of 302.9 msnm, latitude north 16 ° 53'03 ", longitude west with respect to Greenwich 99 ° 54'25", which reports that the data are punctual, therefore, they are not accumulated and the graphs that can be consulted, They are 24 hours a week and 90 days (SEMAR, 2015).

In the area under study, the burst direction in 24 h from March 7 to 8, 2016 from 6:00 AM to 2:00 PM was 250-350 degrees; from 3:00 pm to 8:00 pm, there was a calm as the burst direction decreased upon reaching a 70-110 degree offset, and shortly after 20:00 the burst direction went up again until 2:00 : 30 AM, when achieving displacements from 240-320 degrees (SMN-CONAGUA, 2016a).

The wind direction marked by the EMA in "El Veladero", for a period of seven days between March 1 and March 8, 2016, between 10: 00-11: 59 PM, was predominantly from southwest to northeast, whose speed was maintained between 250-290 degrees; between 12: 20-12: 40 AM, although the direction of the winds kept the speed, it decreased from 90-50 degrees. This dynamic happened alternately throughout the mentioned week. The relative humidity in the month between February 8 to March 8, 2016, was a minimum of 59.5%, and a maximum of 97.5%, between February 8-10.

Between the 2-4 of March it had a notorious decrease, registering only 18% while, the precipitation between February 25 to March 8, 2015, a minimum sheet of 0.90 mm was observed; During April to June of the same year, there was a drought, but from July 2 to November 20, copious rains occurred with maximum sheet of 2.25 mm in 24 h (SMN-CONAGUA, 2016b).

Some phenomena associated with precipitation from January 2002 to December 2015, was the minimum Bajamar record with a value of 62 cm below the mean sea level; the mean Bajamar level was 28.8 cm; however, the mean Pleamar level reached was 49.7 cm and Pleamar maximum recorded 90.0 cm. The height of the tides complements the aforementioned phenomena. In the study area it was observed that the average height of the tides is 2.20 m, according to the SEMAR tide station located in the Eighth Naval Region of Acapulco, which is part of the Icacos Beach, close to the mainland, and is not relevant for the analysis of the High Surf, because the data are scarcely significant because at the height of the peninsula Punta Brujas the impact of the waves is slowed down, which is why it reaches the Icacos beach without force (SEMAR, 2015).

The solar radiation during 24 hours that comprised the day September 10, 2016, showed that between 2:00 AM and 1:00 PM, the temperature gradually made between 0-100 Watt / m2; after 14: 00-16: 00 PM the highest radiation was reached on average 900 W / m2; which is directly linked to high rates of ultraviolet rays (6-7 high), so it is recommended that the public wear sunscreen, light-colored clothing and shirts, preferably long sleeves in order to avoid sunburn during the day, skin blemishes over the course of the year and long-term skin cancer.

Burst speed is directly related to the presence of solar radiation, that is, between 3:00 AM and 12:30 PM it is minimal, but between 15:00 and 17:00 PM when the insolation is high, the Burst speed increases at an average speed of 21.5 km / h. While the wind speed and the air temperature show similar dynamics to the aforementioned, where at higher temperature faster wind and higher air temperature.

The surface hydrography is included in the RH19 Hydrological Region of the Conagua (INEGI, 1988a), and it is reduced to the presence of two hydrographic basins: the western one known as Costa Azul, whose surface area is 764.7 hectares, dominated by the Los Lavaderos stream ; and the Oriental with an area of 373.9 hectares, which is Icacos made up of two Costa Grande and National Army streams; all of them reach the sea because the study area is a low area that facilitates the berthing of Navy ships and oil tankers (Villegas, 2006: 172).

The Acapulco pedological chart reports that in the coastal plain of Icacos the soils are: Alluvial (Al), and Regosol eútrico (Re), which share the characteristics of being porous, and even permeable; and at the sea-land interface the Solonchack (S) soil is located, that is to say, saline by the contact of the sandstones with the seawater (SPP, 1981: 1). This establishes the natural vocation of the land for the use of housing (residential and hotel), due to the lack of organic matter and therefore no agricultural capacity.

With the sum of these environmental indicators, the preparation of a map of hazards by High Surf for the Icacos Beach was obtained, which can be seen in Figure 2. Where the green color indicates low danger, the yellow refers to the average danger in both that, the red color implies high danger to the presence of High Waves. This phenomenon is evidence of climate change that currently affects the coastal areas of the world and where geotechnologies applied correctly in vulnerable areas save countless lives.
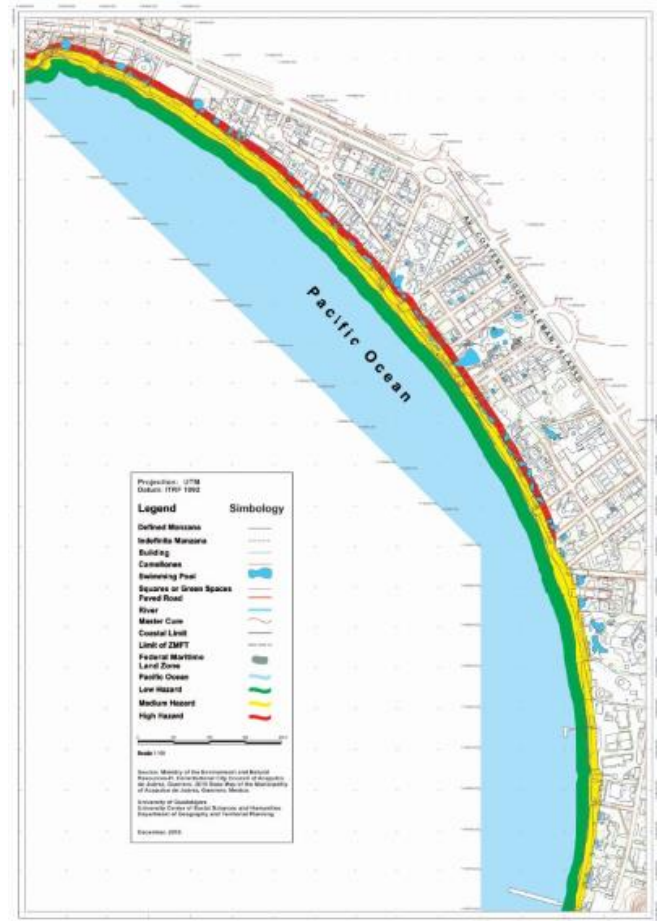
Figure 2 Hazard traffic light due to high waves.
Source: Own Elaboration

Residents, tourists and PST consider it important to operate contingency plans in the face of high waves, hurricanes and earthquakes due to the high level of danger in the local sea-land phase.

Conclusions

Before the guiding question of this investigation: How has the presence of the High Surf in the Icacos Beach impacted? The answer is complex because, on the one hand, there are physical and geographical impacts such as: accumulation of waste materials from the open sea displaced by the High Surf to the beach, thereby conforming land reclaimed from the sea in the form of domes and beach escarpments, between two and three meters high. On the other hand, there is partial or total destruction of tourism infrastructure and furniture, whose economic consequences amount to just over 1.5 million pesos, as was confirmed in 2016 by the state government and the SCT.

Vulnerability, considers that the level of this is directly proportional to the exposure of the tourist real estate and hotel infrastructure to the threat by High Surf and inversely proportional to the resistance that shows such infrastructure and equipment, that is, those who only settle on the beach in the Pleamar area; whereas, the well-founded buildings have a greater possibility of resisting the swells of the waves, although with the passage of time their bases are undermined.

From the point of view of the Environmental Sciences the last three years (2015-2018), the behavior of the average temperature tends to rise, since in 2016 it reached the historical record of 32.3 ° C, and the average total precipitation goes Increased in such a way that in the month of September of the same year there was rainfall of 298.8 mm, causing floods throughout the Bay and the presence of 19 events of the High Surf never presented before, with the danger added to the risk, can occur a disaster at any time during the next triennium. All this is related to global warming whose effects are already felt in this local space.

In summary, the biogeophysical effects in the study area were: 1) High Waves through the supply of sediments brought by the tides allowed land to be reclaimed from the sea via sand deposition, 2) beach erosion, 3) intrusion of saline water to the continent which are related to local climate changes that involve changes in the coastal coastal morphology; and 4) surface runoff allowed the dragging of terrigenous materials from the upper part of the lower Icacos area. Because tourism activity is of vital importance for residents, PSTs and tourists, the need to emphasize the warning system on the part of the authorities in order to achieve greater resilience *in situ* is concluded in this area. Economic and even ecological activities are necessary to guarantee resilience in Icacos Beach, and its social value within a regional process of erosion and economic development.

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Volatility clustering and its asymmetry and leverage effect in the Tehran Stock Exchang

Agrupamiento de volatilidad y su efecto de asimetría y apalancamiento en la Bolsa de Teherán

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Abstract

The objective of the present study is investigation of the volatility clustering and it's asymmetry and leverage effect in Tehran stock exchange. Great changes in prices intend to changes and small changes intend to small changes, that is named volatility clustering. On the other hand the higher return volatility intend to more clustering in comparison to small volatility that is named volatility asymmetry. The asset return volatility can effect on the exchange options price and stock risk and portfolio, this is an applied and quantitative research. The population is Tehran stock exchange Total index(TEDPIX) and the used sample is time series of Total index return(R-TEDPIX) in time span of the 2008 to 2017. Data was extracted by Rahavarde Novin software and then the logarithmic return was calculated and was analyzed by Eviews software. According to box and Jenkins, the average equation ARMA was prepared and the existence of volatility clustering was confirmed. The TGARCH model shows the asymmetry in volatility and leverage effect. Considering the Akaike statistic for the best model of GARCH family, ETGARCH was introduced for volatility extraction.

Volatility Clustering, Asymmetry, Leverage Effect

Resumen

El objetivo del presente estudio es investigar el agrupamiento de volatilidad y su efecto de asimetría y apalancamiento en la bolsa de Teherán. Los grandes cambios en los precios pretenden cambios y los pequeños cambios pretenden pequeños cambios, que se denomina agrupamiento de volatilidad. Por otro lado, la mayor volatilidad de retorno pretende una mayor agrupación en comparación con la pequeña volatilidad que se denomina asimetría de volatilidad. La volatilidad del rendimiento de los activos puede afectar el precio de las opciones de cambio y el riesgo de acciones y cartera, esta es una investigación aplicada y cuantitativa. La población es el índice total de la bolsa de Teherán (TEDPIX) y la muestra utilizada es la serie temporal de retorno del índice total (R-TEDPIX) en el lapso de 2008 a 2017. Los datos fueron extraídos por el software Ravinvar Novin y luego se calculó el retorno logarítmico y fue analizado por el software Eviews. De acuerdo con Box y Jenkins, se preparó la ecuación promedio ARMA y se confirmó la existencia de agrupamiento de volatilidad. El modelo TGARCH muestra la asimetría en la volatilidad y el efecto de apalancamiento. Teniendo en cuenta la estadística de Akaike para el mejor modelo de la familia GARCH, ETGARCH se introdujo para la extracción de volatilidad.

Agrupamiento de Volatilidad, Asimetría, Efecto de Apalancamiento

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Introduction

One of the most popular characteristics of financial asset returns is volatility clustering (the great changes in prices intend to great changes and small changes intend to small changes). On the other hand the more volatility in return intend to creating more clustering in comparison to small volatility that is named volatility clustering (the high volatility follow high volatility and low volatility follow low volatility). This model of volatility clustering is very important in financial market since the asset return volatility can effect on the exchange options price and stock risk and portfolio directly and can predict the variance.

The statistic properties study of financial market data show some facts that are conventional in different markets such as asset return wide distribution, extra volatility, un autocorrelation in returns, volume correlation with volatility and volatility clustering. Financial asset such as interest rate have volatility clustering property. Many of statistic models such as GARCH, ARCH and multi fractional models were used by Mandelbrot for volatility clustering study. For example GARCH models as the first study models had this property that lead to volatility clustering phenomenon that is named GARCH effect.

These models assume that the volatility clustering have been created by an external resource. For example the random news clustering in the market and it's agents reaction. The asset volatility is an instrumental property for measuring the risk and is effective in agents investment decisions and need to more extract studies. What lead to volatility clustering, the literature insist on market psychology role or investor feeling. The other studies indicate that the investors are related to the positive and negative waves and create a momentum that lead to volatility clustering. The literature insist on market psychology role or investor feeling.

The other studies indicate that the investors are related to the positive and negative waves and create a momentum that lead to distance prices from their basic temporally. The agent based models try to describe the observed behavior resource of market prices by means of market participants. While the econometric discuss the volatility dependency in short term or long term. The agent based models present a useful part for econometric analysis.

Explanation of the theory scientific in relation to the subject and volatility clustering identify and it's asymmetry in Tehran stock exchange is the main objective of this study that was done in financial knowledge growth field through theoretical bases identify and new models and procedures and help and synergy of science and knowledge in financial area and obtaining the scientific objective in financial field.

Theoretical literature review

Mandelbrot (1963) and Fama (1965) found that high price changes is followed by high price changes and low price changes are followed by low price changes (volatility clustering). One method for volatility clustering illumination is using of the ARCH, GARCH and Engel (1982) models that was developed by Nelson (1991). Engel stated that the volatility clustering originate from the obtained news and information clustering in the financial market. The volatility clustering is asymmetric in asset returns series since the high volatility more than low volatility intend to creating the clustering, with investigation of the volatility clustering persistence in the returns series , the obtained results indicate that the clusters in many of returns series volatility intend to more stability and even after 40 days is not separated from each other.

These findings support from the long-term memory in return volatility. Many research have studied the volatility clustering in financial markets by GARCH models such as Danberg (2003) that identified the important GARCH effect in monthly levels that was proved with Mont Carlo simulation. During several years the price behavior for economic financial experts played an important role. In this area some of primary studies support from prices random step behavior (Fama 1965, Samuelson 1965).

Recently the economists assigned high importance to asymmetric distributions modeling and time series residual heavy -tailed and investigated these properties in many of experimental studies. As a sample of this method in modeling the option pricing (fang and lai, 1997), the capital asset pricing (Harvey and Siddique, 2000) and risk reward (smith, 2006) were used and since the remaining of the financial time series include extra skewness and skewness ,usage of Gaussian distribution (or normal distribution) hypothesis for inclusion of the heavy -tailed or return extension is not suitable for residuals heavy –tailed and skewness.

Property of returns may experimental studies have developed the GARCH family models by different distribution of Belerso (1978) include date return extra extension. In addition t-student extension distribution of Lambert and Lorentz (2001) have ability of including the asymmetric distribution and return heavy -tailed. Accordingly the researchers such as Bourmaty et.al (2007) and Tang et.al (2006) have used of non-Gaussian distribution by means of GARCH family models and have used of the studies in abnormal distribution in the ARFEMA-FIGARCH model such as Kang and Vion (2007) and Kasman and Toron (2008) that showed that ARFIMA-FIGARCH with t-student skew distribution presents a better modeling about binary long-term memory in comparison to normal distribution.

The negative news create more shock in comparison to the positive news, and as a result create more volatility that is called leverage effect. Creasty (1982) was the first researcher that investigated the leverage effect. Considering this fact that the stock price changes is the main agent of change toward the leverage. Creasly for examination of the leverage effect tested the relationship of the previous stock return with the volatility changes of the current period by following equation:

$$\Delta Ln\sigma t = \alpha 0 + \alpha 1 Rt - 1 + et$$

In this equation Rt is stock return and t is standard deviation in t period . If the leverage effect be existed and the stock return be decreased ,the stock volatility will be increased in next period and vice versa. Therefore negativity of coefficient will confirm the leverage effect. Creasty tested his model by data of 400 American companies during the time period of 1962-1987. The obtained results were agreeable with this theory. 1α was obtained by Total index of the companies as 0 , 23. After introduction of conditional variance different auto regression model ARCH by Angel (1982) and a Total model of GARCH by Belersoo (1986) the investigation of the relationship between current period return with the current period expectation was possible instead of examination of the effect of the previous period return effect on the current period volatility (Creasty model).

Accordingly in examination of leverage effect the effectiveness of stock return on the stock exceptional volatility was examined. Many of evidences indicate that the leverage effect is effective in prices decrease. In other words the prices decreasing is more effective in volatility changes. This subject has developed GARCH asymmetry models usage for leverage effect. In the threshold ARCH test the test model by means of the virtual variables considers the stock asymmetry volatility.

In the leverage effect in return increase and decrease impulses present differed behavior this can be one of the main reasons of volatility asymmetry in the stock market. Bekert and Harvy (1997) with investigation of the relationship between the return and stock volatility by means of monthly data of some of new markets have recognized the leverage effect in volatility asymmetry toward return impulse, but the results of Bekret and Voo (20000)indicated that in the Tokyo stock exchange the asymmetry of volatility is not related to leverage effect. Figlosky and Wang (2000) also investigated the asymmetrical behavior of the leverage effect. They tested their New York stock market. Boo ,chayed and Androo and Ponter (2001) studied the leverage effect consistency rate in America, Europe. In the present research they estimated the stock future volatility with the previous prices change. Almost in all of the markets the negative correlation of markets between stock return and stock volatility has been confirmed.

