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ANALYSIS OF THE CHAIN OF THE BANANA INDUSTRY OF ECUADOR AND THE EUROPEAN MARKET

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Abstract: Bananas are among the four main crops in the world, including wheat, rice, and corn. It is the most exported fresh fruit in the world in terms of volume and value. The European Union (EU) is the largest banana importer globally with an estimated volume share of 33%. Ecuador is the top exporter since it is responsible for one-quarter of the world banana exportation. It represents 22% of total world exports, 27% of total agricultural exports in the country and 8% of the value of all exports (including oil). The present work analyzed the chain of the banana industry of Ecuador and its position in the EU market. A non-experimental empirical method with a quantitative and qualitative approach was used supported by scholarly literature and secondary research data collection. Results obtained show that the main countries destination shipped 87.8 % of total bananas exported from Ecuador in the period of 2007 – 2017. The largest importer of Ecuadorian banana is the European Union (28.9%). In Ecuador, approximately 78% of the banana producers are small companies, by adding the medium ones 95.6% is reached. Thus, the production of bananas in the country is mainly based on the family economy. In 2019, the official banana box price for producers in Ecuador is USD 6.30. In the EU market, it can reach over USD 18.00. It suggested an unfair payment to small and medium producers.

Keywords: Ecuadorian banana, value chain, fairtrade

(JEL Classification: Q13, M16, M21)

INTRODUCTION

Globally, in the agricultural sector bananas are positioned fourth within world production rankings after rice, wheat, and maize and the fourth most important food crop among the world's least-developed countries with production of over 105 million tons per year (FAO, 2018a). It represents around 115 million metric tons annual production according to National Geographic, 2017. Through trade and supply, bananas make up a global \$8.9 billion trade industry (Dadrasnia et al., 2020). It is the most exported fresh fruit in the world in terms of volume and value. As a highly traded commodity, the banana is an integral part of the global value chain. It is also an important commercial crop in developing countries due to the income

and employment to rural populations generated. It is the most consumed fruit in Europe and North America. Ecuador is the top exporter since it is responsible for one-quarter of the world banana exportation (Iriarte et al., 2014).

There are more than 1000 varieties of bananas produced and consumed in the world. The Cavendish banana type is the most commercialized. It represents around 47% of total production. Approximately 50 billion tons of this variety is produced globally every year. The Cavendish banana is the most supplied to the US and European markets. It is more appropriate to international trade than other varieties as they are more resilient to the effects of lengthy travel (Israeli et al., 2017). It is important to note that 85% of banana production is consumed locally. It is basically for the larger

producer countries such as India, China and Brazil, and in some African countries where bananas contribute significantly to diets of people. Meaning that only the rest, 15%, is traded in the international market. In some of the most representative exporting countries, the banana production profit has an important weigh-in net agricultural production, as it is the cases of Ecuador where it is mainly for exportation (FAO, 2018b).

The banana exported from Ecuador is mainly ordered by very demanding markets in terms of quality, whose standards were achieved through the development of high technological levels of production, transportation, and distribution. The banana production chain in Ecuador involves internal and external members (Medina, 2013). It is the reason why an analysis of the chain of the banana industry is required to understand, the role of every stakeholder and the establishment of the principal implications for economic and social sustainability. It should include producers, exporters, importers, and trade policies.

The sector of Fresh Fruit and Vegetable (FFV) in the EU is one of the most important categories for European supermarkets. Bananas (10%) come third and are the main fresh fruit imported from outside Europe. However, consumer prices have stagnated or increased very slightly since 2001, where a banana price war between retailers has halved consumer prices. In contrast, wholesale prices have decreased by almost 25%, while retailers have increased their share of the banana value in most countries to between 36% and 43%. This decline in import prices has been transferred to all major countries supplying the EU, where the value left at the origin has fallen by 20% to 50% in real terms. This at a time of significant increases in both production and living costs. Inputs, such as fertilizers and pesticides, have risen by up to 130%, while the high costs of compliance with quality, sanitary and environmental standards for bananas entering the European market are incurred mainly by producers. For banana workers and farmers, themselves, food, health, education, and other living costs have rocketed in the period since 2001. On average, workers only earn between 5 % and 9 % of the total value of bananas while retailers manage to capture between 36 % and 43 % (BASIC, 2015).

