

Review Article

Volume 7 Issue 4 - December 2017  
DIO : 10.19080/IJESNR.2017.07.555719

Int J Environ Sci Nat Res

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# Overview of the Entrepreneurship of Biodiesel Companies in Mexico, Perspective Based on the Institutions



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Submission: December 11, 2017; Published: December 21, 2017

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## Abstract

The objective of the present research is to analyze the role of the institutions in the biodiesel industry, in order to know if there is a relationship with the quality and maturity of the same with the ventures. Starting from a literary review, the framework of the current situation is identified, covering aspects related to formal institutions, laws, rules, regulatory bodies and the theory that supports the relationship between institutions and entrepreneurship. Concluding that the institutions in Mexico have increased their maturity and incentive to increase the number of producers and distributors of biodiesel thus taking advantage of the growing market.

**Keywords:** Institutions; Entrepreneurship; Biodiesel; JEL; M20; M13; Q13; Q35; Q42

**Abbreviations:** CONACYT: The National Council and Technology; CNH: National Hydrocarbons Commission; COFECE: The Federal Economic Competition Commission; ASEA: Security, Energy and Environment Agency

## Introduction

The current situation of a shortage of natural resources requires the innovations and ventures in production sectors that help to reverse the situation, so the research seeks the stability of markets that achieve competitiveness and preservation of the environment. The biodiesel market is in constant growth. By 2023 consumption is expected to reach more than 40 million liters around the world. According to OECD [1] information, the United States, as well as European countries and some countries of South America such as Argentina, Brazil, Colombia and Chile stand out to have quickly added in this new project of an economy with a better vision of the preservation of the environment. This new change in the consumption trends of the people generates new markets that can be exploited by developed country economies as emerging countries that have the necessary resources for the production and supply of biodiesel. Entrepreneurship is given by several factors, some of which may be the best scenarios, such as unique opportunities, innovations that meet specific needs that were not counted in the past. These types of entrepreneurship are what the countries need because they get the most number of benefits, job creation, and sustainable economic growth. The boom in the demand for biodiesel at the global level could be one of those opportunities that must be taken advantage of. However, the opportunity to recognize a growing market alone does not ensure success because the planning and knowledge of the terrain in which entrepreneurs seek to enter, are flaws that could be had.

Being a relatively new market few are those who have all the necessary information to say know or be experts in the competitive bio energy market (Figure 1). For this reason, formal institutions such as laws or bodies that govern the conduct of industry can be a tool that helps entrepreneurs to have a delimited vision of the actions that are possible to carry out, which can be observed as a knowledge which is transferred from the institutions to the entrepreneurs that helps them to generate success.

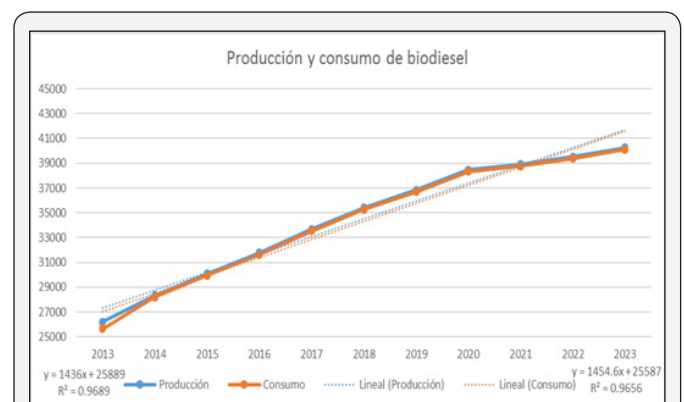


Figure 1: Projection of biodiesel production and consumption from 2013 to 2023

Source: Prepared by the Organization for Economic Co-operation and Development (OECD Stats, 2017).

In addition to the existence of formal institutions with sufficient quality and maturity as can be easy to apply legal frameworks and regulatory bodies with good planning and implementation of actions, such as aid in reducing taxes. This may provide financial support and development on the part of the researchers in a specific line of research, which serves to give rise to a greater degree of entrepreneurship in a specific sector that, has all the incentives. The background check showed that there was a clear concern about the lack of rules in the game in this sector that made the market in Mexico unable to consolidate. However, there were already bodies that were looking to develop enough regulations to clarify the path of those interested in entering this new market that was emerging at a fast pace. Therefore, in this study, a theoretical analysis will be carried out, comparing the evolution of the biodiesel production companies in Mexico, in order to determine if there is a relationship with the formal institutions and they will solve the inefficiency that was seen in this sector in 2008.