This correlation in America market is more extreme than other markets. Also in the present research it has been showed that the leverage effect has an average rate in the companies and is stable for some month. While this effect is more insensitive in the market it loses its stability rapidly. Tabak and Gooaran (2002) tested the leverage effect by means of Brazil market stock Total index and the prices of 25 companies in time return of 1990-2002.

They used of exponential GARCH method in this research. The test results finally confirmed the leverage effect in Brazil stock exchange. They indicated that when the leverage effect rate is small its durability is more during the time. Vercheneo (2002) in his research used of different models for investigation of the leverage effect. He proved that the exponential GARCH model is more suitable for examination of the leverage effect in comparison to other methods. Verchenco investigated the relationship between stock return and stock volatility.

But this relationship only was significant in half of it thus the leverage effect is confirmed in low number of markets. In the other cases the positive relationship between stock return and its volatility was observed this relationship was only significant in one case. Mehrava and Abdoli 2006 investigated the role of good and bad news in stock return volatility by means of different models of ARCH and GARCH families. The result of this study show that the news effect is asymmetric montmeny and Abonouri 2007 have done a study under the title of "investigation of the leverage effect in Tehran stock exchange. By means of exponential GARCH model and daily time series they examined the leverage effect during the time period of 1992-2006. The stock volatility asymmetry and leverage effect existence confirmed the good and bad news in Tehran stock exchange.

According to stock return leverage effect the stock has a negative effect on the stock volatility. Mohammadi et al 2009 showed that the GARCH models have many abilities in modeling some of Tehran stock exchange market volatility such as leverage effects and long-term memory. They showed that there is a positive relationship between risk and return in portfolio all of the companies in Tehran stock exchange of 50 companies with high cash. Roya Ale Emran in a study under the title of investigation of the volatility process of Tehran stock exchange during the time span of 77-78 concluded that the highest level of volatility and instability in 2003 and after that in 2007 had accrued.

Alfaranoo and Lax (2001) found that there is herd behavior between the market participations mitigate the market return distribution and obtained the heavy-tailed property of the volatility clustering in the financial markets. Yomamoto (2018) used of agent based model for doing simulation in the artificer stock exchange.

Engel and Peten (2001) by means of daily data during 23 years of Daw Jones industrial index predicted the vitality in this index by means of GARCH model (1 ,1). They showed that this index is returning to an average and the effect of shock is loosed after almost 100 days. They also showed that this index has leverage effects thus the asymmetric GARCH models should be used for modeling. Salim (2007) examined the Pakistan Karachi stock exchange.

GARCH model was used for investigation of different volatility and their durability and EGARCH was used for investigation of the leverage effect. The results showed that the positive returns have more volatility in comparison to the negative return and the previous residuals have high effect on the current volatility. Gabich in a study under the title of measurement of volatility clustering in stock exchange market (2007) referred to the GARCH method for description of clustering behavior in complex time series.

He says that the effect of volatility clustering by means of GARCH model decreases the volatility clustering significantly, he considered the 500 s &p index from 1995 to 2004 in 5 minute distances and the stock of 28 industries with high cash from 1993 -2002. Alberge et al (2008) estimated the stock market volatility by means of asymmetric GARCH models and used of GARCH, E-GARCH and GJR models. They concluded that GARCH models with skew t-student distribution has been better than other models in Israel stock exchange.

Park showed that herd behavior leads to high increasing in volatility not in exchanges volume. Eminc (2010) investigated the volatility clustering, extension and leverage effect for Nigeria stock exchange return series. By means of GARCH (1 , 2) he found that there is return volatility in Nijeria stock exchange.

By means of model GjR GARCH(1 , 1) the Nigeria stock exchange was recognized. The study that was done by floor (2008) investigated the Egypt stock exchange by means of Egypt stock exchange index daily data. By different GARCH model volatility clustering and board leverage effect the bad news of volatility is increased.

Terpaty et al (2001) in research under the title of "India stock exchange market dynamic analysis" by means of, GARCH, ARCH, EGARCH and TARCH studied the relationship between leverage effect and stock return and exchange volume and volatility for 30 stock from Bombay stock market from time periods January 2005 to June 2009. The results of the research indicate that the effect of ARCH in residuals is existed and stocks and volatility in the market are permanent. Also there is leverage and asymmetric effects in the Bombay stock exchange and bad news have more effect on the exchange and volatility volume in market and asymmetric GARCH models fitting the market conditions better than symmetric GARCH models.

In research under the title of asymmetric volatility in India stock exchange Hojatollah Goodarzi in 2011 investigated good and bad effect on volatility in India stock exchange by means of asymmetric models of ARCH during the years of 2008-2009 of world financial crisis and used of EGARCH and TGARCH and concluded that there is leverage effect in India stock exchange in other words the negative news has more effect on the returns volatility in comparison to positive news with the same rate. Mostafaei et al and Sakhabakhsh (2011) examined the DFA method by means of DFA method and by means of test rate in ARFIMA model predicted open oil price.

Maliba et al (2014) predicted the Bombay stock index volatility. In this study three models of GARCH (1 , 1), EGARCH (1,1) and GGR during the time span of 2010 and 2014 were used. The results of the findings indicate that there is volatility clustering and return to mean behavior and volatility consistency and leverage effect. In research under the title of volatility clustering in junsberg stock exchange that was done by Tevary (2013) GARCH model was used for volatility clustering examination and it was found that the negative shocks have more volatility in comparison to positive shocks on stock prices. He found that there is an asymmetry of negative and positive shocks in the stock exchange. He found that there is volatility clustering and it's asymmetry in stock exchanges by means of GARCH model.

In a study under the title of "what asset return volatility is asymmetric ? that was done by NIG (2015) copula approach was used. By means of daily crenel volatility stock data and high frequency markets were used. And found that the volatility clustering in nonlinear and is asymmetric in the clusters with high volatility and clusters with low volatility. On the other hand volatility clusters were stable for more than one month and during different time periods are asymmetric.

Research methodology

The present research is an applied, quantitative and empirical study. The population is Tehran stock exchange Total index time series(TEDPIX) and the used sample is time series of Total index return(R-TEDPIX) from period of 2008-2017. For compilation of the study theoretical bases the library method was used.

The index rates were extracted from Rahavarde Novin software and then logarithmic return was calculated by the following equation and was analyzed by Eviews software.

$$rt = ln(\frac{Pt}{Pt-1}) \tag{1}$$

Autoregressive models

When time series coefficients are not zero, random interval variables X have useful data for time series modeling $\{X_t\}$. The first-order auto-regression model (AR (1)) is displayed as follows:

$$X_t = \phi_0 + \phi_1 X_t + a_t \tag{2}$$

Here $\{a_t\}$ is a white noise process with mean zero and the variance $\sigma_a{}^2$. This model is a simple linear regression model. Where $X_{(t-1)}$ is an explanatory variable and X_t is an explanatory variable. In this model we have the condition $X_{(t-1)}$:

$$E(X_t|X_{t-1}) = \phi_0 + \phi_1 X_{t-1}$$
$$V(X_t|X_{t-1}) = V(a_t) = \sigma_a^2 \tag{3}$$

That is, with respect to the value $X_{(t-1)}$, the value of X_t is equal to the value of $\varphi_0 + \varphi_1 X_{(t-1)}$ with the standard deviation σ_a. In many cases, only the value $X_{(t-1)}$ is used to determine the conditional math expectation X_t It is not enough, so the generalized AR (1) model is represented by AR (p) as follows:

$$X_t = \phi_0 + \phi_1 X_{t-1} + \cdots + \phi_p X_{t-p} + a_t \tag{4}$$

This model shows that the previous values of the variables $X_{(t-i)}$ (i = 1, ..., p) determine the conditional mathematical expectation X_t. (Alexander, 2008).

Moving Average Model

One of the simplest time series models is the moving average models. If we assume a_t (t = 1,2,3, ...) is a white noise process with E $(a_t) = 0$ and V $(a_t) = \sigma^2$, then the MA (q) model is shown as:

$$X_t = \mu + a_t + \theta_1 a_{t-1} + \cdots + \theta_q a_{t-q} \tag{5}$$

The MA model is a linear combination of white noise processes, so the value of X_t depends on the values of the present and the present time of the white noise processes.

Autoregressive and Moving Average Models

In many respects, the AR and MA models described in the previous sections may in practice encounter a lot of problems. Because if we want to estimate a large-scale model, we need to estimate many parameters. In order to solve these problems, the moving average motion automation models were introduced by Box, Jenkins and Rieselles in 1994.

In fact, the ARMA model combines the idea of AR and MA models, and at the same time does not increase the parameters of the model. The mathematical representation of an ARMA model (1.1) is as follows:

$$X_t - \phi_1 X_{t-1} = \phi_0 + a_t + \theta_1 a_{t-1} \qquad (6)$$

Here a_t is a white noise process. The left part of the equation is AR (1) and the right side of the MA (1) model. In general, the ARMA model (p, q) is displayed as follows:

$$X_t = \phi_0 + \sum_{i=1}^{p} \phi_i X_{t-i} + a_t + \sum_{i=1}^{q} \theta_i a_{t-i}$$

Conditional heterogeneity models

Moving average models for estimating fluctuations are based on the assumption that asset returns are iid. So the oscillation estimates and the correlation coefficient obtained from these models are equal to those estimated for the time being. The fluctuation in the return on financial assets varies over time, and it is assumed that the distribution of return on assets in a simplistic hypothetical practice.

There is plenty of evidence and evidence showing that fluctuations in financial markets tend to be clustered, and the roots of work done in this area are back to Mandelbrot (1963). Clusters of fluctuations have a great impact on risk measurement and management. Variance variance models are considered in cluster variance models. Also, the estimates made from these models are not equal to the estimated values of the present, and may be greater or less than they are.

Autoregressive conditional heterogeneity variance model

In the classical econometric model, the constant of defective sentences is always one of the main assumptions of econometrics. Robert Engel (1982), in order to emancipate this limited assumption, established a new method called ARCH. In this method, it is assumed that the random terms have a mean of zero and serially non-interconnected, but its variance is assumed with the assumption of its past information. Because in this model, the positive and negative shocks of the market (a_t) are of the same importance, it is said to be symmetric. The main idea of the ARCH model is that market shocks do not have a serial solidarity, but are interdependent and their dependence can be modeled by a second degree function of their interruptions. This model is displayed as follows:

$$\sigma_t^2 = \omega + \alpha_1 a_{t-1}^2 + \alpha_2 a_{t-2}^2 + \cdots + \alpha_m a_{t-m}^2$$
$$a_t = \sigma_t \varepsilon_t \qquad (8)$$
$$\varepsilon_t \sim iid(0,1)$$

The model is called ARCH (m). In practice, it is assumed that the distribution ε_t is normal or t-studio or .... As highlighted in the model structure, large quantities of previous market shocks increase the conditional variance of a_t. That is, in the ARCH model, large shocks tend to be shaky. To illustrate the features of this model and the models introduced in the next sections, we use them first. The first order of the ARCH model is as follows:

$$a_t = \sigma_t \varepsilon_t$$
$$\sigma_t^2 = \omega + \alpha_1 a_{t-1}^2 \qquad (9)$$

To ensure the conditional variance is positive, variations in the equation of variance must be applied. In this model, the limits of the mean equation coefficients are $0 > \omega$ and $\alpha_1 \geq 0$. The mean and non-regular variance a_t are obtained as follows:

$$E(a_t) = E[E(a_t|\Omega_{t-1})] = E[\sigma_t E(\varepsilon_t)] = 0$$
$$V(a_t) = E(a_t^2) = E[E(a_t^2|\Omega_{t-1})]$$
$$= E(\omega + \alpha_1 a_{t-1}^2) = \omega + \alpha_1 E(a_{t-1}^2) \qquad (10)$$

Since V (a_t) = E (a_ (t-1) ^ 2) = ω / (1-α_1), therefore, to ensure the positivity of the variance, α_1 <1.

To estimate this model, different exponential functions are used based on the distribution of ε_t. Assuming the distribution of ε_t is normal, the function of the ARCH model (m) is as follows:

$$
\begin{aligned}
&f(a_1, \ldots, a_T | \alpha) \\
&= f(a_T | \Omega_{T-1}) f(a_{T-1} | \Omega_{T-2}) \ldots f(a_{m+1} | \Omega_m) f(a_1, \ldots, a_m | \alpha) \\
&= \prod_{t=m+1}^{T} \frac{1}{\sqrt{2\pi\sigma_t^2}} exp\left(-\frac{a_t^2}{2\sigma_t^2}\right) \times f(a_1, \ldots, a_m | \alpha)
\end{aligned}
\tag{11}
$$

Here $\alpha = (\omega, \alpha\_1, \ldots, \alpha\_m)$ and f (a_1, ..., a_T | α) are the joint density function α_1, ..., α_m. The exact form of the complex density function is complex, so when the sample size is large, the high density function is eliminated. The result of the conditional exponential function is the following:

$$
\begin{aligned}
&ln\,(a_{m+1}, \ldots, a_T | \alpha, a_1, \ldots, a_m) \\
&= \sum_{t=m+1}^{T} \left[-\frac{1}{2}ln\,(2\pi) - \frac{1}{2}ln\,(\sigma_t^2) - \frac{1}{2}\frac{a_t^2}{\sigma_t^2}\right]
\end{aligned}
\tag{13}
$$

Since the expression ln (2π) has no parameters, the above function converts to the following function:

The symmetric normal GARCH model : This model, which is the generalized ARCH model of the parasite, was introduced by Bolerslo in 1986. The normal GARCH model is symmetric, a simple version of GARCH. The mathematical representation of this model is as follows:

$$
\begin{aligned}
&r_t = \mu_t + a_t \quad a_t = \sigma_t \varepsilon_t \\
&\sigma_t^2 = \omega + \alpha a_{t-1}^2 + \beta \sigma_{t-1}^2 \\
&a_t | \Omega_{t-1} \sim N(0, \sigma_t^2)
\end{aligned}
\tag{13}
$$

Because in this model, the positive and negative shocks of the market are of the same importance, this model is called GARCH symmetric. Also, because this model assumes that market shocks have a normal distribution, this GARCH model is said to be normal.

Because the second-order conditional moments (conditional variance) depend on each other in the equation above, the process is neither distributed nor independent. If there are no market shocks, the variance of the GARCH model becomes a constant value.

That is, it converts to σ ^ 2, which is equal to all values of t, σ_t ^ 2 = σσ2. The unconditional variance of GARCH model is σσ2, which is equivalent to the mean of long-term conditional variances.

$$
\begin{aligned}
&\sigma_t^2 = \sigma_{t-1}^2 = \underline{\sigma}^2 \\
&\underline{\sigma}^2 = \frac{\omega}{1 - (\alpha + \beta)}
\end{aligned}
\tag{14}
$$

From the above equation it is well established that the constraints ω> 0 and α + β <0 are necessary to ensure the limited and positive nonconformity variance. We also need to use other constraints so that the conditional variance of the GARCH model is always positive. In general, the limitations of the normal GARCH model are symmetric as follows:

$$
\{\omega > 0\;\; \alpha, \beta \geq 0\;\; \alpha + \beta < 1
\tag{15}
$$

The interpretation of the normal symmetric GARCH model parameters in relation to how to respond to market shocks is expressed as follows: The parameter α represents the rate of conditional variance response to market shocks. When α is large, conditional fluctuations are highly responsive to market shocks. The parameter β shows the degree of stability in the conditional fluctuation, regardless of what happened on the market. When β is relatively large, it takes a lot of time to get out of the effects of a shock from the conditional fluctuations The parameters of the GARCH model are obtained by maximizing the value of the logarithm of the following expression:

$$
ln\,L(\theta) = -\frac{1}{2}\sum_{t=1}^{T}\left(ln\,(\sigma_t^2) + \left(\frac{a_t}{\sigma_t}\right)^2\right)
\tag{16}
$$

Here, θ represents the parameters of the equation of conditional variance.

ARMA process

By combining AR (p) and MA (q), the ARMA (p, q) model is obtained. Such a model states that the current value of Y depends on its previous values and the current and past values of the random variable u_t.

The overall form of this model is:

$$\phi(L)Y_t = \mu + \theta(L)u_t$$
$$\phi(L) = 1 - \phi_1 L - \phi_2 L^2 - \cdots - \phi_\rho L^p$$
$$\theta(L) = 1 + \theta_1 L + \theta_2 L^2 + \cdots + \theta_q L^q$$
$$Y_t = \mu + \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + \cdots + \phi_p Y_{t-p}$$
$$+u_t + \theta_1 u_{t-1} + \theta_2 u_{t-2} + \cdots + \theta_q u_{t-q} \quad (17)$$

Note that the following assumptions are made:

$$E(u_t) = .\ , E(u_t^2) = \sigma^2\ , E(u_t u_s) = .\ , t \neq s$$

Average y_t is equal to:

$$E(Y_t) = \frac{\mu}{1 - \phi_1 - \phi_2 - \cdots - \phi_p}$$

The features of the ARMA model combines the features of the AR and MA models. In particular, the partial correlation function is important here. Note that AC can only distinguish its pure regression model from the pure moving average model. Alternatively, AC can be used to determine whether a time series is followed by the MA process or the AR process. On the other hand, as the ARMA process has a downlink AC, the PAC can be used to distinguish between the AR process and ARMA. AR (P) Has a descriptive self-correlation function, but its partial correlation function reaches zero after the interruption of P, while the partial autocorrelation function for the ARMA process is descending.

