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Exploitment of coffee value chain. Knowledge of new consumer trends in Mexico

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Abstract

The value chain has been understood as a manner to identifying the activities that allow to develop value for the clients, therefore, it has allowed to understand the manner in which the products can accede to market niches more diversified, the coffee that is one of the products more produced and demanded, reflects opportunities to develop by-products that focus on consumers with needs and specific characteristics, owing to that it occupies a privileged place in terms of beverage preference, generating important indicators of growth in consumption during the last 10 years, with an annual average growth of 2.3 percent. Therefore, this research has the objective of identify the dependence of the intrinsic attributes of the coffee in the determination of purchase according to the age of the consumer, to establish possible market niches to which the productive processes can be directed in the search of a maximum exploitment of coffee in Mexico, diversifying the value chains with base in consumer demand.

Value chain, Coffee, Consumer satisfaction

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Introduction

Creating value in a product implies generating a good that provides a solution to consumer requirements (Rural Magazine of the European Union, 2016). The value chain has been understood as a way to identify the activities that allow the development of value for customers, and to achieve their satisfaction. For Porter (1986) this concept allows to know the ways to create benefit for the consumer, with the desire to display competitive advantages (Quintero, Sánchez, 2006).

Any value chain, both short and long, tries to meet the requirements and expectations of demand considering that markets are increasingly heterogeneous in all productive sectors, highlighting food claimants, who are increasingly segmented, which forces to develop diversifications in the value chains, since the consumer is increasingly demanding because it has a higher level of information, in addition to having more possibilities of comparison (Fandos, Flavián, 2011; Britz, Britz, 2012). The agri-food sector, as a generator of food, has stood out as one of the markets that has undergone the most transformations in recent times, the value chain has allowed us to understand the way in which products can access more diversified niches, providing a balance before the series of transformations that have been presented (Aznar, 2012).

The added value can be generated from agricultural use through the transformation of primary products under emerging consumer trends (Rural Magazine of the European Union, 2016), based on this idea and considering one of the most produced and demanded products as coffee, which reflects latent opportunities to develop by-products that focus on niche markets with specific needs, highlighting as a point in favor that global coffee consumption is increasing, maintaining an average annual growth rate equivalent to 2.3% in the cycles that start from 2004 to 2015 (Panorama Agroalimentario, 2015), in addition to the fact that the aromatic is one of the most economically important products in the world, occupying a privileged place within the existing beverage markets (Canet., et al, 2016), positioning itself in second place after oil in international trade figures, creating income greater than $ 15,000 million annually for the exporting countries, providing work to more than 20,000,000 people worldwide and remaining one of the most important sources in the generation of foreign exchange (Canet., et al, 2016; Figueroa, Pérez and Godínez, 2016), it is a priority to make maximum use of this grain by adding added value to the by-products derived from coffee, directing them towards strategic markets that promote this significant sector at a national and international level. According to the Law of Sustainable Rural Development (2012), coffee has been considered as a basic and strategic product within the country, which is why it is necessary to establish strategies that generate high value through the incorporation and / or integration of productive chains that contribute to their competitiveness (National Development Plan, 2013-2018), highlighting that the coffee production chain maintains one of the most important places within the agroindustrial sector in Mexico, due to the economic importance it represents, being the livelihood of more of 3,000,000 families (Consejo Mexicano del Café y SAGARPA, cited in Comprehensive Coffee Promotion Plan in Mexico, 2012).

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That is why it is necessary to generate knowledge that drives the development of new markets within the coffee sector, for a better use of coffee within strategic places that present areas of growth opportunity and that require a boost for economic development.

Therefore, this study aims to identify the dependence of the intrinsic attributes of coffee in the determination of purchase according to the age of the consumer, to establish possible market niches to which the productive processes can be directed in the search of a maximum use of coffee in Mexico, considering that the opening of by-products with added value within the coffee sector is an alternative to promote this sector.