### Background of the problem

In 2009 Bio top, which was a project for the evaluation of technical opportunities and research needs for Latin America, mentioned how the Mexican regulatory framework for the promotion of bio fuels was at an early stage and was still under development. Limiting for biodiesel companies in Mexico could be due to formal institutions that did not work in the best way. The knowledge of this failure in the Mexican market seeks to be solved as Rem bio in [2] mentions that there were no specific promotion policies for the second generation of bio fuels, but these are likely to be included in a new bio fuels research program, which will be developed by The National Council and Technology (CONACYT). It has been noted in the empirical review that a problem in Mexico for entrepreneurs interested in the renewable energy markets in specific biodiesel is that the institutions are not clear enough in their actions that helps to understand the market.

### Delimitation of the problem

Given the growing market for biodiesel consumption and the fact that there are no companies that monopolize production, a solid production base can be created in Mexico to help the country's economic growth. However, no solid evidence has been found to be advanced at the pace that should be Considering that natural factors are conducive to the production of the raw material and there is no monopolizing company of production in Mexico, adding that the demand for biodiesel is increasing, it would be expected that by complying with the theory of resources and capabilities and that the industry is not strong, the biodiesel production sector is increasing. This leads to conclude that there is some other factor inhibiting this growth, and the antecedents of the lack of institutions that help the initiatives of productive companies in biodiesel generate the following question: How have formal institutions impacted the creation of biodiesel producing companies in Mexico?

### Justification

As the biodiesel sector is a growing market that demands more liters' year after year, it is an opportunity for Mexico, to consolidate its productive industry and to be competitive worldwide. As can be seen from 2014 consumption has approached the production with its increase of 1454.6 per year in average consumption compared to the 1436 that increases per year on average the production. It is concluded that, if this trend continues, the demand to consume will be higher than the production, which is why it is a moment for there to be ventures in this sector. The estimators of the variations in the independent variable are good estimators because the coefficient of determination  $r^2$  is greater than .6 which is a parameter that is used to accept.

However, there is concern that institutions have been able to improve the picture, so that enterprises in this sector have a better direction. The Energy Regulatory Commission in (2014) mentions the regulatory area in which it is in charge of energy, in addition to mentioning the institutions that also help regulate it, such as the National Hydrocarbons Commission (CNH), the Secretary of Energy SENER), the Ministry of Finance and Public Credit (SHCP), the Federal Economic Competition Commission (COFECE) and the Security, Energy and Environment Agency (ASEA). The objective of the institutions is to create conditions for the efficiency of the energy markets [3]. There is a growth in the regulatory framework of bioenergetics, for which it is necessary to know if the stability in the regulatory framework that has been established has helped in the stability of the market and above all to know if the institutions have favored that there are ventures in biodiesel. There is a relationship with institutions and entrepreneurs around the world as research in 2015 mentions that "To the extent that the entrepreneur carries out his activity in an environment where the rules of the game are well-defined (i.e. that there is good protection of property rights, that the judicial system functions properly, that governments are stable or that there is no corruption, among other factors), the entrepreneur will enjoy greater security that will positively contribute to the success of his company "[4].

**Theoretical assumption: Ho: Formal institutions positively impact the entrepreneurship of biodiesel companies in Mexico.**

### Theoretical Conceptual Framework

#### Emergence of biodiesel

With the emergence of the industrial revolution by force, the great population growth around the world arises some problems, as Agarwal [5] mentions humanity faces problems, in which arises the main interest on the environmental deterioration and the crisis of the industry energy. One of the main causes of air pollution is the burning of oil, since the combustion of air produces large amounts of greenhouse gases (carbon dioxide, oxides of nitrogen), sulfur oxides, unburned hydrocarbons and ash thin [6]. In addition, it needs to be considered that hydrocarbon-based fuel

is a non-renewable good, it is finite on the planet and therefore it has been necessary to resort to energies that can be renewable and more friendly to the environment. "Recent studies indicate that there are other sources of energy, which have extremely low emissions and appear to have the potential to become energy sources for automotive propulsion, including alcohols, natural gas, hydrogen and biodiesel"[7]. This leads to the conclusion that an alternative for this destruction that causes economic growth inconsiderate by the environment may be the use of these substitutes for conventional fuels. The definition of biodiesel used for this work is as follows: "It is a mixture of methyl esters of fatty acids (FAMES) that is obtained by a process of transesterification, mainly from vegetable oils and animal fats and, more recently from algae. It can be used as a substitute for conventional diesel, as it has similar properties, reducing pollution and extending the life of the vehicle's engine. In its production, glycerin is obtained as a by-product, with multiple industrial applications [6].