The importance of the Ecuadorian banana trade justifies the analysis of the chain of the banana industry and its exportation to the European Union (EU) market. In this way, the aim of the present review was to provide an analysis of the Ecuadorian banana industry chain considering the key stages and stakeholders up to the final consumer. It includes the social aspect and Ecuador's current banana position in the European market. In this context, this study uses data from official consulting sources, in order to provide criteria for improving the supply chain sustainability of this tropical fruit.

BANANA INDUSTRY OF ECUADOR

In Ecuador, banana production began in 1940. At that time, it became an important axis of the Ecuadorian economy in a direct way, generating employment and income and indirectly

boosting the growth of other productive activities. In Ecuador, 100% of banana production is generated by Ecuadorians and 70% of the marketing is done by national companies. In exports, the banana and oil share the first positions in the generation of currency for the country (Resabala, 2004). Currently, banana exportation contributes 2% of the total GDP and it represents 35% of the agricultural GDP of Ecuador. On the employment side, it, directly and indirectly, benefits 383,000 Ecuadorian families. If each family maintains an average of 5 members, the beneficiary population represents 12% of the total population of the country (MCE, 2017).

Approximately 5.5 million hectares of land are dedicated to banana production globally, according to the latest available data from 2015 (FAO, 2018b). Ecuador has nearly 12 million ha of land under agriculture, of which over 11 % is occupied by permanent crops, notably bananas, sugar cane, and oil palm. As stated by the Ministry of Agriculture and Livestock (MAG) of Ecuador, there are around of 165 000 hectares registered with the banana crops which represent the 10% of the total agricultural area in the country. Banana crops are sited in ten provinces, three of them are in the lowlands of the Pacific coast - El Oro, Guayas, and Los Ríos - where the production is more significant, see Table 1.

Table 1. Provinces in Ecuador with higher banana production in 2016

Province	Harvested area (Ha)	Production (MT)	Yield (MT/Ha)	National %
Los Ríos	61,937	2,822,585	45.57	43.23
Guayas	48,805	2,139,384	43.84	32.76
El Oro	42,340	1,075,395	25.40	16.47
Other	27,254	492,312	18.06	7.54
Total	180,336	6,529,676	36.21	100

Source: (CFN, 2017)

Generally, agricultural value chains cover multiple actors associated with diverse functions and technologies. It can be explained when actors may be input suppliers, producers, wholesalers, retailers, and functions are the supply of raw materials, cultivation, harvesting, processing, and selling (Mishra et al., 2018). The banana production chain in this country involves internal and external members. The producer can sell directly to the exporter or to an intermediary. In turn, exporters are intermediaries between producers and large international traders (except for Corporación Noboa, which is one of the five largest international traders in the world and sells its product directly to the markets of the United States and Western Europe). The exporter and the intermediary are necessarily forced to sell their product to one of the large traders, which controls 90% of the world banana trade. The importer sells the product, either directly to the country of destination or to the wholesaler, who then sells it to the retailers. They are the final distributors to the

different points of sale, from where the final consumer obtains the product. It worth to mention that in Ecuador the banana activity has high (January to April) and low seasons (June to September) (Medina, 2013).

The Ecuadorian banana industry is particularly diverse in terms of farm size, the multiplicity of exporting firms and supporting industry. The banana plantation structure is based on small, medium, and large banana producers. According to the Ministry of Foreign Trade of Ecuador (MCE-Spanish acronyms), there are around 5000 fruit producers in the country (MCE, 2017). Approximately 78% of the banana producers are small companies, by adding the medium ones ($> 30 \leq 100$ hectares) 95.6% is reached. Thereby, the production of bananas in the country is mainly based on the family economy and popular and solidarity economy. It makes this sector contributes to the job generation and rural poverty reduction.

It can also be noticed that the distribution of the range of the banana crop areas is concentrated at the extremes: Only 4.32% of the total registered producers control the 42.56% of the total registered area when it is higher than 100 hectares. While 77.80% of the registered producers control 21% of the total area when it is smaller than 30 hectares, Table 2. Additionally, according to data from the Under Secretary of Agriculture of Ecuador, in 2011 there were about 230,000 hectares of banana crops in the country, meaning that only around the 78% are registered in the corresponding authority (Medina, 2013).