Hypothesis

1. Great changes intend to following the great changes and small changes intend to small change in Tehran stock exchange.
2. Stock return volatility is asymmetric in stock exchange.
3. Negative news has more effect on the return volatility in comparison to positive news with the same rate in Tehran stock exchange.
4. Findings

The findings have been obtained in two descriptive and inferential statistics. In the following table descriptive statistics characters for Total stocks index and it's return along with Jarque-Bera for determination data distribution, as you can see and with considering the obtained significant level for this statistic that is less than 0/05, thus the Total index variable and it's return is not normal but until the time that abnormality is the result of Kurtosis not skewness of the results of estimating the least squares is accepted.

	TEDPIX	RTEDPIX
Mean	42066.29	0.000878
Median	28557.90	0.000319
Maximum	89500.60	0.052608
Minimum	7955.400	-0.056703
Std. Dev.	28025.70	0.006905
Skewness	0.207351	0.273091
Kurtosis	1.335232	10.59614
Jarque-Bera	295.4470	5821.709
Probability	0.000000	0.000000

Table 1 stock index descriptive statistics characteristics (TEDPIX) an it's return (RTEDPIX)

Tehran stock exchange Total index and it's return from the beginning of 2008-2017 is presented in the
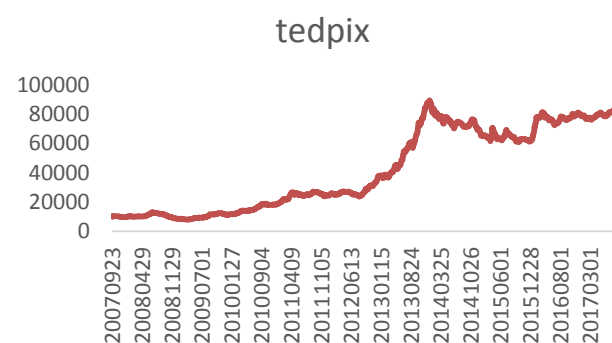
following graphs:
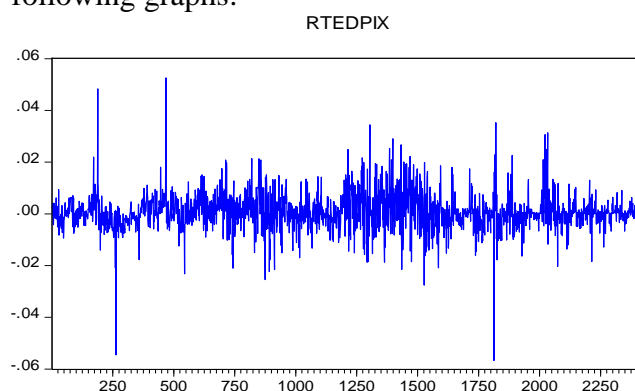
Graph 1 stock Total index and it's return

Before modeling a time series it's stability should be confirmed .In financial time series usually instability is the result of this fact that there is not a stable level for returns. In the time series literature the instability time series has single root (Tsay 2005). In this Zero Hypothesis test the single root is existed and the opposite hypothesis is inexistence of single root in time series. Therefore if test statistics has significant distance from zero the zero Hypothesis is rejected. Otherwise it cannot be rejected. As you can see in table 2 for Total index the time series is unstable but is stable Total index return. Therefore the average equation ARMA should be performed on the Total index return series.

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RTEDPIX	TEDPIX
0.0000	0.6796

Table 2 The results of the generated Dicky Fuller on the Total index and it's return

Hypothesis test

H1: The great change intend to following the great change and small change intend to following the small change in Tehran stock exchange. For examination of this hypothesis ARMA average equation is performed on the Total index return based on the Box-Jenkins method. Box and Jenkins (1976) were the first persons that presented a method for estimation of ARMA models. Their method is an operational method that has three stages of recognition, estimation and review. This method Totally use from auto correlation coefficients and partial autocorrelation coefficient.

Accordingly the series correlation graph and out regression (AR), mobile variable (AM) and their ranking should be identified and added to the average equation. In the following graph the return series are presented.

Graph 2 Correlated graph

In the first stage and considering This fact that autocorrelation and partial correlation in pause have an outstanding at the first the ARMA (1,1) model is performed that it's results are as follows:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000881	0.000216	4.085180	0.0000
AR(1)	0.449166	0.048644	9.233826	0.0000
MA(1)	-0.089526	0.054216	-1.651294	0.0988

Table 3 ARMA model

Then homogeneous section roots of ARMA differential are observed and the ARMA Correlated graph graph are examined for identifying the estimated rates overlap with real rates.
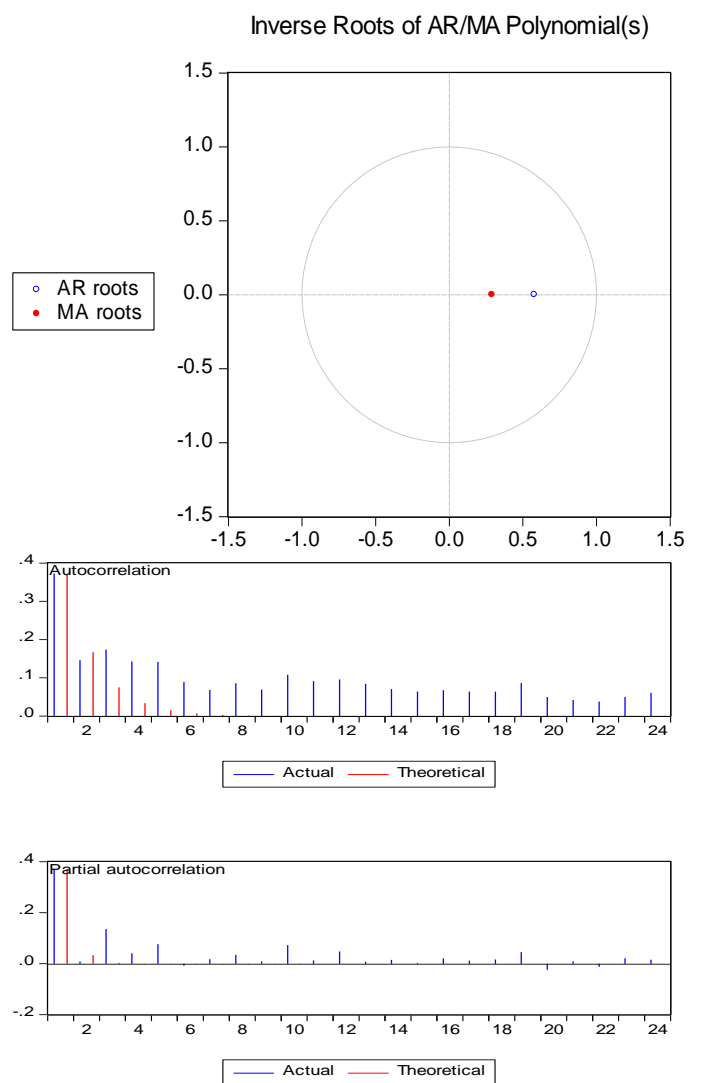
Graph 3 Roots of homogeneous section in ARMA and comparison of actual and theoretical values

Then the remind parts series Correlated graph graph in the above model is examined and according to property value of the Q-STAT statistic about the existence or inexistence of AR and MA systematic elements in the reminder series of this model are determined.

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As you can see the significance of Q-stat is less than 0/05 thus the fives hypothesis of inexistence of systematic elements in the above model remained parts is rejected and it shows that the elements of AR and MA are not observed and reconsidering this subject that the model based on AR (1) and MA (1) that is performed is not the final model thus considering the outstanding pauses in auto correlation and partial auto correlation function we add the AR and MA elements and finally omit the insignificant elements so that we can reach to the least Akaike statistic and in this state we have reached to the final model that accordingly the following model is determined as average equation.

Graph 3 Correlation graph

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000887	0.000407	2.178213	0.0295
AR(1)	1.441654	0.563887	2.556636	0.0106
AR(2)	-0.120415	0.441485	-0.272750	0.7851
AR(3)	-1.193093	0.359594	-3.317892	0.0009
AR(4)	0.819043	0.551666	1.484671	0.1378
AR(5)	0.487848	0.208444	2.340426	0.0193
AR(6)	-0.604494	0.426728	-1.416577	0.1567
AR(7)	0.134633	0.120928	1.113329	0.2657
AR(8)	0.013823	0.047659	0.290046	0.7718
AR(9)	-0.054960	0.044355	-1.239112	0.2154
AR(10)	0.038595	0.025251	1.528431	0.1265
MA(1)	-1.085732	0.564697	-1.922680	0.0546
MA(2)	-0.322927	0.265138	-1.217960	0.2234
MA(3)	1.263314	0.420925	3.001283	0.0027
MA(4)	-0.477929	0.491623	-0.972147	0.3311
MA(5)	-0.711595	0.212178	-3.353757	0.0008
MA(6)	0.444824	0.414361	1.073518	0.2831
SIGMASQ	3.94E-05	5.14E-07	76.80862	0.0000

Table 4 the results of ARMA model

ARMA Correlated graph and the Residual of the above model are as follow:

Graph 5 Correlated graph

As you can see significant level for Q-STAT statistics Totally is more than 0/05 that indicate that there is not systematic element in the remainder parts of model thus this model is the final model and ARCH test is used for determination of variance dissimilarity that it's results are as follows:

Heteroscedasticity Test: ARCH			
F-statistic	130.0190	Prob. F(1,2406)	0.0000
Obs*R-squared	123.4556	Prob. Chi-Square(1)	0.0000

Table 5 ARCH test results

According to above test results and considering the obtained significance level for this test the first hypothesis of inexistence of non-similarity variance as a result of auto correlation is rejected and thus there is a problem that it means the performance of ARCH and GARCH model and it this part the clustering is confirmed. At the first ARCH and GARCH model are performed.

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Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.92E-06	2.34E-07	8.212114	0.0000
RESID(-1)^2	0.249862	0.018654	13.39437	0.0000
GARCH(-1)	0.739899	0.017438	42.42984	0.0000

Table 6 the results of GARCH model

In above table the GARCH model has been performed on ARMA equation considering the obtained significance level for GARH equation elements (that are less than 0/05). It is determined that all of these elements in variance equation are significant. In continue other models of The is family such as MGARCH , ETGARCH , TGHARCH , EGARCH was performed , considering the Akaike statistic the best model of GARCH family is ETGARCH because it has the least Akaike thus this model as the final model is considered for extraction of the volatility.

Akaike	Model
-7.5660	M GARCH
-7.5733	E TGHARCH
-7.5580	T GHARCH
-7.5641	E GARCH
-7.5519	GARCH

Table 7 models comparison according to Akaike statistic

H2: The volatility of stock return in stock exchange is asymmetric .

In order to examination of this hypothesis the TGHRCH was used. Considering the threshold element significance is determined that stock output volatility in stock exchange is asymmetry.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.71E-06	2.12E-07	8.042750	0.0000
RESID(-1)^2	0.313200	0.024392	12.84044	0.0000
RESID(-1)^2*(RESID(-1)<0)	-0.133859	0.025937	-5.160957	0.0000
GARCH(-1)	0.748989	0.015884	47.15256	0.0000

Table 8 the results of TGARCH model

H3: Negative news has more effect on return volatility than positive news with the same rate in Tehran stock exchange. Considering the negativity of threshold element in T GHARCH in the second hypothesis(table8) we find the leverage effect and negativity of this coefficient indicate the exponential model that con be exponential with ETGHARCH model.

Conclusion

According to the first hypothesis considering GHARCH effect we concluded that there is volatility clustering in Tehran stock exchange and can effect directly on the exchange options price and stock risk and portfolio. The result of this study is in consistent with the research of Roya Aleoman, Engel and peten , Malibaet.al(2014). According to H2 test that was examined with T GHARCH model we concluded that volatility clustering in Tehran stock exchange is asymmetric and it is consistent with the researches of Flour , Tripaty et.ai , Kang and Vion (2007) and Kasman and Toron (2007).

The obtained results of the H3 indicated that in Tehran stock exchange the negative shocks have more effect on volatility in comparison to positive shocks. This result is consistent with the research by Mehr Ara, Abdoli, Motamani and Abu Nuri, Goudarzi, Flora, Tripaty and colleagues. According to the obtained results we can say that: Measuring and correct prediction of financial market risk are very important for market agents and economic and financial policy makers. As a management the company should know the probability of asset basket value decrease.

The option risk of option contract, for covering the risk of this contract he also intend to know the rate of prediction volatility. An asset basket manager my wait to sell a stock before it be very disturbed. Tehran stock exchange as the most important financial market of Iran in one hand because of increasing growth and high investment absorb and on the other hand as one of the main tools the Privatization of governmental companies play on important role in Iran economy. However this market during the last years has faced to many volatility that con increase the cost of this activity in this market for investors and dealers.

As a result the modeling and prediction of risk in this new market can be an important guidance for investors and policy makers so that they can predict the volatility rate of this market and decide about stock buy and sell or suitable policy considering the increasing growth of financial markets , existence of one kind of change in these markets can has a wonderful effect on the global economy. Generally the change can be created as a result of economic , social and cultural and political accidents that lead to intense bewilderment of investors and un safety of financial markets operation that leads to decrease of investor general confidence to these markets and many negative effect on the global economy.

This subject is an evident of a strong relationship between un confidence of financial markets and investors general confidence .As a result financial policy makers of countries mostly estimate and predict the financial markets prices as a criteria of suitable policy making for decrease of national and global economy vulnerability thus the prediction of the most important task of financial markets that has attracted researchers and policy makers attention during two recent decades so that the can use of them in examination and pricing of assets , optimal assignment of financial resources and examination of risk management performance.

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Application to control RC devices in the frequency of 49 MHz using C# .Net and Arduino

Aplicación para controlar dispositivos RC en la frecuencia de 49 MHz usando C # .Net y Arduino

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Abstract

The interest for using and adapting technology is increasing today, primarily for the use of control devices of different ways or techniques. A practical guide of an operable system composed by a computer application and electronic circuits is designed to control a Radio-Controlled device (toy car) in the frequency of 49 MHz and using a C# .NET GUI to simulate the control on the computer screen which communicates with an Arduino Board to control the device. This kind of application base, which involves electronic circuits and software, can be used as methodic practice with students to develop better programming and electronic skills.

RC, GUI, Arduino, PCB

Resumen

El interés por usar y adaptar tecnologías está aumentando actualmente, principalmente el uso de controles para diferentes dispositivos. En este trabajo se presenta una guía práctica de un sistema compuesto por una aplicación de computadora y un circuito electrónico para operar un dispositivo controlado por radio (carro de juguete) en la frecuencia de 49MHz, utilizando una GUI en C# .NET para simular el control en una computadora, la cual se comunica con una placa Arduino para controlar el dispositivo. Este tipo de aplicación, que incluye circuitos electrónicos y software, puede ser usada como una práctica metódica con estudiantes para desarrollar mejores programas más complejos y robustos, así como habilidades en el área de la electrónica.

RC, GUI, Arduino, PCB

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I. Introduction

In many systems, the capability of Radio Control (RC) transmission is essential; Control systems, Internet of things (IoT), medical and mobile applications, are examples for these communications that could be either wide or local access. Other proposals are (Zhu, 2011). It is essential to know the basic structure of these systems to develop more complex and robust applications that increase the use of RC. An experimental application that consists of a C# .NET Graphic User Interface (GUI) that sends and receives signals across a Universal Serial Bus (USB) port from an electronic system integrated by Arduino, a Printed Circuit Board (PCB) and RF control, is proposed to allow an RF transmission to control a small device, in this particular case a toy car. Figure 1 shows the set up used to develop the application.
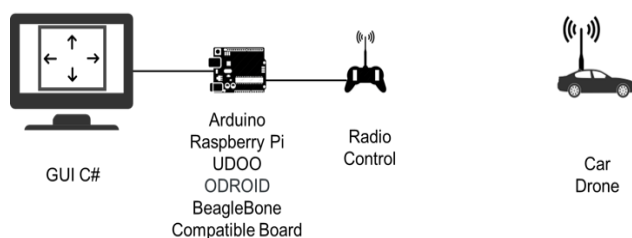
Figure 1 Develop process of the application

At first, a C# .Net GUI is designed to simulate the functionality of the real control operation and then an Arduino board is programmed to receive the signal from a computer using an USB port. Then the GUI was tested to simulate the control, with a four LEDs array on a proto-board that represents the control buttons (forward, backward, left and right). A re-engineering in order to know the way how the controls work was made, the process consisted on analyzing the control's internal functionality.

Then an integration of the control with Arduino board was made; finally, a PCB circuit to assemble all the components in one single block was designed. The main contribution of this paper is to develop a general scheme for RC communications to control electrical devices, additionally the experiment allows having the opportunity to understand concepts related with RC transmissions, programming and electronics, besides the experiment is quite suitable for different courses about this kind of topics.

The rest of the paper is organized as follows: Section 2 describes the application and results; Section 3 gives our conclusion to this work. Furthermore, analysis and future use for this application are provided.