### Theories of entrepreneurship

First, it is necessary to state that it is what is understood as an entrepreneurship. The entrepreneurship is the search for constant change, generation of ideas, speculation of projects that generate beneficial effects for the economy and society [8] In a broader explanation [9] define it as those initiatives of an entrepreneurial nature that relate the way of being an individual where are included the way of thinking, reasoning and acting, with the search for a business opportunity, which give as a result initiative that generate value not only in an economic sense. In addition, concerned with social aspects, where all the actors are involved in the initiative, which go from owners, employees, customers, suppliers and society in general that enjoy this benefit. However [10], makes a distinction between undertakings that are productive, unproductive and destructive. The productive enterprise is one in which there really is innovation, economic growth and can be associated with the discovery of good business opportunities. There are more distinctions between what are entrepreneurships like the one that is done between entrepreneurship by opportunity and entrepreneurship by necessity. When there is an opportunity venture, there is greater growth in the economy because that innovation has found a new niche market, which is exploitable. What does not happen when individuals are forced to undertake by necessity, that the development of jobs and growth of the economy is not with the same acceleration [11] The World Economic Forum also continues to classify high-impact entrepreneurship as one that generates greater benefits for consumers through the use of innovations, which in turn also generate more job opportunities and greater wealth for owners. For all in their classifications they approach the same point in which they describe the entrepreneur as the one who manages to find opportunities that generate greater benefits and the use of innovations that sustain and exploit the opportunity more time. These entrepreneurs who focus on their clients are the ones who generate the greatest wealth for their owners [12]. These entrepreneurs tend to plan their actions better and to

enter the market early and the most usual is that they undertake in markets with which they have already had interaction, which makes their rate of failure less than in situations in which there is no such planning and market knowledge [13]. Entrepreneurship is an indispensable mechanism for the development of economies [14], it is necessary for every economy to develop enterprises that foster the generation of valuable jobs and innovations. However, the view was that political rulers should focus on favoring the growth of developed firms with the greatest potential for growth, leaving behind small firms and ventures [15]. The political rulers who are responsible for the development of public policies, which [16] explains that a public policy is a reference to any social decision, which can be taken by an individual, an organization or the state. Governments at all levels from federal, state, and local to the importance of firms on the economy, social and political issues have focused on creating the policies needed to support entrepreneurship. But they are faced with the decision whether policies will focus on supporting the nation's leading firms, helping existing firms achieve survival, or focusing on the formation of new enterprises [17].

### Theories of formal and informal institutions

North [18] defines institutions as the humanly constructed constraints that structure human interaction, which is understood as the "rules of the game". Companies must take into account the terrain in which they will enter to know how they can act and if it is possible to take advantage. In addition to mentioning that institutions are created to reduce uncertainty. These institutions that are created to reduce uncertainty can encourage investment to increase productivity, but in countries where institutions are not as robust, the effect is the opposite [18,19] states that the institutional framework is constituted by both formal and informal organizations, which will mark the actions that can be taken individually and collectively. Formal organizations are institutions that are represented in writing and are usually more rigorous in making them comply with the desired pattern of behavior; these are the laws, the regulations and the rules. However, for the study of this research, the informal institutions that although in many investigations show that it is one of the main factors to consider when entering new markets of which knowledge is lacking, this study only focuses on analyzing how the formal institutions favor or not the ventures.

Undoubtedly, the levels of entrepreneurship in a given country or region are conditioned by the environment in which entrepreneurship is carried out, since such an environment can facilitate or discourage the initiation of new initiatives [20]. Institutions of a formal nature, such as laws or regulations, make it easier to visualize how processes should be carried out, which makes the business easier to manage and if it does not have experience, as is the case of ventures having a well-defined way of acting can achieve success. Proprietary rights, commercial legislation, constitution procedures, ideas, cultural beliefs, gender, attitudes towards the entrepreneur, etc., influence the appearance and development of new companies [21]. Based on

the theory of institutions [22], affirm that the environment in each country will be decisive in terms of business opportunities that are available in addition to the perception about them and their ability or capability to adaptation to use them in their favor will generate greater incentives for the creation of new companies. Without the necessary experience, in the new environment in which new start-ups seek to penetrate, they may encounter problems that limit access to financing, make it difficult to hire high-quality personnel and result in higher transaction costs [23]. Under the circumstances of uncertainty on the part of those seeking to undertake an initiative, Fuentelzas [20] mentions how the existence of solid institutions can facilitate the resolution of complications of inexperience, access to resources necessary for its functioning, and stability in the development of its activities. Institutions can facilitate access to resources and provide the necessary stability for the development of the activity, with the consequent effect on levels of business survival.