Table 2. The range of hectares per producer in Ecuador

Range (Ha)	Banana Crops (%)	Producers (%)
0-30 (Small)	21.00	77.80
$> 30 \leq 100$ (medium)	35.44	17.88
100 or more (large)	42.56	4.32
Total	100	100

The Association of Banana Exporters of Ecuador (A.E.B.E - Spanish acronym) is a non-profit institution that groups the Ecuadorian banana export sector. Its main aim is to promote the integral development of the members, with the collaboration of entities of the public or private sector. It groups 30 national exporting companies that represent 97.10% of the total fruit sent by Ecuador to the world (AEBE, 2018).

The cost of banana production per hectare varies, depending on the farm size and yield level; the technologies used, and levels of inputs. There are two significant categories in bananas production. The first one is the high share of labor in total cost. It represents around 40% to 50% of the total cost for the small, medium and large farms. These high percentage shows the strong influence of direct or indirect labor in this sector which strongly affects the familiar economy of the rural areas as well as the urban region of the involved provinces and the country.

The second largest cost category in the production of bananas are the fertilizers, agrochemicals and other inputs. It is 28% of the total cost production. This indicates the close dependence

of banana management on large applications of fertilizers and pesticides to improve soil fertility and fight disease. For small scale farms (19%), the agro-chemicals expenditures are higher due to producers cannot use aerial spraying and need to do manual applications which are more expensive. On the other hand, fertilizer investment increase with farm size due to in large plantations the nutrients requirements and the average fruit harvest per ha is also higher (Ministry of Agriculture and Livestock database of Ecuador and FAO, 2016 report).

According to the Ecuadorian Association of Banana exporters (AEBE," 2018), in 2018 (January to November), around 320 million boxes of 18.14 kg each one has been exported. It is equivalent to approximately 5 million 800 thousand tons. The banana is shipped preferably from two ports in Ecuador, Puerto Guayaquil and Puerto Bolivar Table 3. The transportation in these ports has been as follows:

Table 3. Exports by the shipment port in Ecuador, 2018

Port name	No. Boxes	%
Puerto de Guayaquil	247.339.86	77,91
Puerto de Bolivar	70.120.874	22,09
Puerto de Manta	-	-
Total	317.460.735	100

Source: (AEBE, 2018)

ECUADORIAN BANANA IN THE EUROPEAN MARKET

Banana production and yield data in Ecuador are shown in Table 4. The average in the last ten years is 6860895 MT and 35.38 MT/Ha, respectively.

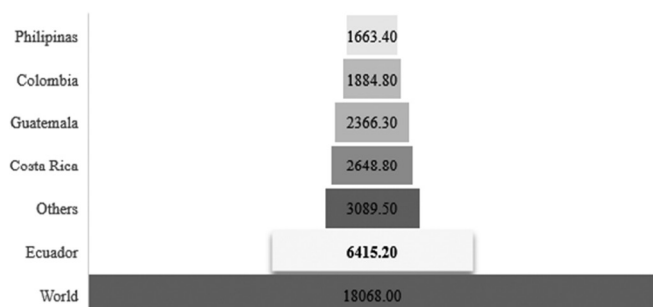
Table 4. Ecuador banana production and yield, 2007 - 20017

Year	Area Harvested (Ha)	Production (MT)	Yield (MT/Ha)
2007	197410	6002302	30.41
2008	215521	6701145	31.09
2009	216115	7637324	35.34
2010	215647	7931060	36.78
2011	191973	7427776	38.69
2012	210894	7012245	33.25
2013	188658	5995527	31.78
2014	182158	6756254	37.09
2015	185489	7194431	38.79
2016	180337	6529676	36.21
2017	158057	6282105	39.75

Source: (FAOSTAT, 2019)

Latin America (excluding Mexico) plus the Caribbean have been the world banana exporters predominant (80%) in the last 10 years. Europe, Australia, and Oceania are not listed as exporters since their production is for domestic consumption. According to the Food and Agriculture Organization of the United Nations in 2017, the five biggest exporting countries ranked are Ecuador, Costa Rica, Guatemala, Colombia, and the Philippines (Figure 1). The main exporter is Ecuador, which accounted for an annual average of one-third of the total global banana export volume between 2007 and 2017 (FAOSTAT, 2019).