II. Development

GUI and program computer development to simulate RC control

Once designed the GUI on Windows Form as in (Brown, 2006), the necessary code to simulate the actions of the buttons at the RC, was made on C# .NET (Appendix A). When a user presses a button, the key address on the keyboard is detected. If the user tries to press up and down or left and right keys at same time the application will only respond to the first pressed key and will block the second pressed key validating the integrity and functionality of the application. The GUI will show which key is being pressed as shown in Figure 2, by the changing the color of the pressed arrows on the screen.

Figure 2 GUI of application, the left button key is being pressed

Programming Arduino to communicate with the RC car

To interact with the application and RC control, an additional circuit is needed to send digital electrical pulses, so it can control the RC car; a micro Arduino is used (Z. Wang, 2014). In this case it was needed to send signals indicating that "0" is a low state (OFF, LOW) and "1" is a high state (ON, HIGH) (Appendix B). Then the GUI was programmed to communicate with Arduino through the USB port to perform an integration of both technologies.

When the GUI and Arduino were integrated, a test was made by sending electrical pulses to Arduino to interact with the GUI pulsing buttons; to emulate the RC, an array of four LEDs on a proto-board were adapted, in order to simulate the key pressed on the GUI thus the expected result was obtained. This is shown in Figure 3.
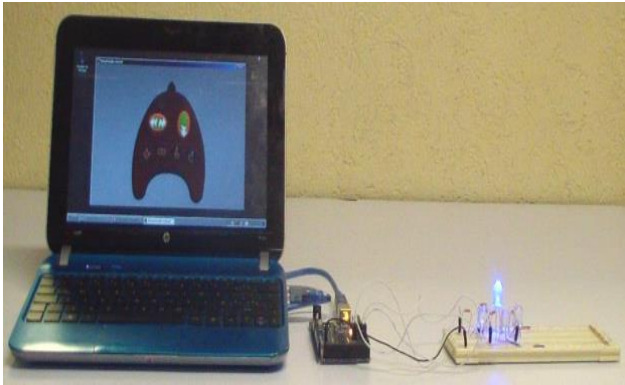
Figure 3 The GUI program simulating the RC car control.

Understanding the RC car

It was necessary to know the internal connections and functionality of the RC car in order to manipulate it from the Arduino. The RC car was disassembled, and then electrical probes with a power supply were applied directly on its electrical inputs. Notice that the wireless signal of RC is at 49 MHz Another fact to considerate is a voltage difference between Arduino and the RC car (5v and 9v), for this reason a circuit formed by opto-couplers was adapted to couple the voltage difference of the devices, in order to protect them as in (A. Thaduri, 2011).

The opto-couplers circuit was developed in house at all (Brooks, 2003) and (Rossano, 2013), it means that it was designed according to the voltage difference, and then simulated and finally printed on a PCB connected between Arduino and the RC car. Figure 4 shows the simulation made at Proteus software, once the circuit functioned correctly, finally the PCB was created as shown on Figure 5.
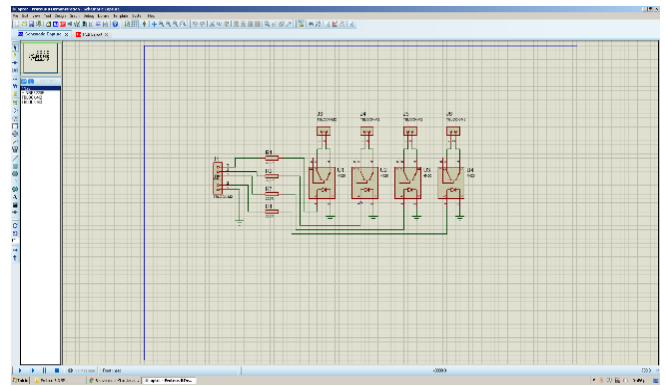
Figure 4 Opto-couplers circuit simulated at Proteus

Figure 5 PCB of the opto-couplers circuit.

The PCB was tested in two different ways:

1. Simulation using Proteus software, functionality and design.
2. Once a correct response from Proteus was obtained physical voltage checking in the four inputs and outputs were made.

The components used on the PCB were:

–   One phenolic board 5 cm x 10 cm.
–   Seven 2-pin Screw Terminal Block Connector 5.08 mm Pitch Panel PCB.
–   Four 100 Ohm Resistor.
–   Four optocoupler 4N26

Integration of all components

Once all components were developed and tested, the integration was set as follows:

–   GUI and code on C#
–   Arduino code
–   PCB opto-couplers
–   RC car understanding

After the integration was made, the system was tested pressing the keys on a computer associated to the GUI buttons, signals were sent to the Arduino-PCB opto-couplers circuit which in turn sent the signals to the RC car, and then the toy car is manipulated. The complete system is shown on Figure 6.
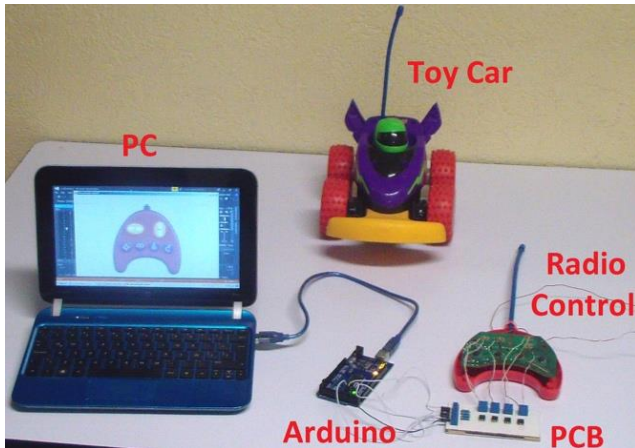
Figure 6 Complete integrated system

III. Conclusions and results

A system composed by software developed on C# .NET that consists of a GUI that simulates a RC car control. A code loaded on Arduino and PCB opto-couplers to send signals to the RC car was designed, developed, studied and analyzed to obtain knowledge about how a device that is controlled by a remote via can be manipulated from a computer, cellphone, tablet or another mobile device. Now a practical guide is available to generate different applications on mechatronics, software development and other areas, for example, manipulation of devices through Internet, using a mobile device. This paper could be used as a guide to teach about software development and electronic topics.

As a result, we develop a methodology too control any radio-controlled device by a GUI on a high programming language.

Appendix A: C# Code

```csharp
public partial class Form1 : Form
{
    private SerialPort port;
    public Form1()
    {
        InitializeComponent();
        openPort();
    }
    private void Form1_KeyDown(object sender,
KeyEventArgs e) {
if (e.KeyValue == 38 & pB2.Visible == false)
```

```csharp
    {
     pB3.Visible = true;
         port.WriteLine("A"); // UP
    }
if (e.KeyValue == 40 & pB3.Visible == false)
    {
            pB2.Visible          =          true;
            port.WriteLine("D"); // DOWN
    }
if (e.KeyValue == 39 & pB4.Visible == false)
    {
            pB5.Visible          =          true;
            port.WriteLine("B"); // RIGHT
    }
if (e.KeyValue == 37 & pB5.Visible == false)
    {
            pB4.Visible          =          true;
            port.WriteLine("C"); // LEFT
    }
}
    private void Form1_KeyUp(object sender,
KeyEventArgs e){
            if (e.KeyValue == 38) { pB3.Visible =
    false; port.WriteLine("a"); }
        if (e.KeyValue == 40) { pB2.Visible = false;
port.WriteLine("d"); }
        if (e.KeyValue == 39) { pB5.Visible = false;
port.WriteLine("b"); }
        if (e.KeyValue == 37) { pB4.Visible = false;
port.WriteLine("c"); }
    }
    private void openPort()
    {
      port = new SerialPort("COM3", 9600);
      port.Open();
            for (int i = 97; i < 100; i++)
                port.WriteLine((char)i + "");
    }
  }
```

Appendix B: Arduino Code

```arduino
void setup() {
 Serial.begin(9600);
 pinMode(22, OUTPUT); // UP
 pinMode(26, OUTPUT); // RIGTH
 pinMode(30, OUTPUT); // LEFT
 pinMode(32, OUTPUT); // DOWN
}
void loop() {
 switch (Serial.read())
 {
  case 'A': digitalWrite(22, HIGH); break;
  case 'a': digitalWrite(22, LOW);  break;
  case 'B': digitalWrite(26, HIGH); break;
  case 'b': digitalWrite(26, LOW);  break;
  case 'C': digitalWrite(30, HIGH); break;
  case 'c': digitalWrite(30, LOW);  break;
  case 'D': digitalWrite(32, HIGH); break;
  case 'd': digitalWrite(32, LOW);  break;
 }
}
```

ABRIL-GARCIA- José, MEZA-IBARRA, Iván, ALCÁNTAR-MARTÍNEZ, Adelina, GARCÍA-JUÁREZ- Alejandro. Application to control RC devices in the frequency of 49 MHz using C# .Net and Arduino. ECORFAN Journal-Mexico 2018

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Universe of factors that strengthen textile production and its relationship with corporate social responsibility

Universo de factores que fortalecen la producción textil y relación con su responsabilidad social empresarial

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Abstract

The objective of this research is to analyze the elements that facilitate and contribute to the development of the transnational textile sector taking into account exogenous factors, as well as its relationship with corporate social responsibility (CSR) through a Delphi analysis. We have used two panels of fifty-five experts related to the subject matter of study, which responded to the hypotheses in order to classify and analyze the results obtained by identifying them according to their economic, technological, social, political and legal influence, giving as a result, the existence of a universe of possibilities in the textile sector, circumstances that contribute to improving production in a more ethical and sustainable way.

Corporate Social Responsibility; Textile Industry; Delphi Analysis

Resumen

El objetivo de esta investigación es analizar los elementos que facilitan y contribuyen al desarrollo del sector textil transnacional teniendo en cuenta factores exógenos, así como su relación con la responsabilidad social empresarial (RSE) a través de un análisis Delphi. Se han utilizado dos paneles de cincuenta y cinco expertos relacionados con las temáticas objeto de estudio, los cuales respondieron a las hipótesis planteadas con la finalidad de clasificar y clasificar los resultados obtenidos identificándolos según su influencia económica, tecnológica, social, política y legal, dando como resultado la existencia de un universo de posibilidades en el sector textil, circunstancias que contribuyen a mejorar la producción de una manera más ética y sostenible.

Responsabilidad Social Empresarial; Industria Textil, Análisis Delphi

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Introduction

The demands of consumers and society itself (in many cases far from the canons of solidarity) transnational corporations (TNCs) compete in a relentless environment of competitiveness. The development of transnational textile activity generates direct relationships between companies, avid investment governments and the environment. New products, services, regulations and impacts emerge. These factors-many of them exogenous-condition and promote textile production systems resting under the umbrella of an amalgam of recommendations known as corporate social responsibility (CSR) processes. These measures are used by many companies to generate all kinds of positive impacts on their interests, along with others of an unappealable nature that directly reinterpret the true purpose of CSR policies. According to the company Unilever (2016) "The company's own brands are incorporating Corporate Social Responsibility into their marketing strategies".

Hence, a conceptual doubt arises in relation to the deployment of these measures such as what they are for or what their actual monitoring and function is. For Algayerova, Executive Secretary of the UN Economic Commission for Europe UNECE (2018a) "It is clear that the fashion industry needs to change gears. It must be environmentally sound and support a social transformation towards decent and healthy jobs. " For this reason it is necessary to analyze the transnational context through its strengths using a multidisciplinary Delphi method of fifty-five experts with the aim of analyzing transversally the strengths of the textile sector. For this, the results obtained from the panel of experts are analyzed together with an appropriate bibliographic review.

The panel is formed by different participants, all of them of international prestige in order to delve into different knowledge such as business ethics, migration, logistics, chemistry applied to the textile sector, epidemiology, law, collective bargaining, globalization, companies in the sector , etc., as well as active subjects of institutional life in order to map many of the challenges that surround global textile production from their strengths, values and relationship with CSR processes (Luque, Hernández Zubizarreta, & de Pablos, 2016a).

The textile industry is based on a large number of extreme logistics processes (modular manufacturing, transport, reverse logistics) and custom-made legislation, which together with unlimited production-and outsourcing-chains make up part of the textile gear. According to the World Trade Organization WTO (2016, page 54) [...] large companies are relatively more connected to global value chains in various sectors, especially in the textile industry [...] " . Natural needs are generated such as dressing, other artificial (promoting new purchases), as well as advanced industrial developments from complex standards. Security regulations advance by technifying new processes, many of them on demand.

At the same time, fictitious requirements are developed such as going fashion, a circumstance that functions as a great symphony fed by the TNCs in the shadow of the mass media (Luque, 2017). These needs are activated with a simple click allowing the implementation of a wide range of possibilities a la carte (Lipovetsky, 1987) encouraged by the creation of new products and therefore new purchases; According to a report by the United Nations Environment Program (2015), world trade has expanded enormously in recent decades, driven by progressive liberalization and a rapid increase in the demand for resources. Only between 1980 and 2010, the value of trade increased more than six times and also doubled the volume of trade.

Paradigm of textile globalization

The value of world merchandise exports according to the WTO (2017) has increased by approximately 32% since 2006, reaching a volume of US $ 16 billion. in 2016, of which 5% corresponds to clothing and textiles. Trade in merchandise, manufactures and agricultural products registered the highest growth, increasing in value by 37% and 67%, respectively. China remains the leading textile manufacturer, accounting for 37% of exports worldwide. Of the top 10 textile exporting countries in billions of US dollars We obtain the following list, China 106; European Union (28) 65; India 16; United States 13; Turkey 11; Republic of Korea 10; Pakistan 9; Chinese Taipei 9; Hong Kong 8 and Viet Nam 7.

The textile sector together with clothing, leather and footwear *"It is characterized by geographically dispersed production and rapid changes driven by the market, providing employment opportunities to millions of workers around the world, particularly young women"* (International Labor Organization ILO, 2016) which highlights its relevance at the global level as a pillar of trade and the global economy.

The textile industry has evolved and technified in a vertiginous way contributing with it to optimize its level of production and profit. In addition, it establishes processes of control and continuous improvement of exogenous elements that condition and irradiate production. The textile organization receives and analyzes a lot of *inputs* such as the manufacturing time of each textile construct, raw material costs, availability of personnel at low cost and with less labor conflict, existence of meager legislations in manufacturing countries in favor of production, establishment of commercial treaties in order to shield their investments, ability to outsource social and environmental risks, etc., all with a common denominator: guarantee and stability in investments and maximization of profits (Luque , Hernández Zubizarreta, & de Pablos, 2016b).

The limits of the planet in its entire extension are extracted in a consubstantial manner through the extraction of raw materials (Acosta, 2016) and professionalize outsourcing by increasing the supply chains (Barrar & Gervais, 2006) in order to minimize costs -as a mission- by exploring borders in order to incorporate new alternative transport routes (north pole included) to reduce costs. According to the ILO (2017, p.4), global supply chains "have become a dominant feature of global trade and investment that encompasses developing, emerging and developed economies." Currently many of the links that make up the supply chains are striving to be green (Carvalho, Azevedo, & Cruz-Machado, 2010, Sarkis, Zhu, & Lai, 2011). This concept is understood as the way to manage, design products, choose materials, configure procedures and optimize logistics processes together with the management of the end of the product's useful life -including its reuse- with a common denominator: respect, promotion and progress in environmental protection beyond what is required by law both directly (production) and indirectly eg. use of textiles, sequels, pollution (Sehulster, 2015), environmental depletion, etc.

New logistic processes emerge, such as relational analyzes that stimulate users' habits (Kumar & Arbi, 2008, Bruce & Daly, 2011, MacCarthy & Jayarathne, 2012) and consumption as a banal, trivial event, essential for the biological survival of people. being in turn a social agreement that results from the reconversion of wishes (Bauman, 2012).

In parallel, the knowledge is improved and with it, its global business crossing every pore of society, "[…]*for the model to work the consumption can not stop*" (Quintanilla, 2015). The textile production system is technified, wind is pushed to favor through billboards in unlikely spaces, impact campaigns on radio, TV and newspaper, unique sponsorships (eg videogames, movies and internet), imposed obligations or by simply pillaging digital information (Anderson, Horvath, & Lagüela, 2017). Everyday acts such as sending a text message, accessing a social network, or providing an email address or postal code at the time of making a purchase, are interrelated.

The system - in this case the *big data*— it does not stop advancing. The user seems inclined to deliver his valuable treasure at the price of balance and know their habits so that the system does not weaken and "help" to the extent of the needs of users. Information is power, and it is necessary to know to overcome, a circumstance easy to obtain even without our approval (Morozov, 2015). Exploring the mapping of behavioral parameters derived from the -possible- consumers is fundamental for the system to continue to feed itself, the TNCs know this.