Justification

Starting from the idea that the objective of developing new products is to create goods of greater value for the consumer (Slater and Narver, 2000) it is a priority to establish value strategies along productive chains that produce favorable results for producers of coffee in general, and especially those in poverty, with the purpose of significantly increasing their economic income, adapting their products to consumer requirements (Aragón, Montero, Araque, Gutiérrez, 2013) as these have an influence on the chain of production through purchasing decisions, driven by preferences and lifestyles (Higgins et al., 2010)

The added value can be generated from agricultural exploitation through the transformation of primary products under the emerging consumer trends, this concept has been introduced as a key instrument in the promotion of rural development, based on the idea that the value of a product or service can be increased during the production or distribution phases, adding those elements for which consumers are willing to pay more, justifying in this way, orientation to strategic markets is a key factor that prevents the failure of business, therefore and in accordance with the policy concerning the development of European communities, it is a priority to establish added value in products for the economic development of producers (Rural Magazine of the EU, 2016).

In this sense and because coffee is produced mostly by smallholder farmers, this sector has important traditional knowledge, which if associated with complementary strategies, can lead to the development of new value chains (Helmsing, 1999), focusing on production to less conventional processes (Sepúlveda, Chekmam, Maza and Mancilla, 2016), that obtain added value from the perspective of the consumer, benefiting the members of the productive chain, considering that the absence of value in the products causes a decrease in the market prices compared to those that do (Institutional Program COMCAFE, 2013).

Problem

Coffee is one of the most representative products of Mexico, its manufacture is carried out mainly in the indigenous populations located in the states of Chiapas, Colima, Tabasco, Hidalgo, Jalisco, Veracruz, Puebla, Oaxaca and Guerrero, among others (SAGARPA, 2016). In 2015, a total production of 1,026,251.98 tons of coffee was reported (SIAP, 2015) and a national consumption of 2,354 thousand bags of 60 kg each (OIC, 2017).

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This sector has more than 500 thousand coffee producers, distributed in 486 municipalities, highlighting Oaxaca, Veracruz, Chiapas, Puebla and Guerrero, for having a greater number of spaces with aromatic production (SAGARPA, 2015).

Coffee production has a high degree of importance in the country, generating impacts on the economic, environmental and social aspects, together with being a source of foreign exchange and employment generation (FIRA, 2017). But it has also been characterized by serious recurrent crises that cause, among other effects, minimum wages and salaries that reflect poverty among people who are immersed in this sector, another problem is that only large producers have been integrated into the productive chain while medium and small producers continue to sell grain with no added value, coupled with the problems of low productivity and quality, as well as difficulties in organizing along the production chain (Martínez, Díaz, and Rodríguez, 2014) .

Therefore, it is a priority to generate strategic knowledge that will boost Mexican coffee production, through quality production, with added value to coffee to enhance its competitiveness in the value chain, to develop a coffee product well worked in the field , with the necessary conditions and strategies, that give origin to a grain that satisfies the demands of the consumers (Anacafé, 2011) through the use of coffee attributes, to achieve a strategic positioning in the sale of this product, due to that consumers develop preferences and base their purchasing decisions based on the perception of attributes (Gorgogline, Petruzzelli and Panniello, 2017) and that these have been a key factor in the development of the market of this beverage consumed nationally and internationally (Kwast, 2010 cited in Sepúlveda, Chekmam, Maza, Mancilla, 2016).

Hypothesis

– Null hypothesis:

The preference in the intrinsic attributes of coffee is independent of the age of the consumer.

– Alternative hypothesis:

The preference in the intrinsic attributes of coffee depends on the age of the consumer.

Objectives

General Objective

Identify the dependence of the intrinsic attributes of coffee in the determination of purchase according to the age of the consumer.

Theoretical framework

Next, the definition of the value chain and its relationship with the productive chain is presented, afterwards an analysis is made of the importance of determining the needs of consumers for the development of value added and quality products, in the same way, the intrinsic attributes of coffee are presented, which influence the consumer's purchasing decision.

Value chain

In a productive chain, a competition is generated between the different actors for the optimization of their economic benefits, on the other hand, in the value chain, a systemic optimization is developed, in order to achieve goals that individually would be seriously difficult, the scope of the purposes is achieved through communication, coordination and cooperation (Martínez, 2012).