Figure 1. The biggest banana exporters worldwide (thousand tons), 2007 – 2017

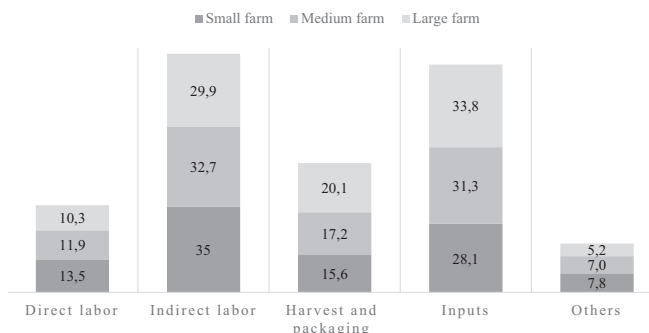


Source: FAOSTAT, 2019

Global import volumes of bananas reached around 18 million tons in 2018, 2% was increased compared to 2017. It was an estimated growth of 4% in the largest net importer, the European Union, and a 1% reduction in the United States (FAO, 2018a). In 2017, 17436.20 thousand tons of bananas were imported worldwide. European Commission Countries, North America, Asia, and Russian Federation were the largest importers. The main countries destination shipped 5477 thousand tons (87.8 %) of total bananas exported from Ecuador in the period of 2007 – 2017 (FAO, 2017). Ecuador exports bananas to an overall total of 71 different countries globally.

Cost production of banana has several categories to be taken into consideration, but two of them are the most representative. The first one is the high share of direct and indirect labor in total cost. They represent a cost of 48.5% for small farms (SM), 44.6% for medium farms (MM) and 40.2% for large farms (LF) (Figure 3). These high percentages demonstrate the significant influence job generation in this sector which directly influence the familiar economy of the rural and urban areas involved with the banana activity. The second more important cost category in bananas production is the inputs. This indicates the close dependence on extensive applications of fertilizers, agro-chemicals, and other products to improve soil fertility and fight disease. The inputs investment is higher as farm size increase (28.1% - SM; 31.3% - MF; 33.8% - LM) due to in large plantations the nutrients requirements and the average fruit harvest per ha is also higher.

Figure 2. Cost of production by banana farm sizes in Ecuador in %



Source: Calculated by the author (FAO, 2016)

In Ecuador, 2018 ended with an annual growth of 5% above the 330 million boxes. The Minister of Agriculture declared that by 2019, the price that the exporter pays to the producer for the 19.45kg banana box is USD 6.30. However, the average price internationally paid per box amounts to approximately USD 18/box (AEBE, 2018).

MATERIAL AND METHODS

The present work is under non-experimental empirical method with a quantitative and qualitative approach since statistical data from the period to be evaluated will be used.

The present project studies the current situation and analyzes the Banana Value Chain (BVC) in the EU import market. In order to develop the proposal aims, the theoretical approach of the BVC is employed. Knowing the involved actors and analyzing the different stages of banana production chain will allow understanding the dynamic and interrelations between them. This analytical approach of BVC includes hence the full range of activities that are required to bring a product from its conception to the supermarkets. Therefore, core concepts and data will be used in the chapters.

The inadequate control by the authorities about the fair payment to the producers makes the intermediaries and exporters take advantage and pay prices below the established limit by law. For this reason, the farmers have an unfair payment which affects their lifestyle. The present work also refers to the economic and social aspect and the contribution generated by the banana production sector in the country. Therefore, a problem tree and SWOT analysis (Fred R. et al., 2017) of the Ecuador banana sector is carried out to be discussed as part of the results.

The SWOT analysis in general terms is a tool to identify the current situation of an organization. It is an attempt to reveal the strengths, weaknesses (internal factors), and opportunities and threats (external factors) which can be applied to the object of study. It is to estimate the background of a situation and analyze the best actions to improve it. Strengths are characteristics that help to have an advantage over a person or company situation. Opportunities are aspects that are looking for advantage supported by strengths. The weaknesses are negative factors that must be reduced. The threats are external

factors that are obstacles to achieve our goals. The SWOT analysis is widely used for strategic planning of long-term and short-term development of an organization (Thamrin et al., 2017).