In the same way, international logistics processes are essential for the textile industry, presenting at the same time a greater complexity (Martínez Barreiro, 2008). Companies adapt to new needs of delivery and production on demand by consumers and customers. The voracious competition in the market also influences, every penny counts and nobody is willing to lose it," *create in the companies differentiated management, marketing, production and control strategies that attract increasingly demanding consumers, has become a real necessity*" (Industrial Observatory of the textile-clothing sector, 2006, p.7). Logistics operators are the main appendices to be able to produce and sell at the pace expected by textile companies. According to Boix (2016), the transnational company Inditex has some in Spain:

"50,000 workers (factories, logistics and stores) and 150,000 worldwide (essentially stores), but for which they work (for the production each year of about 1.2 billion units of clothing and accessories) 1.5 million workers in almost 6,000 factories from 45 countries on 4 continents"

These data do nothing more than evidence the management of knowledge made in recent years by the industry coordinating its international production and business model. New products are being developed (each time with greater added value) and shorter and more numerous clothing collections are generated in an increasingly cheaper, faster and more ephemeral fashion. In certain economies, the arrangement of a pledge may have a greater cost than the purchase of a new one. All this marked by an unstoppable increase in the level of *online* sales known *as e-commerce*.

Companies abound with free product shipments, as well as sophisticated return systems, this being a real competitive advantage when it comes to differentiating between competitors (known as reverse logistics). This consolidated structure opens the door of the collaborative economy to small producers by offering their goods and services from any corner of the planet (Sharma & Bhagwat, 2007) although not for everyone, due in many cases to the requirements of large Ebay platforms or Amazon According to *EAE Business School* (2017) clothing spending internationally represents a growth of 18.75% from 2009 to 2016.

The countries with the highest growth are China, Poland, Israel and Romania. In the year 2020, the 5 countries that will lead the textile spending are China, the United States, Japan, the United Kingdom, and Germany, which represents 73.75% of apparel spending. The increase in spending on textiles in China's homes is 7.1% between 2009 and 2016 and future expectations are to continue growing steadily. Knowledge management marks any type of industrial development (Barney, 1991, García-Álvarez, 2015, Lim, Tseng, Tan, & Bui, 2017), hence its efficiency is conveyed through different channels, many of them in real time. owned by the different textile multinationals (Buxmann, 1999, Gil, Mollá, & Ruiz, 2008). As Castells (2005) points out, the current technological revolution due to its dimensions and depth can be considered more important than the industrial revolutions of the 18th and 19th centuries.

This advance has not been at zero cost. Business opportunities have been created that have been strengthened in many cases by intensive labor from poor countries or by the degeneration of labor relations in advanced countries. New work modalities are being implemented, generating new migratory flows, unequal opportunities and an objective data of 200 million unemployed people (Ryder, 2015). Faced with this dilemma, one can ask why not move towards a growth model based on sustainability. If natural resources are finite, why growth tends to infinity. Proposing balance and protection over the most disadvantaged (assistance resources, basic income, environment), it is necessary to incorporate these 200 million people into the labor market. The proper analysis of this market niche is an unprecedented textile strength. In many cases - this spectrum of the population - does not have their needs covered, being an objective source of industrial development, and social inclusion.

The company that decides to invest in developing or underdeveloped countries must take into account fundamental aspects such as the type of infrastructures in the country, characteristics of ports (either dry or navigable), rail connections, airports, quality of electricity supply, levels of corruption, interposed international sanctions, etc.

According to Arahuetes & Steinberg, (2013): "Internationalized companies have a larger size and produce a greater quantity of goods and services than those that operate exclusively in the national market. Being larger can make better use of economies of scale and have a greater financial capacity, which in turn allows them to make greater investments".

Methodologyology

The study and analysis of the textile sector has been studied since time immemorial. The research that resulted in this article, raises a cross-sectional methodology based on a Delphi methodology with experts who give the analysis greater robustness, heterogeneity (Linstone & Turoff, 1975) and reliability (Mengual, 2011) thus minimizing errors on the results of the hypotheses raised because of their experience. For this, the factors that promote the transnational textile sector from a more ethical and sustainable production are examined (Mathiyazhagan, Govindan, NoorulHaq, & Geng, 2013, Chizaryfard, Samie, & Pal, 2018).

The Delphi method

The Delphi method has the ability to analyze past, present and future situations with the help of a group communication (Ruiz Olabuénaga & Ispizua, 1989). The participation of a group of experts, as well as of active subjects in the institutional life, is essential when exploring the prospective characteristics inherently offered by the method in order to identify the factors that promote textile production and its relationship with processes of CSR. Through the SWOT tool (weaknesses, threats, strengths and opportunities), the results are structured by thematic areas such as political, legal, economic, social and technological aspects according to their strengths (Rangkuti, 1998).

The procedure is based on the identification and contact with companies and experts (indicated at the beginning of the document as participants) as well as in the elaboration of questions using multidisciplinary questions related to the object of study (Sabino, 2014), in addition to having a previous analysis on the existing bibliography.

Process followed

Once the analysis proposal was identified, as it was the *universe of factors that strengthen textile production, and its relationship with CSR*, the selection and recruitment phase of experts is passed to finish with the construction of the questions as an analysis tool. The elaboration of the questionnaire was determinant, taking into account the capillarity object of study, bibliographic revision, current affairs, as well as transversality of the treated topic (Vela Peón, 2001, Boni & Quaresma, 2005).

Once the pertinence of the questionnaire was carried out and tested by six research professors and two pilot interviews (Boni & Quaresma, 2005), upon acceptance, the questionnaires were sent to the participants. There is the capacity to send another round of questionnaires, conduct interviews and send additional information if necessary when the degree of consensus is not broad or when it is observed that it can not be higher as indicated by Fernández-Ballesteros (1995), therefore not

There is a fixed or preconceived number of consultations with the purpose of knowing the strengths of the international textile sector in order to obtain the most reliable information possible.

Questionnaire model

The questionnaire, as an essential tool of the process, has the purpose of collecting information with the objective of obtaining consensus among the panel participants. In the project, experts and researchers in fundamental rights, production managers, logistics professionals, economists, legislators, transnational corporations, lawyers, NGOs, laboratories, scientific disseminators, etc., participate. The questionnaire contains 15 open questions according to the subject matter of study (attached as Annex 1) considering this methodology as valid (Hernández, Fernández, & Baptista, 2010).

Collection process

Once the rounds of sending and collecting the questionnaires made between 01/05/2015 and 07/30/2015 were completed, of 55 questionnaires obtained, it was received in the second only 12, where it was observed that the results contained practically the position Initial and even some did not respond, as it was explained in the procedure, that in case of not doing it in successive rounds, the initial assessments would be maintained. From there, the data received was quantitatively analyzed, as well as the observations and proposals made by the participants. Of the proposals raised and analyzed, those in which there has been consensus among the participants, purpose of the Delphi method (Landeta, 2002, 2006), as well as including relevant quotations and recommendations received by the experts.

Results obtained

Once the stage of sending and collecting data through the questionnaires of both rounds, they were analyzed qualitatively obtaining the following results according to their subject. In the following figures 2 and 3, a summary of the results obtained is shown. To this end, the factors that affect and promote textile production processes have been ordered in four thematic areas, such as political and legal factors, economic nature, social and technological aspects.

The growth of the global textile *i*ndustry is tremendously robust although there are gaps that can compromise its performance. It is a multi actor system in continuous transformation, regulated and conditioned by different TNCs, channels and organizations of all kinds that overlap each other distributed in a decentralized manner.

Hence, in relation to the place where the TNCs develop their production can generate different opportunities. For this, inexorably, there is a need to know and develop the strengths of all the actors in each of its dimensions (social, environmental, economic, etc.). As for the political and legal factors, they should be explored without blushing. It is essential to create certainty in the textile sector by involving all the elements directly and indirectly related to textile production. The work presented here develops the close relationship between the different actors that cohabit within the transnational textile sector (legislations, non-governmental organizations, supranational bodies, public administrations, religious orders, consumers and the environment).

It is necessary to share information and resources using alternative channels towards a common goal that implies obtaining mutual benefits (Heikkilä, et al., 2014). Different participants present in this study point out the complexity of the transnational textile sector as well as the tremendous disparity of existing interests.

Each organization manages and implements its own business model, an aspect that can not be overlooked in order to strengthen relationships between the actors involved, even those geographically and ideologically distant (Boulton, Libert, & Samek, 2000). Processes such as lack of communication, egos and particular short-term benefits should be optimized (Chizaryfard, Samie, & Pal, 2018). At an economic level, the processes of globalization and deregulation should be accompanied by greater environmental promotion. According to the UN Economic Commission for Europe UNECE (2018b):

"The fashion or clothing industry has an often underestimated impact on the development of our planet. This $ 2.5 trillion dollar industry is the world's second most water-intensive, producing 20 percent of wastewater globally. The production of a cotton shirt requires 2,700 liters of the amount a person drinks in 2.5 years. 10% of global carbon dioxide emissions are emitted by the textile industry, and cotton is responsible for 24% of the insecticides and 11% of the pesticides despite using only 3% of the arable land of the country. world"

There is a need to articulate public procurement processes that prioritize products made in a more sustainable manner as well as establishing a lower tax burden (with variable character) towards companies with real social, ethical and environmental commitments. Hence, a consumption -currently vertex of human relations- more responsible, together with more efficient companies and regulatory bodies must assume the growing demand for ethical and social commitment on the part of citizens.

In the textile sector, it is necessary to move towards responsible and sustainable management of production together with greater ethical responsibility when working in developing countries or countries with great shortcomings.

Any responsible CSR action must promote strong legislation on the part of the States, fair and ethical payment of salaries, use of materials to make safer and more sustainable textile garments (eg ECOALF), global standardization of Registration Regulations, Evaluation, Authorization and Restriction of Chemical Substances (REACH), unification of emissions and waste, etc.

According to Table 1, Distribution, a terminological summary is shown on the aspects that promote a socially responsible consumption including the ethical, economic, social, legal and political dimensions

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Elements that promote a socially responsible consumption	
Author	Concept
Holt, 1997; Kozinets & Handelman 1998	Resistance on the part of the consumers before certain actions of business advertising being able to establish a commercial boycott
Newholm & Shaw, 2007, p. 255	Concern about the origin of the product, characteristics of production and its manufacture, existence of oppressive regimes, lack of human rights, limited labor relations, weapon development of certain States, experimental use of animals and political donations
Mohr, Webb, & Harris, 2001; Gurviez, Kreziak, & Sirieix, 2003; Ozcaglar-Toulouse, 2005; Webb, Mohr, & Harris, 2008	The consumer not only takes into account environmental and ethical aspects, but in the act of consumption it involves other elements such as corporate social responsibility processes, their socio-economic and cultural context, or information beyond the goods and services themselves
Barber, 2004; Burns, 1994	Responsible consumers take into account the origin and effects of their purchases
Jakovcevic, y otros, 2014	Responsible consumption goes beyond economic savings
Kumar, Manrai, & Manrai, 2017	Marketing professionals and politicians can extract some important contributions in factors such as social protectionism, self-efficacy and cultural values in order to configure their respective strategies on responsible consumption
Hesamamiri & Bourouni, 2016; Andrei, Zait, Vătămănescu, & Pînzaru, 2017	The availability and relevance of information held by consumers

Table 1 Distribution
Source: Own Elaboration (2018)

Clients through their purchase and complaint processes condition product acquisition actions and use of services (Espejo & Vázquez, 2017), pushing towards a recoding –slightly even - in the enterprise ideology of textile TNCs and in all types of organizations e.g. the purchase conditions from public administrations. Circumstance in collision before the decisive bet on the part of ETN for scientific investigations with particular interests at the service of their ~ industrial development (Johns & Oppenheimer, 2018)

Policies and Legal	Economic
- Fairtrade programs that guarantee a minimum of conditions and salary can promote growth based on factors of equity and sustainability.	-Textile production in underdeveloped or developing countries contributes (unevenly) to the States.
-The well articulated, democratized and audited unions contribute in a definitive way to the business and social improvement.	-In advanced countries, there are mechanisms via online or commercial center to make ecological fashion available to the consumer.
- The legal responsibility of textile companies must be joint and several and extend to the entire production chain, as well as to all countries where it is produced as an element of control and continuous improvement.	-The processes of globalization entail transnational mobility of labor intensive, as well as qualified mainly.
- International framework agreements (AMI) can mean an advance in labor and social improvements. In any case, the failure of CSR and business unilateralism is recognized.	-The return of a positive image contributes to a better business reputation; in addition, it tends to act in a more ethical manner.
- There are control and supervision tools that guarantee compliance with regulations, standards and recommendations.	-The level of control and punishment in certain poor textile producing countries is lower compared to advanced countries.
- The precautionary principle (with greater control and regulatory updating) has lower costs.	-The advanced countries have focused on activities with greater value and knowledge such as design, management, logistics, etc.
- Social, labor and environmental audits do not solve the problem, but they can contribute to improving situations.	-The establishment of new responsibilities (social, legal, environmental, etc.) generate new business models.
	-High and proportional sanctions to companies that do not comply with health or the environment will improve the standards.
	-Accessibility to cheaper raw materials in poor countries.

Table 2 Political, legal and economic factors that affect and promote textile production processes
Source: Own Elaboration (2018)

Methodology to be developed

Social	Technologic
-The purchasing power of the consumer, as well as its impact on the company, contributes to a business and social improvement articulated through the ethical company concept, or on the contrary of an irresponsible company. In this case you can punish by not buying or using their services.	-The current technological development allows the elaboration of large editions of textile production in poor countries with a lower cost, in addition to having overturned the space-time paradigm.
-Countries that have emerged economically as China, are accompanied by improvements in labor and union.	-There are organizations (GOTS) and technical means that can guarantee textile production of an ecological and sustainable nature.
- Trade unions should be included as part of the solution within the existing textile asymmetry through pacification, training and verification actions.	-The advancement of technology at the consumer level allows knowing, disseminating and punishing irresponsible practices of companies as well as in the production chain.
-The popular pressure on the public powers can improve the way of producing (having to be more sustainable) as well as its consequences in case of non-compliance with any type of regulation.	-Chemical synthesis nowadays allows the elimination of any type of compounds that are suspect for health before being able to be suitable for consumption. The textile chemical industry moves towards the elimination of heavy metals.
- The inclusion of emerging countries in the international market contributes to the emergence of new middle classes, which leads to new needs and business opportunities.	-The recognition of scientific evidence contributes to saving costs in fines, erroneous research lines or production of polluting products.
- The global production companies of the textile sector, as well as the countries where the bulk of their production is based, are being pressured in the interests of a more dignified and more secure job (labor and social improvements).	-Industrial development must never pose a risk (latent or manifest) for people.
	-Develop products with new materials that are sustainable and respectful with the environment.
	-Technological progress can create artificial needs, which translates into higher income.

Figure 3 Social and technological factors that affect and promote textile production processes
Source: Own Elaboration (2018)

Conclusions

The present research analyzes the transnational textile sector through a Delphi methodology. Once the data is examined, it is observed that the textile sector has evolved in a way and with it its plethora of needs, fantasies and egos. It does not stop being the mirror of a deep reality in which, through quasi-volatile compositions, great possibilities are generated. The unlimited textile production, as well as other industries (not only transnational), need to analyze the conditions and effects derived from the manufacture of their products.

Citizens are increasingly aware of the environmental limitation, of the continuous increase in the level of spending promoted by companies and governments and their implications for the economy. The purchase is a social contract that establishes connections between States, ETN and all types of organizations. No citizen likes to be betrayed either by action, or by omission on the part of any company, hence these purchase contracts must protect all parties and not just the industry. Companies currently have to be increasingly cautious about the limits that their managers and shareholders explore in their decision making. Circumstance that must be extraordinarily clear and transparent, based on ethical, moral and legal principles.

The textile sector needs to correct certain irresponsible behaviors such as business unilaterality based on the mantra of CSR processes, updating it in favor of collegial, arbitrated and verifiable relationships on the part of public authorities. If companies and the economy are global, their methods of organization, management and information must be equally. This underlines the need to be ethical and responsible, a circumstance that can only be rebalanced by strengthening public authorities of a global nature in the interests of more sustainable growth and without subterfuge - in many cases explored - by ETN and governments.

Textile ETs now have the ability to accept a new social agreement based on balance, commitment to the environment and sustainability. A model of life that is not only based on short-term benefits and that compromises future generations, but also looks beyond: in a natural balance of the system.

This circumstance will go hand in hand with ET (sometimes larger than many States) but not only of them (as it happens today), but also encourage the involvement of civil society and its provision of real tools pivoting on sound laws in order to establish a new economic paradigm as well as a greater credibility and source of corporate wealth in an ethical manner.

It is possible to create a more responsible and secure textile sector. For this, it is necessary to use cleaner products and procedures using existing natural dyes, developing ecological products, smart clothes, interconnected garments known as "wearables", etc., thus opening doors for continuous improvement. The new textile developments are a reality, they are here and they are here to stay. Total interconnection when counting steps walked with a garment, heart rate, calories consumed, all kinds of impulses, predictors of diseases, memory of data. All this together with low cost clothing made to measure, possibility of creating 100% recycled fabrics and even generating the possibility of being processed in the storage room of any home. Technically it is already possible, although at a higher cost and with limited fabrics and colors.

Working conditions in the textile sector can not be an obstacle. It is also necessary to establish a fair price when paying the cost of raw materials to farmers, wages and land. Establishing joint responsibility for the entire value chain would rebalance existing asymmetries so that certain territories can also access markets as customers. The traceability of all manufactured textile products, including 100% of the components used and the full knowledge of its supply chain technically is already possible. Therefore, it is reasonable to assume that the population has sufficient capacity to audit industrial developments via direct, indirect or inadvertent polluting agents through the establishment of solid and independent institutions.