In this sense, the Food and Agriculture Organization of the United Nations (FAO) makes the difference between the value chain and the productive chain, highlighting the latter as a broader meaning in the description of the interactions produced between the actors that are involved from production to final consumption.

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On the other hand, the value chain is understood as a system that is constituted in a strategic way, which can be informal or formal, between the independent business actors that are working within a productive chain, and that have the purpose of producing goods based on differentiation (Martínez, 2012).

When a company or chain seeks a differentiation strategy by innovating its products or processes, it acquires additional value (Lundy et al., 2004). In this way the productive chain takes a value chain approach.

According to Lundy, Gottret, Cifuentes, Ostertag and Best (2004) a value chain is characterized and is different from a productive chain because of the following:

- The participants of the chain have a long-term strategic vision.
- The members are interdependent and work together to define objectives, share risks, enjoy the benefits and strive to maintain the relationship.
- It is characterized by the orientation in the demand, therefore, the satisfaction of the consumers is sought.
- The participants are committed to the control of the quality and solidity of the products.

In the sense that a value chain is characterized by meeting the needs of the demand, it is a priority to know the preferences of the consumer to develop products with added value from the perspective of the final consumer.

Importance of determining consumer preferences for the development of value-added products.

León Darío Parra mentions that the key to the success of Latin American entrepreneurs is the detection of the needs of consumers, both present and future. This factor is essential to produce goods and services that have an effective market in the medium and long term, which does not depend on economic cycles, but rather on the preferences of consumers towards highly exclusive products in captive market niches (Parra, 2015). In this sense, Bouchereau and Rowlands (2012) mention that the success of a product or service obeys mainly in how it satisfies the needs of the clients, which motivates the companies to invest more effort to obtain the necessary information to determine what the client is looking for.

According to Kotler and Armstrong (2012) customers are the most important participants in the micro-environment of business or companies, the goal of the value-offer system is to serve the target customers and to develop lasting relationships with them, said authors mention that each type of market has specific characteristics, therefore, the seller must study the consumer to offer those products that meet their consumption expectations.

According to the FAO (2015), the main purpose of value chains is to increase profits by eliminating inefficiencies along the chain, at the same time maximizing the income of all the actors in the process which is achieved through the development of products that consumers are willing to acquire in greater quantity and at higher prices.

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In an FAO study on the coffee value chain in Nicaragua, it was concluded that in order to boost the competitiveness of coffee activity in this country, the development of markets is a key strategy, where investment should focus on intensification of national and international niches under a diversification of the consumers and the aggregation of value to the by-products of the coffee, promoting the internal consumption from updated studies of the market, because the economic benefit for the actors in each value chain not only It depends on the margins obtained by each actor, but also on the sales volumes, that is why products must be offered based on consumer preferences (FAO, 2006).

Other research based on the coffee value chain took place in Chanchamayo and Satipo in Peru, a country that, like Mexico, maintains a significant degree of importance in coffee production. This study shared the purpose of identifying opportunities to increase competitive advantages in diversified markets while maintaining the possibilities of adding value to coffee, it was concluded that one way to promote this sector among different types of producers, is through the development of differentiated markets, based on the supply of specialty coffees, which are determined in accordance with consumer preferences (Gómez, 2011).

In Risaralda, Colombia, a study was developed to know the critical factors of the creation and the increase of value in the coffee chain, where it was concluded that one of the strategies for the promotion of the sector, is that the coffee growers of special coffees are leaving behind the culture of concentrating only their interest in the physical characteristics of the aromatic, but also in what the specialists call attributes in cup, which gather a set of desirable characteristics and preferred by the final consumer, a strategy that has been a key point in the momentum in this important sector, placing Colombia as one of the most influential producers in the supply of coffee.

According to the above, it can be concluded that the creation of value of coffee based on the preferences of intrinsic attributes for consumers is a recommended strategy for the promotion of the coffee sector through the diversification of value chains, aimed at niche markets with specific characteristics and needs, directing the processes of delivering value towards consumer satisfaction, a strategy that has driven this sector in countries that are influential in aromatic production, who have changed the conventional forms of production to adjust to trends of consumption and preference of coffee.