This study is supported by secondary research data collection, gather and examines numerous statistical data in combination with a valuation of empirical analytical approach and scholarly literature, trying to get the best analysis possible. Not enough specific information about the banana sector in Ecuador from scientific articles can be found. Thus, the source of information is mainly the following official consulting: Eurostat, European Commission, Food and Agriculture Organization of the United Nations (FAO), Banana Link, Ministry of Agriculture and Livestock (MAG) of Ecuador, Ecuadorian Association of Banana Exporters (AEBE), and literature review. For data processing, Microsoft Excel is used as a tool.

RESULTS AND DISCUSSION

The largest banana producing countries are not necessarily the largest banana exporting countries in the world. Countries such as India (26.75%), China (10.03%), Indonesia (6.29%) and Philippines (5.30%) are among the top five world producers. However, it is mainly for domestic consumption due to the high contribution to the diet of their people. On the other hand, Ecuador (5.51%) is also ranked at the top five world banana producers (FAOSTAT, 2019). But, 95% of banana production in Ecuador is for global exportation. 5% is considered as waste or banana that does not meet the requirements to be sold in the international market. It is sold in the local market, for the human, animal, and industrial consumption and an important part is often wasted on the same farms (Acosta Povea et al., 2018). According to the latest available data (FAOSTAT, 2019), the five largest banana exporting countries categorized are Ecuador (36%), Costa Rica (15%), Guatemala (13%), Colombia (10%), and Philippines (9%). Showing that Ecuador is positioned as the top leader.

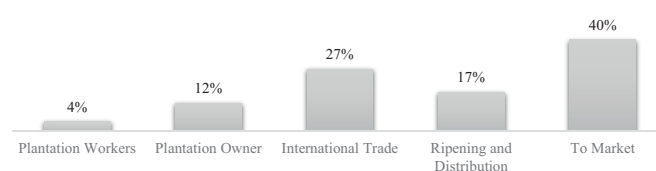
Ecuador banana sector

As it was stated by some authors (AGROCALIDAD, 2017; Iriarte, Almeida, & Villalobos, 2014; MCE, 2017), in terms of agriculture, Ecuador has a privileged position in the Earth. Due to the good agro-climatic conditions present in some regions of Ecuador make banana production accessible to the world the full year. The favorable climate and soil factors for growth, such as adequate light, deep soils with good structure and good internal drainage, which help in avoiding excessive use of agrochemicals, the country has an important advantage compared with other banana-producing countries.

The banana value chain (BVC) involves several stages and stakeholders. It starts from plantation workers and/or producers until the fruit is exhibited in the market ready for consumption. About the shared percentage in the value given to each participant through the BVC is shown in Figure

3. Over the time, the banana economy has been one of the key examples of unfair trading and power concentration in the hands of the biggest retailers in EU, 40% of the fruit value belongs to them. It has direct consequences on the lifestyle of thousands of workers and banana producers and workers who get the lowest income in the chain, 4%, and 12%, respectively. Recently, the growing market power of retailers and competition between large fruit companies has induced banana chains to be even more determined by supermarkets, especially in Europe.

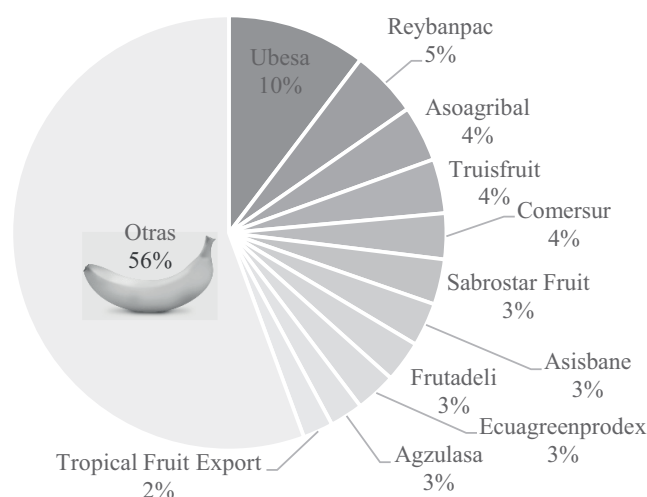
Figure 3. Share of the banana value chain by value in %, 2017



Source: Calculated by the author (National Geographic, 2017)

About the banana producers and exporters in Ecuador, Figure 5 shows, there is no monopoly, nor oligopoly in Ecuador, because the composition of percentage participation of banana exporting companies is represented by a significant number of companies (56%) and not by the five main ones.