Another factor of positive accompaniment consists in cultivating, publishing and promoting TNCs and governments (local, provincial, state) more responsible with the environment, fundamental rights as well as labor rights so as not to convert the use of human rights into a mechanism of competitiveness and now, to promote ETN and governments to go beyond the existing legislation generating certainty from procedures in public procurement and establishing direct incentives through compliance with the rules.

It is not advisable to access markets with high levels of corruption or that are internationally identified as business centers with weak labor and social conditions. In relation to external audits within the textile sector and systematized from the headquarters of the TNCs with the purpose of implementing them in their production workshops (their own or others'), today, in many cases they have been portrayed due to their lack of forecast and effectiveness. Sometimes they have a direct interest with the TNCs that pay them, establishing a vital economic dependence.

Even with all these negative factors, it is necessary to apply appropriate pedagogical strategies before launching boycott campaigns by the citizens - despite being in many cases effective and necessary - having to be properly weighted and contextualized. To stop producing irrationally in a country that lives fundamentally in the textile sector can not generate anything other than pain and misery. Different circumstance is to take advantage of this flagrant situation of need by relying on corruption processes to not improve production conditions (or take advantage of them using chemical products and legal subterfuges that in the so-called first world are prohibited).

All these issues must be valued in their proper measure in order to build a solid international textile market -not only through profit and loss accounts- or their volatile impact and CSR campaigns, but taking advantage of the melting pot of factors that push today more that never made production and management more ethical and sustainable. For textile ETs to work optimally should not be the end, but the means. Fulfilling the aforementioned precepts, companies will be rewarded with what they like the most, a new customer, a new purchase.

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Annex 1

Questions asked to the experts

1. What conditions make possible the manufacture of -cloth and textile derivatives- in developing countries, underdeveloped countries, etc., under conditions different from those of advanced countries?

2. The audits -textiles- as they are currently proposed, fail to eradicate many of the labor, social or environmental abuses, is the code of conduct[27] or the RSC the solution?

3. Do you think it would be necessary (and possible) to articulate a binding social-labor mechanism (not voluntary CSR) so that large multinational companies -textiles- minimally protect extreme situations such as work accidents that trigger deaths, and therefore a real social security coverage [28] according to the limitations of each country and the resources of the company?

a. Is it necessary to establish an international body to ensure compliance with fundamental rights (including the environment) at a global level, see International Criminal Tribunal for Transnational Corporations?

b. Trade unions currently have national legislation (weak in many cases such as Bangladesh, Vietnam, Cambodia, China, India, etc.) and internationally they use the OECD guidelines, the tripartite declaration of the ILO, the Global Compact of the United Nations and international codes of conduct (ILO, OECD), always within non-binding controls and resolutions. Where does the unionism of the 21st century advance, is it necessary, is it deliberately buried, etc.?

4. In the near future, the strength of work as we know it today, may have a more and more residual character with fewer rights [29] Where are the processes of labor globalization directed?

5. Certain producing countries - of textile clothing - (Asians, Brazil, Morocco, Eastern Europe, Africa) have considerable indices of corruption [30] Is it necessary to carry out this type of behavior (in any of its aspects) in order to develop competitive industrial activities and work in equality?

6. There are hundreds of recommendations, thousands of books, papers and lecturers from exclusive business schools detailing the virtues of CSR, but even so, there is no unanimity in this respect in its definition and scope. One of the biggest problems detected for the full development of these voluntary policies is the lack of a basic and solid labor and environmental legislation in many aspects (and countries), which guarantees minimum legal security before being able to move towards a voluntary improvement such as propose the CSR, how do you assess this present and future situation?

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[27] In Myanmar, the first code was approved on 02/02/2015 by the Association of Myanmar Clothing Manufacturers MGMA.
[28] India is planning to launch its universal health coverage based on the existing Rashtriya Swasthya Bima Yojna (RSBY) for the poor. According to ActionAid, 92% of the victims of the Rana Plaza collapse (in Bangladesh) will not be able to return to work.
[29] Currently there are applications such as proz.com and logueworks.com that allow a customer to offer the translation of a text delimiting what we

are willing to pay (a labor bid), which generates a benefit for both parties in many cases without tax and below the agreement price; or when a new car model is developed, the brand's own address offers it to its factories to see which makes it cheaper, etc.
[30] Index of perception of corruption in 2017 according to Transparency International.

7. Today, we have the most prepared generation of young people and executives of our modern era, but in many cases, what do you think is due to their bad image, as well as the corporations they represent?

8. The escalation of conflicts and interests in relation to the appropriation and purchase of natural resources throughout the planet, do you think that will mark the future of consumption, of society and of international organizations as we know it today?

9. There are tools to measure the social return (return of image) on the investment made, in fact, a well-known member of the English Parliament of the British Conservative Party, Chris White, presented a Public Services Act (Social Values) Act 2012, whose purpose is to integrate these measurements in public tenders to prioritize companies with great social impact on those that do not have it. Do we run the risk of worrying more about the form than about the fund?

10. The value of the trademark (tangible and intangible) of the main companies -textile and non-textile-, may be in danger, since in spite of complying with the law, in many cases they are condemned by the citizenship. Little by little, it is going from having a passive consumption to understanding it in a more active way, due among other things to bad business practices and the existence of new information channels such as online applications (BuyCott, Demand GMO Labeling, Boycott Invaders , OpenLabel, GoodGuide, Check-in for Good and Mogl) that allow to know if the owner of a company finances a certain politician or if certain brands support homosexual marriage among others. How do you value this new paradigm: can the consumer's push make a brand disappear or affect a transnational company?

11. Do consumers have the right to know 100% of the components - independently and real- of textile garments through their labeling (and traceability)? * specialized laboratories are not able to know them by giving them a sample garment due to the large number of components and derivations that contain them, among other things due to business secrets.

12. Many of the diseases are caused by the industrial use of substances that are not allowed or even if they are, the scientific community has detected that they should not be, in the near future, the imputation of these health costs to

A responsible fiscal system for Latin America is possible: dogmatic bases and basic premises constitutive

Un sistema fiscal responsable para América Latina es possible: bases dogmáticas y premisas básicas constitutivas

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Abstract

Effective government action to alleviate social inequalities and boost economic growth, from the strict tax orbit, is a task consciously rejected by the parliament and government. Indeed, they subordinate inclusive public policies, almost exclusively, from "non-commercial" forms, such as those offered by the financial sphere through the use of conditional cash transfers, social expenditures and subsidies, tax collection products, others Government revenues and indebtedness. Although in Latin American countries poverty can be temporarily reduce through these government instruments, economic inequality will be maintained or will continue to increase, as will the opportunity grabbing, until there is no structural changes, primarily in the tax field, along with many other integrated solutions beyond the object of our study.

Latin America, Social Inclusion, Taxes, Development, Taxation

Resumen

El accionar gubernamental efectivo para paliar las desigualdades sociales e impulsar el crecimiento económico, desde la estricta órbita fiscal, es una tarea conscientemente rechazada por los detentadores del poder legislativo y gubernamental, para subordinar las políticas públicas inclusivas, casi exclusivamente, a partir de formas "desmercantilizadas", como por ejemplo, las que ofrece el ámbito financiero con la instrumentalización de transferencias monetarias condicionadas, gastos sociales y subsidios, productos de la recaudación fiscal, otros ingresos públicos y endeudamiento. Aunque temporalmente pueda disminuir la pobreza por intervención del Estado a través de estos instrumentos en los países de América Latina, la desigualdad seguirá aumentando, al igual que el acaparamiento de oportunidades, hasta que no haya cambios estructurales, prioritariamente en el sistema impositivo, junto a otras muchas soluciones integradas que escapan al objeto de nuestro estudio.

América Latina, Inclusión social, Impuestos, Desarrollo, Sistema Fiscal

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Introduction

Problematic situation and methodological framework

Taking as a basis the fundamental approach of the "Theory of the contradictory fiscal dynamics of the Latin American States in an area determined by the coexistence of global capitalism and representative democracy" (Rezzoagli, 2013), which consists of placing the State as the main actor in the irreplaceable that, trying to act as an intermediary on the contradictions in the field of economic relations (capital - labor), ends up operating as an obstacle to the system of genuine accumulation by virtue of, among other issues, the formation of chronic fiscal problems that later transfer The crisis in the institutional political sphere (Offe, 1974, 1982 and 1990), is that we can begin to explain how in this state involvement in the fields of accumulation and social legitimization, one realizes the self-contradictory imperative that surrounds this fiscal action.

The effective governmental action to alleviate inequalities or to promote economic growth, from the strict fiscal orbit, guided by "commercialized" forms that are not alien to the scheme of economic relations of the market (vid. Rezzoagli, 2013), is, in Latin America , a task relegated and perhaps consciously rejected by the holders of legislative and governmental power, to subordinate inclusive public policy and social development, fundamentally and almost exclusively, from "de-commodified" forms, such as those offered by the financial with the instrumentalization of social expenditures and subsidies, products of tax collection, other public revenues and indebtedness, very important as conditional cash transfer programs that have broken paradigms of state intervention throughout Latin America, but that should be accessory and timely complementary to other types of reform "Mercantilized" structural structures established and implemented previously or concomitantly from the collection sphere and under joint parameters of efficiency, optimization of resources and solidarity.

The need that the countries of the continent have in the implementation of inclusive public policies, with respect to the fact that governments must meet the costs not assumed by private capital, in a human environment determined by the high rates of poverty and unemployment, marginality and insecurity citizen, gives rise, generally inefficiently and contradictorily, to the expansion of tax pressure as a desperate measure to try to alleviate the lack of sufficient resources (creation or increase of taxes, tax reforms generally with regressive effects masked and with the weight of charge in consumption or in the salaried or captive sector in general) that, more than generating commodified solutions cause greater problems and gaps, and that, in any case, the collected will not achieve the dimension acquired by the growing need for expenses, resulting in , then, a structural vacuum manifested as fiscal deficit and crisis (enough to visualize and analyze the current preoccupation of the subnational governments of the different countries of the region for seeking a fiscal reform that allows them to deal with these expenses in a better way).

In other words, we consider as a central hypothesis, from this qualitative, non-experimental, deductive and descriptive-analytical methodology, that the systemic gap of inequality in Latin America generated and constantly expanded by *the tax collection system, tries to solve or mitigate from the scope financial (many times solidary and other clientelist occasions), although the amount collected will never be enough to cover the magnitude and the damages that the gap causes in each fiscal period, and thus it is reproduced indefinitely.*

The public finances of the countries of the region have traditionally been characterized by the perpetuation of a tax system whose central axis is the collection of taxes on consumption and a tax policy with little or no distributive impact. Although poverty can be temporarily reduced by the implementation of social programs and subsidies (de-commodified solution to mercantile problems), economic inequality will be maintained or will continue to increase until there are structural changes in the tax system (seeking a main commercialized solution to mercantile problems) and the dependence of growing sectors of society on public programs puts at risk the very foundations of said financial programs implemented (usual provision of the State with the delivery of quality goods and services.

Or through the delivery of money in a direct and indirect to specific beneficiaries through a network of conditional cash transfer programs and subsidies) due to the marked dependence and the lack of articulation of other types of solutions, which marks the "chronicle of an announced death", not only for the increasingly widening financial deficit that is

The problem is provoking, as the widening gap generates greater expansion of beneficiaries, but fundamentally because of the increasingly less genuine possibility of labor insertion or development of this dependent (growing) sector in a market that, on the contrary, increases the gaps in hoarding, economic concentration and inequality.

The words of Alfonso and Pacheco de Castro (2016), referring to the Brazilian case, present us with an illustrative element of what we are sustaining, when it states that:

"The vicious circle between the increase in spending and the (necessary then) increase in the collection that Brazil experienced in the last 25 years seems to have reached its maximum point, which poses challenges for Brazilian governors not observable in the country's recent history . Nowadays, there is a clear need to review the rules of social benefits and to rediscuss the linkages of income to compulsory expenditures, under penalty of maintaining the expansionary trajectory of public debt and / or forcing increases (not sustainable and regressive)) in the tax burden "(p.2).

The high distributive inequality is, in this panorama of commercialized action - de-commodified, one of the most characteristic features of the economic and social situation in Latin America, where a small percentage of the population concentrates and increases a large part of the wealth while a significant number of its inhabitants are below the levels of decent subsistence, which is reflected in a continuous loss of purchasing power, decline of the middle class, greater inability to self-care and overcoming the lower class.

In this scheme of political and economic pressure groups to which the governments of turn are visualized as particularly receptive, is that we can quote the words of Ibán Díaz Parra and Silvia Romano (2018) when they state:

The permanent concessions to the transnationalized elite not only did not guarantee the possibility of governing, but undermined the possibility of deepening reformism in a country where the upper classes abhor any inclination toward something called socialism. In short, for the elites in power, the minimal reforms can be perceived as inadmissible revolutionary changes. To trade with these sectors in pursuit of governance is to amputate any possibility of change, however minimal it may be (p.166).

In Argentina, measurements of consumption trends show that in the last year and a half (2016 - 2017) the consumption of staple foods for subsistence collapsed, while the purchases of luxury goods grew considerably (Centro de Estudios para el Desarrollo Economic Benjamin Openhayn, 2017). It is desirable that all economic activities go well, but when it reflects a very significant increase in sumptuous consumption and also a significant setback, simultaneously, consumption of the basic basket essential for life (the most important falls are from milk, beef, chicken, fish, yogurt, butter, apples, pears, lemons), reveals an anguishing and worrisome reality: the separation of classes and the consolidation of economic gaps that are increasingly important and consolidated, and of course, the existence of a manifest inequality and of a hoarding of opportunities that is represented in a society of powerful rich and poor excluded.

The evolution of consumption has not been uniform, in the goods of the basic basket and of popular consumption the setback has been very considerable, the opposite has happened with the sumptuous goods, whose acquisition reflects great economic capacities, as can be seen, for example, in the sale of motorcycles and high-end cars that have grown considerably in the last calendar year; same temporary stage where the retraction of basic products mentioned above was consolidated.

In Mexico, according to UNICEF figures (2018), more than 60% of children are poor, and 13.6% suffer from chronic malnutrition; 1 out of 3 children in rural areas suffer from chronic malnutrition and in the indigenous population this prevalence is more than twice that in non-indigenous children. In correlation with these data, the ECLAC report (2016) points out that wealth in Mexico doubled between 2004 and 2014, but the distribution of that wealth is increasingly in fewer hands, there is a strong concentration in the ownership of assets

The physical resources of the production units registered in the economic censuses, 10% of the companies account for 93% of the physical assets, while the remaining 90% have very few capital assets. Therefore, the Gini coefficient of the concentration of physical assets amounts to 0.93, almost absolute inequality, the same occurs in relation to personal income, since in 2015, the average value was 0.469 for 17 countries in the region, but Mexico obtained in this measurement of personal wealth hoarding 0.79, (0 represents absence of inequality and 1 maximum inequality).

Will the tax law have something to contribute to this problem? We have no doubt that the answer is affirmative and that this detractive system is also an important part of the current and current problem. One of the main shortcomings that consolidate these perverse situations suffered by countless families is the lack of articulation of fiscal reforms that tend to the development and consolidation of a structural middle class through a tax system that we call and baptize in this writing: responsible.

Towards a fiscal vision that contemplates boosting economic growth and inclusive development

Regarding the strictly tax sphere, the effect that a collection policy has on the development of each of the countries of Latin America is a question not without controversy and discussion. Some experts point out that taxes hinder economic growth (first you have to grow in terms of gross domestic product - GDP - to then distribute and / or act, because you can not distribute financially what you do not have, nor can you leave to promote the legitimate accumulation of private capital with all the effects this entails for social benefit).

And advocate maintaining taxes (at least the generation and accumulation of wealth) at a minimum level that encourages investment and the spillover effect (since this investment generates employment and mobilizes the economy, this coupled with a flexible employment policy and a cheap labor force in terms of international competitiveness), an issue that countries like Mexico seem to have followed as exemplary students, although with innumerable social problems.

Other experts consider that a well-structured and aggressive (protectionist) tax policy can serve as a stabilization mechanism for economic cycles, avoiding sharp rises in prices and unemployment (although this may materially lead to a departure from the international agreement regarding the competitiveness and the attraction of capital), this is the case of South American countries that have followed the scheme of import substitution and show great dependence on their tax revenues. We also find eclectic situations or that manifest intermediate degrees between these aspects but that necessarily always modulate their tax action between these two opposing lines of intervention, in fact the same country can vary from one end to the other its action in virtue of the temporary need and the positional changes that have their governments in turn.

These positions, ideologically constructed, theoretically have their logic and argumentative coherence in terms of the economic model that is intended to achieve, however, it is particularly important, by virtue of understanding *whether tax law can tend to economic growth and social development of the countries in Latin America respecting equal opportunities and combating the systemic reproduction of poverty ?,* promote and delve into a new perspective that we could baptize as a RESPONSIBLE FISCAL SYSTEM: tax policy should not only serve as an engine of growth, it is not enough to collect and attract capital (investments), but must also contribute to other objectives of economic and social development, such as combating poverty, avoiding exclusion, generating greater equality of opportunity, and fostering the consolidation and maintenance of a structural middle class, without that hinders or counteracts the processes of legitimate accumulation of the market.