Intrinsic attributes of coffee

The color, body, aroma and flavor of the aromatic are attributes that can be perceived during consumption in the cup, and because they are determinants of the degree of quality of the beverage, each stage of the coffee transformation process must be taken care of, avoiding, in this way, that during the consumption, defects are perceived, such as: moisture flavor, sour flavors, earthiness in the mixture, oxidations in the oils of the grains, until the total loss of the body, flavor and even aroma (Profeco, 2001).

Next, each one of the intrinsic attributes of the coffee is explained, which can be perceived in the consumption in cup and that in addition they can get to determine the taste and the preference towards the coffee:

1. - **Aroma:** This attribute refers to the fragrance contained in the drink, so that this denotes the quality of a good coffee must be fine and penetrating. When the packaging is not done correctly, the aroma is affected directly, but also depends on the good storage and the altitude of the coffee plantations (Pichilingue, 1993; Guambi, 2004).

ISSN-2524-2105

2. - Color: It is a manifestation of the state of the coffee and a determinant of the quality of the grain, this attribute is related to the altitude, the benefit, the state of maturation, the drying and the sanitary state, when the coffee is of a blue-green shade it is considered to maintain an ideal color (Pichilingue, 1993)

3. - Flavor: It is an organoleptic property of coffee, it is composed of the combination of gustatory and olfactory attributes. When the beans are harvested ahead of time the taste is altered, in the same way when the beans mature in excess and the drying process is not adequate, nor the storage, the beverage has an unpleasant taste (Guambi, 2004).

4. - **Body:** This quality is related to soluble solids at the time of infusion, it can be classified as: Light, Medium, Pronounced and Complete (Anacafé, 2001).

As can be seen, each of the qualities that distinguish the quality of coffee in the cup, are linked to one or more stages of the production process, that is why it is essential that the producer knows your product and the needs of the consumer, with the purpose to develop production processes oriented to their satisfaction (Anacafé, 2011), that gives rise to a specialized and differentiated coffee that can be placed in markets with latent needs, characterized by new consumption trends in terms of coffee preferences.

Methodology

Type of Research

In order to achieve the objective of identifying the dependence of the intrinsic attributes of coffee in the determination of purchase according to the age of the consumer, the type of research is Quantitative, since, through the collection of data, the verification of the established hypotheses, under numerical measurement and statistical analysis (Sampieri, Fernández and Baptista, 2010).

Likewise, the scope of this investigation will be descriptive, under the framework of Sampieri, Fernández and Baptista (2010) who establish that the descriptive studies have the purpose of specifying properties and characteristics, which are considered important in a phenomenon, that is subject to some analysis, they only intend to measure or collect data jointly or independently on the elements of research, helping to describe trends of a population or a proportion of it.

The means of contact is on-line through Survey Monkey, the research instrument is a structured questionnaire, consisting of dichotomous questions and multiple choice, which was validated by two methods: the first was qualitative under the opinion of experts in research, where through qualified voices it was possible to determine that the questionnaire that was developed for the research has content validity and is considered an instrument capable of measuring the variables in question (Sampieri, Fernández, Baptista, 2010), for this first Validation stage was supported by researchers from two research institutions.

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The second validation method was quantitative, through the Statistical Package for the Social Sciences program (SPSS), obtaining as a result a .771 reliability, which shows that the internal structure of the questions is coherent with the research and that the answers are reliable according to Sampieri, Fernández, Baptista (2010) who establish that from 0.75 it is considered acceptable.

Cronbach's Alpha	Number of elements
.777	5

Table 1 Reliability of the questionnaire

Source: Own *Elaboration*

The unit of analysis within this study is made up of coffee consumers within the country. The population of the research is composed of all coffee consumers who live in a state of the Mexican Republic, because there is no exact data on coffee consumers in Mexico, the annual consumption provided was taken as a reference by the International Coffee Organization and the number of consumers was deducted on the basis of national per capita consumption.