Figure 4. Main Ecuadorian companies exporting bananas, 2018

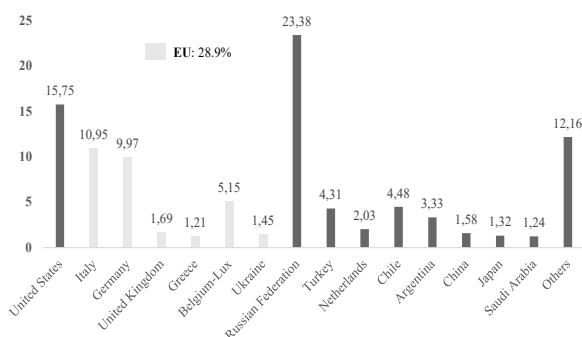


Source: Calculated by the author from AEBE, 2018

Ecuadorian Banana in the European market

The listed 15 countries (Figure 5) shipped 87.8 % of total bananas exported from Ecuador in the period of 2007 - 2017. The largest importer of Ecuadorian banana is the European Union (28.9%), followed by the Russian Federation (23.4%), and United States (15.8%).

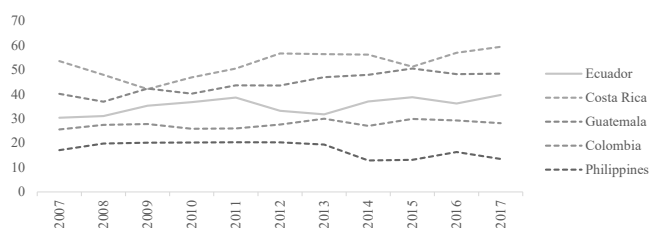
Figure 5. Ecuador banana exports main destinations (%), 2007 – 2017



Source: Calculated by the author from (FAOSTAT, 2019)

The national yield average is lower compared with Costa Rica (52.60 Tons/ha) and Guatemala (44.50 Tons/ha) in the same period of time (FAOSTAT, 2019), Figure 6. This situation is mainly due to countries such as Costa Rica, Guatemala and others, 100% of the produced fruit is traded in its totality, through the signing of long-term contracts between producers and exporters. It allows stability and fair annual average price. They are also supported by policies that allow the exporter to supply, quality and prices abroad; as well as hiring shipping at convenient prices.

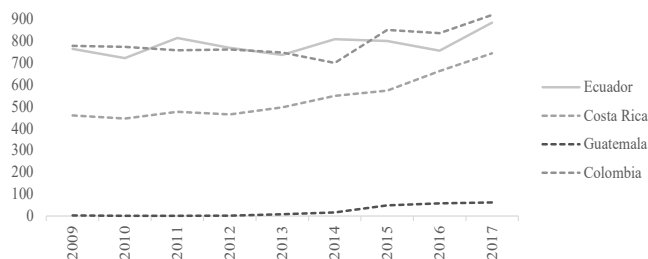
Figure 6. The banana yield of the biggest banana exporters (Tons/Ha), 2007 – 2017



Source: (FAOSTAT, 2019)

Ecuador, Costa Rica and Colombia continue to dominate the market, by contributing each with 20% of the total imports of the European Union. The tariff rates agreed under the Central American and Andean bilateral agreements were scheduled to be reduced. Shipments from Ecuador were decreased to 96EUR/ton in 2018 and 83EUR/ton from on 1 January 2019 onwards. It helped entries to the EU market at a reduced rate and as a result, Ecuador expected to account for a volume share of nearly 40% of global shipments in 2019 (FAO, 2018a). On the other hand, in 2018, Ecuador ended with an annual growth of 5%. Figure 7 shows that Costa Rica had the most important growth in the EU market in the last decade. It is registered import values of 459 and 743 million euros, in 2009 and 2017, respectively.

Figure 7. Banana import prices to the EU (Millions of Euros), 2009 – 2017



Source: Calculated by the author (European Commission, 2019)

SWOT analysis of the Ecuador banana sector

The banana industry is an important source of foreign exchange and a key point in the social balance in Ecuador. It is a source of employment for an approximate of 3 million people. Besides the economic and social importance, there are some other strengths that make Ecuador the outstanding world exporter of the fruit. However, several weaknesses and threats can be improved and corrected.