The collection system is not only important as an instrument to formalize resources to the State, but it constitutes a public policy in itself, it is not neutral and its effects have an impact on the social structure as well as coercing all the surrounding state scaffolding and public action and private. The inefficient tax structure, as well as tax evasion and avoidance, cost Latin America billions of dollars in lost tax revenue, which beyond the immediate direct effect that the system itself would produce (leveling the middle class, fight against inflation, progressivity in tax pressure, etc.), also represent immeasurable amounts of money that could and should be invested in structural issues and in fighting poverty and inequality through public spending.

The increase in tax revenues is key for public investment in reducing some of the historical gaps in the region, such as markedly segregated access to quality public goods in the field of education, health, transportation and infrastructure. , but the way of obtaining these resources is also equally important, due to the externalizable effects caused directly and indirectly by the transfer of private wealth to the public sphere, rather than the resource itself (result of the collection process).

The public finances of the countries of the region have traditionally been characterized by the perpetuation of a tax system whose central axis is the collection of taxes on consumption and a tax policy with little or no distributive impact. In many Latin American countries, the tax system relies mainly on taxes on consumption, which are more burdensome for low and middle income groups (Rezzoagli and Gamberg, 2015).

In addition, the tax systems of the region tend to be more oriented to labor income (whether in a dependent relationship or self-employed, but considered as captives) than to capital gains or to the accumulation of wealth, and often lack taxes. on real estate and inheritance (or at least effective compliance), in such a way that the concentration of mainly idle or unproductive wealth increases, which is even greater than the concentration of income.

The collection of income tax or personal income is, on average, relatively low throughout the continent, particularly among groups with higher incomes, where a clear and unambiguous decrease in tax pressure is visible. ECLAC (2016) estimates that the effective average tax rate for the richest 10% of the population of Latin America only equals 5% of their disposable income. As a result, the tax systems of this continent are six times less effective than the European ones in reference parameters to the distribution of wealth and the reduction of inequality.

A certain degree of economic inequality is not only important but also desirable to stimulate progress and growth, and thus reward talented people who have struggled to develop their skills and who have the ambition to innovate and take risks. However, the extreme concentration of wealth we live in today threatens to prevent millions of people from materializing the fruits of their talent and effort.

In this line the report of Oxfam (2014) titled *Governing for the elites: Democratic kidnapping and economic inequality*, establishes that, if economic inequality is not controlled, its consequences may be irreversible, giving rise to a monopoly of opportunities on the part of the richer population sectors, who will demand the lowest tax rates, the best education and the best health care. The result, if this current process is perpetuated, can be the creation of a consolidated dynamic of privileges that would pass from generation to generation.

The strengthening of VAT revenues (value-added tax or added value according to the terminology of each country) in the region, during the last decades, reflects above all its expansion to cover intermediate and final services (initially the tax was taxed almost exclusive physical goods and some services to the final consumer), in addition to a progressive increase in the rate in almost all countries since the eighties. It is likely that the changes introduced over the years in the tax regimes have caused that, in most Latin American countries, these regimes are less progressive than before. Indeed, one of the most recent reports on Inequality of Oxfam, of January 18, 2016, states that:

"In the world, there were unavoidable advances in the reduction in the number of people living below the extreme poverty line between 1990 and 2010. However, if during this period of time the inequality within the countries had not increased, other 200 million people would have left poverty, a figure that could have increased to reach 700 million, this if the poorest people would have benefited more from the distributive effect of economic growth than the more affluent sectors "(p.4).

It is of fundamental importance, therefore, to analyze in the development of this scientific research, the concept and implications of the inequality of opportunities, to recognize and visualize the implications of regressive tax systems in our continent and their comparison with progressive countries in this scope, and diagnose ENDOGENO factors that prevent a structural change of the system towards a sustainable and inclusive development, in order to delve into commercialized solutions to problems of state intervention in the market through the restructuring and development of a "responsible tax system", leaving and recognizing the importance of financial performance as a provider of goods, services and / or cash,

As a complementary policy, either direct and focused or, in other cases, accessory, but not the main state tool for the solution to the problems of poverty and inequality. The United Nations Organization in its Human Development Report for the region (2016) defines it as the equal exploitation of the social and material conditions of the inhabitants of a town and its gradual improvement, within the framework of respect for its cultural values . In this sense, the critical links between poverty, economic inequality, the deficit of decent or decent work and social exclusion have been recognized as the substantial obstacles to its fulfillment and thus embodied in the World Summit for Social Development in 1995 .

Therefore, the Human Development Report for Latin America and the Caribbean, presented in 2016 by the United Nations Development Program (UNDP), is forceful in identifying Latin America, as in previous reports, as the continent unequal in the world, so there is a priority need to delve into the diagram, instrumentalization and consolidation of redistributive policies[31]. The distinction between elements or circumstances exogenous to the individual (non-dependent) - such as social origin, place of birth, gender, access to education, among others - of those that individuals acquire by dependent actions throughout their life cycle - as for example the effort in the work and in the studies -, it is fundamental to understand this principle of Equality in its matrix of horizontal development of opportunities, because, although this distinction is certainly debatable in practice, the dimensions to equalize Individuals should cover only those that are exogenous (for example, guaranteeing access to education through positive actions) and the difference that comes from the agency itself should be respected (Rezzoagli and Cammarata, 2016, Rezzoagli and Gamberg, 2015).

This recognition and identification of exogenous conditions is important not only to diagram differentiated public policies that provide an adequate framework for the development opportunities of each individual in any point of the continent, but also to value and control their implementation. The principle of Equality, understood from its material aspect of providing and guaranteeing the same opportunities, is the one that proclaims the elimination of exogenous obstacles that impede or restrict people to achieve a dignified life through their own means (endogenous sphere) [32].

The Report on the Stabilization of Sustained Growth (IMF, 2014), clearly states that inequality (as an interaction of four components: poverty, economic gap, deficit of decent or decent work and social exclusion) is no longer an issue of justice but also as an obstacle to the economic growth of countries. This is a novelty that closes a historical gap in official economic thought and approaches (at least from the problematic coincidence) heterodox economic positions to structuralist ones.

In recent decades, the need to study economic inequality and its form of measurement has intensified (see Roemer, 1998, Nun, 2011, Cecchini, and Vargas, 2014, Jiménez and Martner, 2014, Arriagada, 2005, among others.), ECLAC's reports and publications have been very important since the late nineties to the present day, and it can be said that there is currently a relative consensus on the relevance of this topic for inclusive economic growth, as well as on the indicators to reflect, diagnose and combat this phenomenon of inequality and exclusion. However, this agreement is not technically free of criticism or questioning, covering aspects such as the indicators used, the variables and the data sources on which the estimates are made[33].

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[31] State action can affect the levels of income inequality prevailing in an economy in several ways:
- In the first place, the establishment of minimum wages, negotiation between workers and companies, and the regulation of degrees of concentration in the markets for goods and services, among other measures, have direct consequences on the inequality of primary income, as is often the case denominated the income that arises from the market. That is to say that the distribution that results from production and the market is not inexorable.
- Secondly, public interventions redefine the distribution generated by the market through instruments such as taxes and transfers, mechanisms that have a direct impact on the distribution of disposable household income. Finally, a very important part of the redistributive action of the State takes place through financial mechanisms, such as public spending on education and health, which do not affect the current disposable income of households, but have a very significant impact, deferred in time, to the extent that they promote human capabilities and facilitate future insertion in the labor market.

The capacity for redistribution in the second of the stages described - through taxes and transfers - is of utmost importance to alter levels of inequality in access to household resources.

[32] The argumentative constructions are not born from the intellectual vacuum, for this conceptualization the ideas with respect to the "basic capacities" of Sen (2000), of "smoothing the path" of Roemer (1998), of "opportunities for well-being" have been followed. of Anderson (1999) and of "access to the advantages" of Cohen (1991).

[33] There are two ways to approach the study of inequality. One is based on the relative concept, which depends on proportional differences in income, while the other refers to income gaps in absolute terms and is often referred to as "absolute inequality". The distinction between one and the other has been almost totally lost in the current empirical studies on the subject, which generally refer to the relative concept, or also indicators that reflect a position between both extremes: the so-called "intermediate indices" (Del Río and Alonso- Villar, 2008, Azpitarte and Alonso-Villar, 2012).

It is necessary to be fully aware that in political economy it is meaningless to measure phenomena of this nature without using value judgments about the properties that, from the social point of view, the instruments of measurement must satisfy. Antonio Lozano (2014) states that the increase in inequality has political bases, specifically is based on the decision of governments to increase or decrease direct taxes on income and inheritance tax, as well as the effects of historical events such as wars or crisis, where capital is destroyed and there is a reduction in the income of the capitalists.

This proposal by Lozano (2014) reinforces the Kuznets[34] hypothesis but only in the importance of the political factor, since on the other hand it puts into question that sustained growth tends to equality in the long term per se, and that this political factor is a stable constant that occurs over time (page 6).

An important challenge to current distributive studies refers to the variables considered, which is directly linked to the main sources of data. Both income and consumption reflect resource flows and this entails various limitations, which suggests that wealth may be a better indicator of households' access to resources, since it includes the consideration of financial and non-financial assets that can trade in the market. It is a variable of existence that is at the same time generator of income flows. Through inheritances, for example, wealth is also a powerful means of intergenerational transmission.

The developed countries have made notable efforts to quantify the inequality in terms of wealth from information from tax registers or special surveys (Ostry and Berg, 2014) where the ownership of assets and debts is surveyed (financial surveys).

In this type of special surveys, information is collected on accumulated assets and household debts, as well as income and expenses. Examples of these instruments are the *Survey of Consumer Finances* (SCF), carried out in the United States, and the *Financial Survey of Families* (EFF), in the case of Spain.

In the countries of Latin America this type of studies is almost non-existent and of very recent recognition. Deepening the analysis with new studies from the improvement of existing information incorporating new analysis tools is of vital importance to diagnose the inefficiency of the tax system in each of the countries of our continent[35], such as the incorporation of adjustments by income statement or data of sworn tax returns, which brings with it a number of aspects to be taken into account such as the difficulty of accessing truthful information due to the magnitude of tax evasion and evasion, as well as the lack of operability and endogenous potential of the Tax Administrations of our countries (Jiménez and Martner, 2014).

The incorporation of high income (generally reluctant to Permanent Household Surveys[36]) and the use of tax data, undoubtedly opens an interesting research agenda for inequality studies[37], It complements the census information and also allows evaluating possible tax reforms to strengthen the distributive scope of our tax systems and evaluate with greater coherence the impact of tax pressure and progressivity - regressiveness of the system and its effects.

This line of work involves two challenges for statistical systems (Jiménez and Martner, 2014):

1 * its scope and potential to some extent depend on the quality and integration of these statistical systems, and

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[34] The Kuznets hypothesis has three premises that are questioned: the first is to think that growth leads to equitable distribution in the long term, secondly, this premise is not based on a purely economic mechanism (endogenous to the economic system could be said), it is based on a political condition (exogenous to the economic system): the government should act through redistribution so that inequality decreases in the growth process. In the third place, it can be deduced from the first premise, that in order for society to grow, it needs inequality and accumulation in order to carry out the investment. In short, the Kuznets curve proposed a reassuring message for developing societies: inequality is natural and necessary in the development process, and this process would naturally lead to equality over time (Lozano, 2014: 5).

[35] We are aware that the challenges are not few, from the endogenous technical difficulties of realization, to an accumulation of situations such as the lack of reliable information, to the disapproval of the most affluent population sectors that are reluctant to declare the veracity of their patrimonies.

[36] In the permanent household surveys the information may be biased, for multiple reasons, one may be that the person surveyed does not have sufficient knowledge to respond optimally, underestimate or overestimate their income, or simply because they respond deceptively from of certain interests. Another situation to take into account is that the richest do not answer these surveys, or at least not in a sincere way; and on the opposite side, people who have legal domicile are also omitted, that is, they do not have the citizenship register.

[37] The statistical use of fiscal data opens the possibility of building long historical series with true information (within the reliability of the agencies responsible for carrying them out). On the other hand, the registers allow us to study an interesting aspect within inequality: the accumulation of wealth.

2 * the analysis of the richest sections of the population is very useful insofar as it allows complementing the conventional measurements on inequality, making the tax information coming from the sworn statements compatible with the data obtained through the traditional household surveys.

Having information from tax registers can significantly expand the scope of studies on income distribution in the countries of the region, which allows analyzing in detail high incomes, even with the limitations regarding problems of evasion, avoidance, exemptions or tax incentives and changes in tax rates.

According to a study conducted by the Inter-American Development Bank (IDB, 2013), countries in Latin America collect taxes on average, without forgetting that there are structural differences between each country individually analyzed, 17.5% of gross domestic product (GDP) and the tax burden (aliquots) is low compared to that of other regions, since, according to this report, in the countries of Eastern Europe a total average of 24.1% of GDP is collected and in the total of 32 non-Latin American countries that are members of the Organization for Economic Co-operation and Development (OECD), the overall average collection is 25.4% of GDP (IDB, 2013: 36).

Added to this, in a recent study of ECLAC / IEF (2014) where economic inequality is measured in 17 countries in Latin America, and where a comparable approach is used with international methodologies, there are worrying results and they should call a deep reflection, since the Gini Coefficient[38]it barely drops only 3 percentage points after direct taxes and monetary public transfers, that is, the economic inequality among the inhabitants of Latin America without State intervention and with state intervention is only three percentage points less in the latter case.

This contrasts markedly with the countries of the Organization for Economic Co-operation and Development (OECD), where, on the other hand, this indicator decreases by 17 points after direct fiscal action, that is, after the intervention of the State through taxes and transfers . We must understand that this is not just a simple numerical differentiation, but that this percentage difference marks a material abyss that translates into well-being, equality, reduction of poverty, and ultimately, the effective development of human rights.

Three elements of tax policy should be the center of analysis to determine and diagnose the degree of compliance with economic growth and social development based on an effective tax system, based on the results shown by the worrying reports previously analyzed, these are : the level of collection, the tax structure (central and binding aspect between the first and the third) and the degree of compliance

[39].The great majority of the countries of the region present significant weaknesses in the three key factors mentioned (which we believe are the real bottlenecks to be solved from a responsible and socially consensual vision), that is, the tax pressure decreases as it increases the wealth, the fiscal structure is ineffective to combat the gaps of hoarding of development opportunities and the levels of non-compliance in the payment of taxes are significant (Jiménez, Gómez Sabaini and Podestá, 2010), for this reason we will delve into these essential aspects problematic to tend to the theoretical formulation of a responsible fiscal system as an alternative structural solution.

In summary, the institutions in the region fail to limit and reduce (ex ante) the market dynamics generated by the concentration of income, and the ability to correct or remedy its effects (ex post) through taxes and monetary transfers. It is very limited, especially when compared to the experiences of other countries or regions. This lower capacity has to do with the low levels of tax revenues due to an inefficient material and formal fiscal structure, and its lower distributive impact.

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[38] Coefficient that bears the name of its creator, the Italian statistician and sociologist Corrado Gini who published it in his article entitled "Variability and mutability" in 1912. It measures the inequality between the values of a frequency distribution (for example, income levels), is commonly used as a measure of income or wealth inequality.

It goes from 0 to 1. A Gini coefficient of zero expresses the perfect equality where all the values are the same (for example, where everyone has exactly the same income). A Gini coefficient of one (100%) expresses the maximum inequality between values (for example, when only one person has all the income).

[39] We emphasize in this study the analysis of the second element, the tax structure and its implications with the degree of collection and its effects. The analysis of the degree of evasion and the degree of fulfillment of compliance in the Latin American countries will not be an aspect of analysis of this article, due to the magnitude and complexity that its treatment requires, and will be the object of a later work.

Article

In this way, secondary redistribution through spending (mainly conditional cash transfer programs and subsidies) has been the equalizer in the region par excellence, not without numerous criticisms regarding its structuring, effectiveness and control.[40], but, nevertheless, there is no doubt that they constitute the element of preferred intervention, since taxes have not followed the same path and their redistributive function is put in frank questioning.

The countries with the highest inequality index tend to redistribute more, it is a fact that can be easily verified statistically, due to the need to alleviate these asymmetries or commodified problems in a de-commodified way, and this effect is greater in the case where pensions or pensions are considered as a transfer. In this sense, we highlight the analysis of Nora Lustig (2016) when it states: "Do the most unequal countries dedicate more resources to social spending? (...) the greater initial inequality, the proportion of resources devoted to social spending is greater. In historical terms, the most unequal countries tended to allocate a smaller proportion of fiscal resources for redistributive purposes, a phenomenon that Lindert (2004) called the Robin Hood paradox.

The slope is lower when pensions are considered as deferred income than when pensions are considered a transfer (...) Bolivia, Colombia, El Salvador, Guatemala, Honduras and Peru redistribute below what the trend predicts. Chile, Ecuador and Mexico are practically on the trend line and Argentina, Brazil, Costa Rica and Uruguay do it above the trend. It is interesting that -although the order of magnitude of the respective redistributive effects varies- this classification of countries is the same when pensions are treated as deferred income and when they are considered a transfer "(page 29).