This demonstrates that the quality of institutions has a strong influence on competitiveness and growth, affects investment decisions, the organization of production and plays a key role in the way societies distribute profits and the costs of developing strategies and policies. However, an unstable institutional environment leads to even more complicated behavior among firms, hinders their cooperation and makes the vision of growth in the short term, which has negative effects on the quality and success of firms [20]. The uncertainty faced by the initiatives means that the number of successful ventures is reduced, however, as Vargas, Guerra, Bojórquez and Bojorquez [24] mention that institutions have as their main role to reduce uncertainty and distinguish between uncertainty in a) Policy, which refers to ethnic disturbances that can cause problems for firms, and b) economic, which are all transaction costs that can be given by opportunism, to prevent these negative circumstances in the firm refer that firms can make use of contracts.

### Contextual Framework

The main regulatory framework in Mexico is the political constitution of the United Mexican States that establishes the framework of action of the authorities and the governed, through principles, rights and obligations that govern the rest of the national legal framework. Article 4 of the Constitution speaks of "Everyone has the right to a healthy environment for their development and well-being". "The damage and environmental deterioration will generate responsibility for that provokes it in terms of the provisions of the law" which has been added as Decree of the Official Gazette of the Federation on February 08, 2012. In article 25, the constitution mentions that "the State is responsible for national development to ensure that it is comprehensive and sustainable." This demonstrates its concerns about caring for the environment. The main law in specific terms in renewable energy is the Law on the promotion and development of bioenergetics that in its first article mentions "to promote the production of inputs for bioenergetics from agricultural activities,

forestry, algae, biotechnological processes and sovereignty food "its main obligation under this law is to promote the use of bio energies in Mexico. Article 8 of this same law mentions that "the Bioenergetics Committee is created, which will be composed of the members of SAGARPA, SENER, SEMARNAT, the Secretary of Economy and the Secretary of Finance and Public Credit" with which several organizations are involved in the promotion of bio energy production and research. Likewise, the energy agency in Mexico, the Secretary of Energy (2017), reports that 7 permits are granted for the production of bioenergetics, 41 bio energy marketing permits, 5 transport permits and 21 permit exemption notices for Production of bioenergetics. The National Commission for Science and Technology in February 2017 reports that the Secretary of Energy launches a call for the creation of development projects in sustainable energy technologies that comes with the support of the Bank of Mexico in which the first prizes will be awarded prizes in cash of up to 2 million dollars for the first place, from 500 thousand dollars for the second place and 100 thousand dollars for the third place. There are these types of competitions that encourages the research and development of initiatives in alternative energy with which firms who want to venture but lack financing. This type of competitions can be the solution, these are not isolated situations, it is a way to encourage development that has its opportunity year after year. The Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food [25] reports that it has promoted from 2013 to date 960 projects for the production of bio fuels in Mexico. In the last four years' incentives have been granted around 275 million pesos, which has generated a total investment of 529 million pesos. And on the installation of 7 bio fuel plants, six of which are dedicated for the production of biodiesel with 4 plants more than they existed in 2009 [26-29].

### Method

In the present research the qualitative method based on the literary revision is used, based on studies applied in Mexico, Latin America and Spain, as well as data presented by institutional organisms and comparing with the applied theories of entrepreneurship and institutionalism, with the aim to explain and describe the phenomenon under study.

### Analysis of Results

An attractive market such as biodiesel for its constant growth should have a sufficiently strong regulation to encourage the consolidation of existing companies as well as new entrepreneurs seeking to enter into competition for the market, so that it was imminent that the State should intervene to promote economic growth. The ventures for companies producing biodiesel in Mexico for the years 2008-2009 that were their beginnings in the Mexican market, there was a confusion and instability, generated uncertainty that caused that the enterprises in this sector were not encouraged, so It was necessary an intervention of formal institutions, and the state who can generate new regulatory frameworks in any sector.

After the review of events on how to change the landscape of institutions in Mexico to be a first-time trial and error, it has been possible to consolidate and strengthen entrepreneurship initiatives in bio fuel companies, especially biodiesel has been favored with a growth of twice what existed. So it can be noted that if there is a relationship between the formalization or solids of the institutions with the initiatives and start-up of enterprises, which supports the theoretical basis and study that was carried out by Fuentelzas, who show how institutions are an important factor for successful ventures in their areas.

### Conclusion and Recommendations

Because of this one of the concerns that must be had if the economy is to be more competitive compared to countries with a faster growth rate than the Mexican, it is necessary to be clear that formal institutions is a way in which entrepreneurs achieve organizations that exploit available markets and do so in a sustainable manner. In addition, all those who seek to generate a project in the renewable energy sector as well as any other type of industry need to look for countries with better formal institutions, or in case of entering emerging markets that usually do not have a solid structure in its laws, regulations and regulatory agencies, to anticipate the failures that can be caused and the costs that this would cause to enter the market with proactive strategies and not wait to be in unsustainable situations.

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DOI: [10.19080/IJESNR.2017.07.555719](https://doi.org/10.19080/IJESNR.2017.07.555719)

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