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In addition to the mentioned in the SWOT analysis in Table 5. Some other strengths and weaknesses can be cited. By way of strengths:

- There are constant searching and opening of new markets for the positioning purpose.
- The Dale Foundation and Wong Foundation are non-profit organization supplement education and health in the rural sector supported by some banana producers (Medina, 2013).

About the weaknesses:

- The confrontation among producers, exporters, politicization of activity
- There are many small defenseless producers subjected to intermediaries.
- Child labor can still be found in a part of the banana plantations.
- Breach of social and environmental aspects

Table 5. SWOT analysis of the Ecuador banana sector

<p>STRENGTHS</p> <p>Optimum Agri-climatic conditions</p> <p>Full year production capacity and extensive banana crop areas.</p> <p>Good roads quality for banana transportation until the main ports.</p> <p>High-quality control and accomplishment in accordance with international requirements.</p> <p>Availability of labor workforce for production and harvest.</p>	<p>WEAKNESSES</p> <p>Most of the producers are at a small level</p> <p>Lack of technology investment (irrigation systems), in the small/medium producers</p> <p>Overproduction of banana</p> <p>High inputs costs to be used in the production process</p> <p>Payment below the official price to producers, affect the income of these families working in this activity.</p> <p>A large number of intermediaries.</p> <p>Lack of greater international promotion of Ecuadorian banana</p>
<p>OPPORTUNITIES</p> <p>The trade agreement options with other countries.</p> <p>Growth in banana demand worldwide.</p> <p>Recognition for the quality of the Ecuadorian banana in the world.</p> <p>Strong organization by exporters.</p> <p>Greater logistics development in packaging and storage by exporters.</p>	<p>THREATS</p> <p>Climatic changes affect the production (flooding of crops by growing rivers next to plantations).</p> <p>Ecuadorian bananas are more expensive in comparison with competing countries.</p> <p>Strong competition from several countries regarding banana sales.</p> <p>Greater access to production technology by competing countries</p> <p>Ecuador has fewer trade agreements with the importer countries globally, in comparison with the other larger banana exporters.</p> <p>Better organization in groups of producers from competing for producing countries.</p>

Source: Elaborated by the author, adapted from (AEBE, 2018)

Despite Ecuador is the current largest banana exporter, still there several threats and weaknesses to be considered and solved. The following are some proposed alternatives or solutions:

Stability. Through the signing of contracts between producers and exporters which helps the integration of the Ecuadorian banana industry.

Efficiency in productivity. Through giving added value to the product (organic banana crops), permanent training, greater investment, stronger research activity. All of it would lead to a decrease in costs production and increase competitiveness.

Promote the Certifications and aspects required by the markets: EurepGAP, Organic, Traceability, Food Safety, Quality Controls, Child Labor.

Improve labor, social and environmental aspects. More control related to a fair payment to producers at all levels.

Government support to access the main inputs: Microcredits and agreements with the inputs, suppliers, such as fertilizers,

packing, and others.

Current problems of the banana sector in Ecuador

Current problems of the banana industry can be divided into two, internal and external factors. The following are considered as the main internal factors:

- Lack of a banana policy;
- Productive inefficiency;
- Official price not adjusted to the world reality, supply - demand; excess of plantations (over 200,000 hectares);
- Informality still exists in the sector, although to a lesser degree;
- Updating of the current Banana Law is required;
- High competitiveness (high costs of inputs, fuels, taxes);
- Lack of Legal Security;
- There is no direct credit financing.

As external factors can be mentioned the subsequent:

- Absence of strategy to promote a country brand;
- Lack of a long-term commercial agreement with the EU;
- Commercial benefits that our competitors have, such as Colombia, with the EU;
- Prices are managed or influenced by the biggest EU retailers;
- Social and environmental certifications required by the importer countries.