In many cases, the increase in redistributive public spending (de-commodified solution) was and is financed from regressive taxes (anti-commodified solution, which generates increasingly serious chronic structural problems, period to fiscal period).

It is necessary to promote a change in this paradigm so that it is replaced by a more comprehensive vision of fiscal policy, where taxes act as a priority to alleviate the high inequality of opportunities that characterizes the region, contributing to inclusive economic growth.

Tax structure and tax pressure: Main problems

The tax structure in the countries of the region does not present progressive characteristics, but on the contrary, it is markedly regressive (Cepal / Oxfam, 2016: 7-9), and it is possible to highlight that there has been no attempt (real political intention).) to modify this structural situation historically. We do not ignore that the notion of progressivity and confiscatoriety present severe practical problems when setting their limits, even more so if in the last decades in the continent there has persisted a palpable abandonment in strengthening and perfecting direct taxes and a constant increase in the taxation on consumption.

A progressive effect in the collection sphere is especially beneficial for countries where wealth is concentrated and where there is palpable economic inequality as is the case of the countries of our continent (Jiménez, Gómez Sabaini and Podestá, 2010), considered the most unequal continent of the world (ECLAC / Oxfam, 2016); thus, the improvement of revenue collection and patrimony would be recommended, fundamentally those that are unproductive. In the opposite direction, in countries with a greater distribution of wealth, the most effective would be to proportionally tax income and consumption, although not limited exclusively to it.

The strengthening of taxes on goods and services, which are essentially regressive and are a constant of the last decades in the countries of the region, widens the gap and generates more inequality. Following the research presented by De Cesare (2012).

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[40]It is in this context of lack of evaluation and control, that these programs constitute one of the few means to, only (though not least) mitigate the effects of the inequality gap and market shrinkage and opportunities, and although after year, in budgetary and material terms, it is invested and spent more, the results will continue to be negative in the medium and long term, since the inequality gap widens more strongly year after year, the increase in these benefits will not be enough (it will maintain a population percentage that satisfies its needs thanks exclusively to said programs and subsidies) and year after year will be more and more the people that request it or require.

At the Lincoln Institute, which analyzes, among other issues, the distribution of the tax burden between regions and groups of countries, it makes it possible to visualize differences that are particularly important among these regions or groups, mainly addressing the premise that in countries that have low to medium percentages of concentration of wealth (measured by geographic areas and inhabitants) can be justified a greater pressure on consumption or income, however, and in the opposite sense, in the countries or regions that present from medium to high percentage of inequality of opportunities and concentration of wealth (as is the case of Latin America) the main focus of taxation should be on direct taxes and fundamentally those that tax the obtaining and accumulation of wealth, fundamentally idle or unproductive, due to an excessive tax burden on income or onsumo would produce greater social gaps.

Established the previous as a basic premise in the conformation of tax structures, and following the results of the report presented by De Cesare (2012) at Lincoln Institute, we can observe comparative results that, sincerely, do not surprise, but they do call for a deep reflection and a awareness of the importance of adequate tax collection and the exercise of effective pressure to combat the systemic reproduction of poverty; thus, taxes on consumption "represent more than 50% of the tax burden in Latin America on average, while these taxes represent 31.7% in the OECD member countries" (p.7).

These data, translated into simple words, means that the final consumer in our region has a lot more fiscal pressure in their purchases, besides that evidently it significantly increases the value of the final products, with all the direct and indirect effects externalizable by said situation in the economic and social plans.

The tax system, in Latin American countries, as an instrument to promote the development of a structural middle class and an adequate recursive functioning of the State in terms of economic capacities, is generally null, but not only that, but also favors every time plus the separation of classes and impoverishment, and is a real engine of inequality.

Since the tax pressure exerted on the productive sectors and those with less economic capacity is more intense, when an effective and correct fiscal diagram should lead absolutely to the contrary. Making ours the words of Num (2011), because there is no other way to say it with greater forcefulness and simplicity: taxes generate inequality.

Analyzing the economies of Latin America, we see that, with its own characteristics, similar situations are repeated in response to our central hypothesis, this is how in Brazil, for example, one feature that draws the most attention in the tax burden is its concentration in few taxable bases. In fact, according to Alfonso and Pacheco de Castro (2016) "only three tax bases (goods and services, wages and labor at work and income, profits and profits) accounted for 88.7% of all types of taxes in 2014 "(P.7) The weight of the fiscal system is absolutely regressive and based mainly on consumption and income, although the country has a collection in line with the OECD countries, it also has significant and characteristic levels of inequality in Latin America.

In Colombia, an OECD report (2015: 4) is convincing when affirming that in order to reduce poverty and foster inclusive growth, the future challenge of that country is to meet social spending needs and growing subsidies that are absolutely insufficient for coverage. required, and where the extractive field should do more to promote efficiency and equity, fundamentally relieving formal sector companies that face a high and complex tax burden, and where only a small part of the population pays taxes on the income or equity; another clear example of the maintenance of the tax system based on the collection pressure on consumption and income[41].

Following the estimates made by González and Corredor (2016), in Colombia the Gini Coefficient practically does not change before and after the intervention of the State in tax and financial matters, that is to say, distributive policies that improve the disposable income of the poor. In other more understandable terms, the subsidies and economic aid that the State grants to the poorest sectors of the population are removed again through indirect taxes.

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[41]Colombia cries out for structural reform with more progressive taxes, which help lower our inequality indexes (Fernández and Hernández, 2015: 41).

Thus, in the words of these authors:

"For example, if a poor household receives subsidies through a program like Nuevas Familias en Acción, it is feasible that by paying taxes such as VAT it reverts to the State an amount equal to or greater than the amount of its subsidies. If the structural view corresponds to the balance between taxes and subsidies, disposable income would be the best expression of this relationship. The structural result is reflected in the disposable income. The usual assessments of fiscal policy do not look at the whole of the relationship. The studies on Familias en Acción analyze the evolution of subsidies but do not consider taxes "(González and Corredor, 2016: 141).

Chile, like the other Latin American countries, depends heavily on indirect taxes, although with respect to direct taxes, the tax reform in 2016 increased the First Category Tax (business income), establishing a rate of 25% for the income system attributed and of 27% for companies that pay taxes in the semi-integrated system. The personal income tax reaches the maximum scale of 35%.

The companies must decide which system to take advantage of, that is, they must opt for the attributed income or the integrated system, unless it is a public limited company in which case only the regime or income system attributed applies. Thus, for this business choice regarding how to contribute, the financial decisions that the members can take will be taken into consideration.

For example, if these retire a large part of the profit, it is convenient that the company taxes under the attributed income system since the rate will be 25% with respect to the corporate tax, and for its owners it will be a maximum final rate of 35% . In the opposite case, if the partners intend to keep this profit reinvested in the company in order to generate new investment projects, then it will be appropriate to tax under the scheme of the semi-integrated system, since even though the corporate tax is more expensive in comparison with the attributed income system, the owners will only pay for the withdrawals actually made (and not for the entire mass of rent) during the commercial year with respect to the personal income tax.

This is a measure that seeks to promote productive income although, as a negative aspect, it can be seen that it favors the tax avoidance of self-employed workers and entrepreneurs with creative accounting. Independent professionals, for example, regularly create "investment companies" to transform profits that would otherwise be subject to high rates of personal income tax, to divert them into corporate income at a much lower rate, or for example, register in the name of the firm and not the owner a vehicle, being employees in a relationship of dependence the only ones who can not "adapt" the system, because their deductions are automatic to be captured ab initio.

Returning to the fact that Chile is heavily dependent on indirect taxes, citing Tasha Fairfield (2016), the following can be considered:

The collection of the value added tax (VAT) was on average 8.1% of GDP in the period 1993-2005, 51% of the total collection; while the income tax represented an average of 4.0% of GDP. (...) Because the VAT base is already very broad since the rate is relatively high (18% from 1990 to 2003, and 19% thereafter), the increase in income tax paid by individuals with higher incomes and large companies have been an obvious option to raise tax revenue through successive reforms "(pp. 130 and 131). The proper use of various reform strategies allowed governments to make some progress in margins, especially by limiting or eliminating tax benefits that disproportionately benefited large companies and higher income taxpayers. These strategies have been used to raise the taxation of economic elites and have generally facilitated more significant reforms (p.153).

If we visualize the current taxes with a supposed progressivity in any country of the continent, we can observe that the aliquots increase in relation to the increase of the economic capacity of the subjects captured in the respective taxes, but the tax pressure does not increase in equal proportion, but rather it decreases, and it does significantly (Rezzoagli, 2017). It is not the same to get 10 units to the one that has 200, than to get 1,000 to the one that has 180,000, the latter will not notice it while the first one will suffer and a lot. Nor is it the same to tax basic consumer goods, wages and salaries or small merchants' income and productive capital, which tax unproductive wealth, sumptuous goods that accumulate in small population groups or speculative capital.

Now, in this sense, the property tax is very relevant in Latin America, given the high concentration of wealth, mainly the accumulation of land in few hands, which tends to be stronger than the concentration of income especially in the countries in development (Gómez Sabaíni, JC and Morán, D., 2016: 19). The property tax is one of the most important sources of own resources for subnational governments, and there is a consensus of specialists regarding the advantages it has, in terms of collection potential, economic efficiency, tax compliance and, most especially, progressive impact on income distribution (Gómez sabaíni, JC and Morán, D., 2016). However, it would seem that at present it is intentionally intended to discard or ignore this importance in search of contrary "solutions".

This is the case of the Tax on Personal Assets in the Argentine Republic, a tax of national orbit that taxes the possession and accumulation of cash, deposits, real estate, yachts, cars, ships and other registrable and non-registrable assets, shares, etc., to individuals and undivided estates until the declaration of heirs, which are not linked to commercial, service or industrial activities, that is to say, they are not productive goods or that do not affect the productive chain, so that greater accumulation of personal assets greater amount of unproductive and sumptuous wealth (capital and idle assets)[42].

His tax until the year 2015, date of its modification to another scheme that we will analyze in detail to demonstrate that strategies are followed that are inversely proportional to the effective redistribution, started with an aliquot of 0.50% applied to the tax base when the total value of the taxed goods was greater than (pesos pesos) $ 305,000 and up to $ 750,000 (first scale), it continued with an aliquot of 0.75% when said value is over $ 750,000 and up to $ 2,000,000, later there was an aliquot of the 1% from a figure greater than $ 2,000,000 to $ 5,000,000, and culminated (last scale) with an aliquot of 1,25% when the total value of the encumbered assets was greater than $ 5,000,000.

Thus we can see that, despite the supposed progressivity, the economic capacity taxed increased more than 1500% and, however, the tax rate increased its tax burden by less than 200%, and it is much worse if we consider that the law established that it be that aliquot of 1.25% for a total value of the goods subject to the tax greater than $ 5,000,000, so if the value is $ 15,000,000 or $ 100,000,000 the aliquot remained the same, it did not matter as soon as increase the economic capacity of the subject in terms of accumulated assets, which, presented a clear example of regression to abruptly reduce the tax burden in terms of increased economic capacity, even when the rates increase, it does not follow the corresponding equivalence .

However, there was the expected modification in the Personal Property Tax, beginning in 2016, and the main characteristic to highlight is the lowering of the tax burden at all levels, with the introduction of a proportional or fixed rate (only) of taxation for any economic capacity that exceeds the non-taxable minimum updated[43] and only about the surplus. The imposition of a single aliquot.

As we can see in this tax, and unfortunately it is not an isolated case, since this situation is repeated in a large part of the fiscal orbit, whether graduates with supposedly progressive aliquots are presented, although with a marked decrease in the tax pressure as that increases wealth (until 2015), or that have fixed aliquots (from 2016 onwards) that place all taxpayers in a formal equality but that determine that despite a general decrease in the amount of tax payable for any capacity contributory, which in itself is already debatable by the characteristics of the tribute, the greatest benefit is given to the large accumulators of capital and idle and speculative assets, which concentrate wealth, generate more and more gaps and are also rewarded by paying less taxes and encouraging the State to collect through alternative channels increasing the tax burden on income and consumption taxes[44].

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[42]Obviously it is not the same to have a house where a family resides, to have 30 houses in the hands of that same family, the notion of progressivity must be technically precise in these aspects, starting with low scales that contribute to the protection and the push to the growth of families, who must find a reward for their efforts in obtaining their own house, car, and other goods or capital necessary for a dignified life and the promotion to the improvement of its members, fulfilling, in turn, the duty to contribute to the public expenses demanded by the State, said family nucleus, as well as society as a whole.

[43]The non-taxable minimum was updated from $ 305,000 to $ 800,000 as a result of the inflation adjustments for 2016, to $ 950,000 for 2017 and from 2018 will be $ 1,050,000.

[44] Regarding Income Tax or Income Tax (companies and individuals), also in Argentina, it has a large percentage of tax evasion and its collection in terms of GDP is still very low compared to central countries, if you add the circumvention fiscal and the lack of real political intention in a progressive collection the conclusion is that a large part of the collection possibilities of this tax are not fulfilled. Undoubtedly, one of the most important dependent causes is the numerous tax exemptions and benefits that, under the guise of progress, do nothing but benefit the income of capital and pressure groups, such as those generated by the sale of shares, for dividends, for financial transactions, for the interests of public securities, among others (Rezzoagli, 2017). Regarding VAT, we agree with Num (2016) when it states that "the total of consumption taxes doubles what is collected for profits, and places Argentina above the Latin American average, evasion is high and difficult to combat .

REZZOAGLI, Luciano, A responsible fiscal system for Latin America is possible dogmatic bases and basic premises constitutive, ECORFAN Journal-Mexico 2018.

Extrapolating this situation to the entire tax system in that country, the link between the crisis within the State and the economic crisis can also be understood (Offe, 1990), because the increase in expenses that support accumulation and social expenditures that go to the maintenance and strengthening of the governmental *legitimization of the political power* ends up throwing, next to an inflationary behavior in Argentina, a regressive fiscal structure to finance the State its own deficit, which drowns the productive capital and the possibilities of consumption of vast sectors population causing a strong blockade on the private sphere for the formation of genuine capital, a question that is still insufficient and ends up endangering the legitimacy in maintaining the power of the competitive party or party coalition bloc, which is why it goes to debt internal and mainly external, which briefly alleviates the problem legitimization and spending, but presents new and stronger fiscal adjustments in the medium term future, since the deficit is compounded by the repayment of the loan and the interest on the debt[45].

Final Notes

–   It should not be a chimera or an illusion to begin to (re) think of the tax system as a leveling and constitutive instrument of a structural middle class together with the promotion of productive and entrepreneurial capital, hence the baptism of the Fiscal Responsible System.

–   The strengthening of consumption taxes in recent years is manifested in the importance they have regarding the volume they occupy in the total collection of the different countries of the region, in contrast with the decrease and lack of effectiveness of the tax pressure in the idle capital and unproductive wealth. At the same time, the drowning of the captive sectors as wage earners, small entrepreneurs and self-employed people in their income and income constitutes a wrong policy that impacts on the economic distribution and quality of life.

–   The taxation of unproductive, financial and idle and speculative capital, which does not impact on the generation of value or on the productive chain, should be strengthened as the main tool of change, leaving greater possibility of articulation and development to business capital, energizing the consumption This is the basis to begin diagramming a progressive and sustainable fiscal scheme, which is a task of reengineering, technical articulation and responsible policy, which tends to set a course diametrically opposed to that followed so far by the tax systems prevailing in the region.

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If the evasion falls to the levels that it reaches in Chile, for example, the general rate of 21% could be lowered between 6 and 8 percentage points "(p.1).

[45] When indebtedness is not used for structural works, but instead is used to level the fiscal deficit, control inflation and target social spending, its effects are only beneficial in the short term and the consequences in the medium and long term will be , possibly, more burdensome than those that gave rise to it.

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Abstract

Objectives, methodology

Contribution

(150-200 words)

Keywords

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General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

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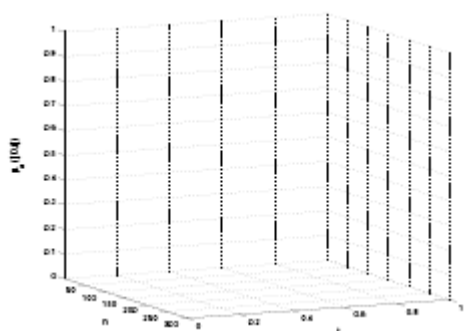
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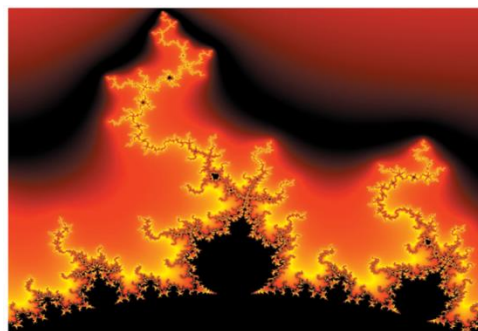
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Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

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Explain clearly the results and possibilities of improvement.

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