To determine the research sample, the formula corresponding to finite populations was used with a confidence level of 93% and an error corresponding to 7.0, with positive and negative variability of 50%, obtaining as a result the application of 167 questionnaires, which were distributed as of the month of February of the current year, through emails, and the diffusion of the link through social networks, through a Facebook page and other communication pages.

The hypothesis testing will be through the square chi method, under the framework of Levin and Rubin (2010).

Results

Results obtained in the research instrument

Next, the results obtained in the research instrument applied to national coffee consumers are described, it should be mentioned that the representative sample was of 167 questionnaires, but the diffusion of the link covered a range of 200 people surveyed via electronic means.

In relation to the questionnaires that were answered, 20 were discarded since the answers were recorded as incomplete within the system, of the 200 links that were opened, a total of 12 consumers did not accept to answer the survey, 8 people from those who accessed answer they answered that they do not drink coffee.

As a result, it was found that 96% of the respondents consume coffee and only 4% do not, which proves that the aromatic has a great influence on the beverage trade in Mexico. There was a reach of 22 states of the Mexican Republic, upon receiving response from 68.7% of the entities in the country, Guanajuato excels with 43% representativeness, Queretaro and Jalisco with 13%. The results were proportional in terms of the gender of the respondents, since there is 50.30% female participation and 49.70% corresponds to male participation. Regarding the ages, the answers were distributed as follows: from 19 years old or less with 5.2%, from 20 to 29 years old with 52%, ages 30 to 39 years old represented 26%, 13.30% corresponded to people aged 40 to 49 years, ages 50 to 59 years had a representativeness of 2.3% and finally the range of 60 years or more with a total of 1.2%.

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According to the results corresponding to the level of studies, the following is known: 48% of the respondents have a level of undergraduate studies, 35.8% correspond to those surveyed with a postgraduate degree, 12.1% have high school and only it has a 2.3% with secondary level, in the section of others, which represented 1.7% it was registered that the respondents have a Higher University Technician level.

It was found that for 92.2% of the members of the study, the intrinsic attributes of coffee are important when buying a coffee either dry or prepared, 3% are indifferent and 1.8% do not know if they are important or not select your coffee. For 2.4% of the respondents there is a different attribute to aroma, flavor, color or texture, to base their purchase decision and only 0.6% answered that they definitely do not take into account the intrinsic attributes for the purchase of dry or prepared coffee.

In the category where it was pointed out that the consumer values more attributes than those presented in the study, it was recorded that 2.4% is distributed among the election based on fresh grain, the beneficiary process and the price, each with a representativeness of 0.80%, which reflects that the consumer is more interested in the intrinsic attributes of coffee for his purchase decision than any other extrinsic attribute.

Results obtained in the operation of variables in the hypothesis test (Chi square)

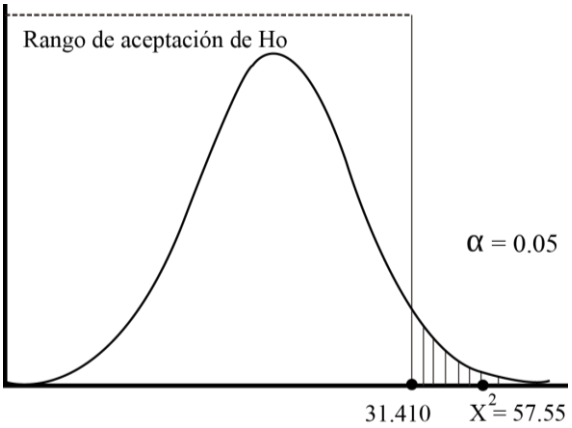
To check Ho and H1 through the application of square Chi, a grouping was made among coffee consumers according to age groups, followed by a count through contingency tables to establish the number of consumers in the groups. categories where the attributes are important for the purchase of coffee, another category where the attributes are not important, are indifferent, a fourth class where the consumer does not identify them, therefore, it does not know if they would be taken into account, and the last option, establishing that there is a more significant attribute. Obtaining as a result Table 2.