The unfair trade can be considered at the internal and external level. It is developed in a tree problem of the banana sector in Ecuador, Figure 20

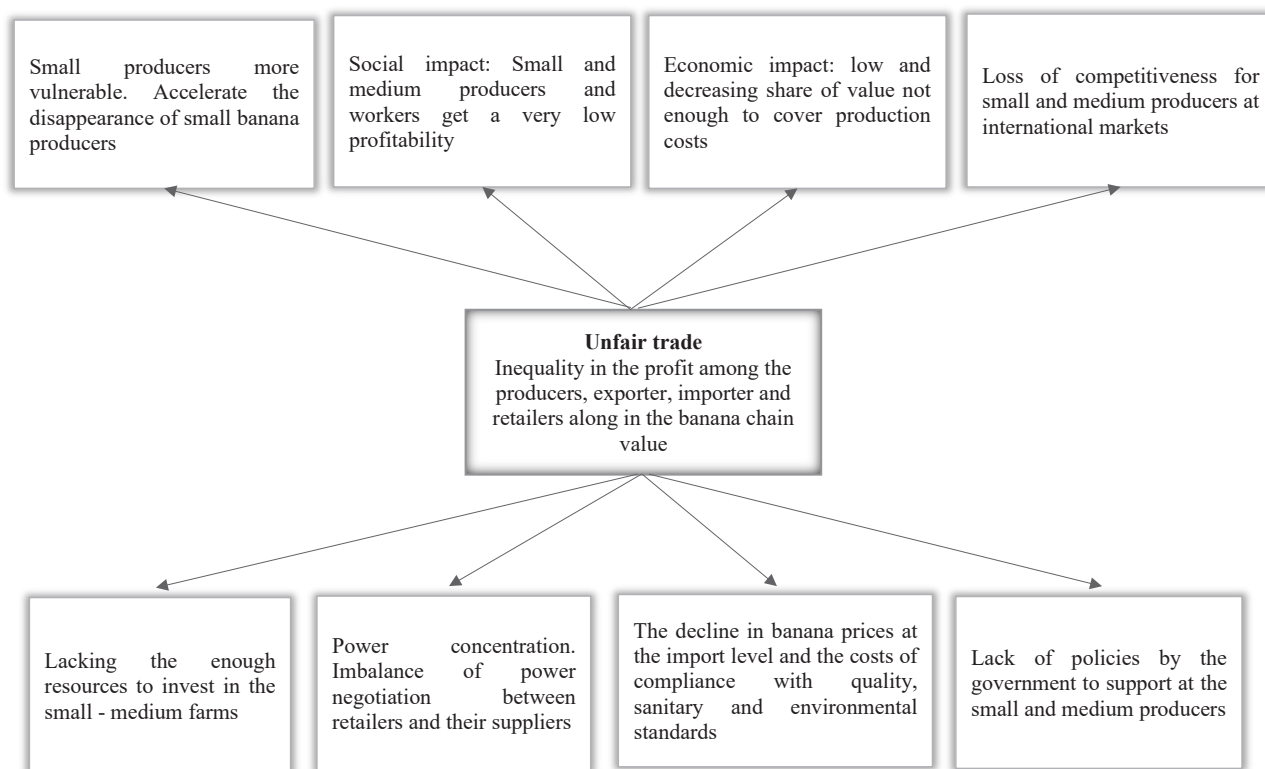
CONCLUSIONS

The main objective of this study was to analyze the chain of the banana industry of Ecuador and the exportation to the EU market. After the analysis based on the data and figures which showed that global banana trade is dominated by South American countries, particularly Ecuador and the European Union is the biggest banana importer from this country. It is demonstrated a significant relationship between both parties and special importance for the banana industry in Ecuador.

There is an unequal concentration of resources which causes a significant difference in the social strata of the Ecuadorian coast families, it is especially in rural areas. Hence, the government should invest in technology and agricultural inputs aimed at small and medium producers, or so the supply of microcredits in order to have more opportunities for them to develop. Banana crops depend on the technology degree implemented. Between one and three direct workers are needed per hectare and from 1.5 to 10 indirect jobs per hectare.

Ecuador's main competitors in the world market are Costa Rica, Colombia, and Guatemala, which have several advantages, including higher productivity, stability in the

Figure 8. Problem tree of the banana sector in Ecuador



relationship between producers and exporters, long-term contracts and the appropriate political intervention in the sector. Ecuador must work hard to improve this problem by taking correct decisions and measures that make this country more competitive and efficient, in order to continue being the world's largest exporters of fruit.

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