	People who drink coffee						
Perspective of the attributes	19 or less	20 to 29	30 to 39	40 to 49	50 to 59	60 or more	Total
Yes	7	82	38	25	3	0	155
No	0	1	0	0	0	0	1
indifferent	0	2	1	0	1	1	5
Don't know	1	1	1	0	0	0	3
Other	0	0	3	0	0	1	4
	8	86	43	25	4	2	168

Table 2 Data of the grouping among coffee consumers according to age groups.

Source: *Own elaboration with reference in Levin and Rubin (2010).*

According to the observed (Fo) and expected (Fe) frequencies there is a result for the square chi statistic of $\mathbf{X^2 = 57.55}$ (See Annex 1**)** and where according to the level of significance equivalent to 0.05 and 20 degrees of freedom there is a range of acceptance of **Ho**= 31.410.



Graphic 1 Representation of the degree of acceptance of Ho. (Own elaboration).

Conclusions

The results that were generated in this research were very favorable, since of 167 questionnaires that had to be answered as part of the representative sample, 43 additional surveys were received, adding a total of 200 responses from consumers in 22 states of Mexico.

As a result, it was found that 96% of the people who agreed to answer the survey are coffee consumers, which shows that the aromatic is one of the most preferred beverages in the country, among the states that were most representative in this study, excel, Guanajuato with 43%, Queretaro and Jalisco with 13% and were 10 states of which no response was generated, among them, Quintana Roo, Chiapas, Colima, Durango, Tamaulipas, Oaxaca, Morelos and Nayarit.

Regarding gender, a proportion was maintained, since 50.30% belonged to women's answers and 49.70% to men's opinion, it was found that there is a minimum difference in coffee consumption between men and women, excelling the male with 49.43% and a total of 48.31% consuming coffee, therefore, it can be estimated that the aromatic is consumed proportionately between both sexes.

It was observed that coffee is consumed by people of all ages, being the range of 20 to 29 years with more consumption with a representativeness of 49.72%, followed by the range of 30 to 39 years with 25.28% of consumers, including some members of the sample stated that they consume the aromatic from their childhood, maintaining their preference for this drink until adulthood.

It is considered that the registered ages, somehow justify that most of the participants have a university degree, since only 14.4% corresponds to people with high school and secondary completed and the 85.6% remaining record that had undergraduate and graduate level. Similarly, it is estimated that people with a bachelor's degree and a graduate degree consume more coffee than people with lower academic levels, with a representativeness of 47.75% and 32.22% respectively.

Regarding the attributes of coffee, it is concluded that the Mexican consumer does take into account the intrinsic properties of the aromatic at the time of making its purchase decision, as for 92% of the respondents attributes such as taste, color, aroma and texture, are important to acquire a coffee either dry or prepared, only 3% of the members of the study said that the attributes are indifferent and 1.8% of people do not know if the attributes are important. On the other hand, 2.4% of consumers expressed that for them there are more important attributes than flavor, color, aroma, and texture to determine their coffee purchase, being distributed equally among 1.6% where grain is more important fresh and the beneficiation process under which the coffee is processed. A single person expressed that the price is an important attribute for the purchase of their coffee, for which it is concluded that the intrinsic attributes have more weight in the consumer's purchasing decisions, than other factors such as extrinsic ones.

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Based on the previous results and on the data obtained in Chi square equivalent to 57.55, being outside the range of acceptance of the Ho which is equivalent to 31,410, the H1 is accepted, emphasizing that the preference in the intrinsic attributes of coffee , depends on the age of the consumer, which reflects an opportunity for the development of coffee by-products based on the preferences of intrinsic attributes of the aromatic, creating segments or market niches according to the age of the consumers.

Therefore, it can be justified that the consumer segment that bases its purchase on the intrinsic attributes of coffee is an opportunity for the development of new value chains within the coffee sector, since one of the trends in the consumption of this product is the purchase based on the intrinsic attributes, which if combined with age can bring favorable results for value-added coffee suppliers to satisfy this niche market.

Gratitude

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