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TOPIC:

"ANALYSIS OF FLOWER EXPORTS IN ECUADOR 2007-2019"

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DEDICATION

This graduation project is dedicated to my family, especially to my mother and father who were with me at every moment of its elaboration, always being an unconditional support as well as throughout my university career. They always knew how to guide me and give me good example of honesty, respect and perseverance.

RESUMEN

El cultivo de flores en el Ecuador viene dado por una gran cantidad de invernaderos establecidos en la región Sierra principalmente, desde los años 90 se consideró como una tierra rica para el cultivo por los nutrientes que contiene y beneficios climáticos de la zona.

Las exportaciones de flores del Ecuador representan una competencia económica y productiva a nivel mundial ya que, según indica los datos del Banco Mundial, los principales países exportadores de flores son Países Bajos, Colombia, Ecuador, Etiopía y Kenia, en base a esta información se logró realizar una matriz de datos cualitativos y cuantitativos que reflejen las características que cada país desarrolla para poder estar dentro del ranking.

La información recopilada se obtuvo de fuentes oficiales como el Banco Mundial y el Foro Económico Mundial para lograr obtener una información certera y en base a la esto se encontró que Países Bajos es un país comercializador más no productor como Colombia, Ecuador, Etiopía y Kenia por lo que el análisis fue más enfocado a los países productores.

Los resultados obtenidos reflejan que la corrupción es una de las principales características de todos los países ya que estos buscan erradicar la corrupción para poder implementar leyes que favorezcan a las empresas exportadoras; otra de las características que comparten los países productores es el clima, ya que todos disponen de un clima templado que favorece el cultivo de rosas, sin embargo, las diferencias radican en la disposición que cada gobierno busca tener con el sector florícola.

Palabras clave: banco mundial, competitividad, diamante de Porter, exportaciones, flores del ecuador.

ABSTRACT

The cultivation of flowers in Ecuador is given by a large number of greenhouses established in the Sierra region mainly, since the 90s it was considered as a rich land for cultivation due to the nutrients it contains and climatic benefits of the area.

Ecuador's flower exports represent an economic and productive competition worldwide since, according to World Bank data, the main flower exporting countries are the Netherlands, Colombia, Ecuador, Ethiopia and Kenya, based on this information managed to make a matrix of qualitative and quantitative data that reflect the characteristics that each country develops in order to be within the ranking.

The information collected was obtained from official sources such as the World Bank and the World Economic Forum in order to obtain accurate information and based on this it was found that the Netherlands is a trading country rather than a producer such as Colombia, Ecuador, Ethiopia and Kenya for so the analysis was more focused on producing countries.

The results obtained reflect that corruption is one of the main characteristics of all countries since they seek to eradicate corruption in order to implement laws that favor exporting companies; Another of the characteristics that the producing countries share is the climate, since they all have a temperate climate that favors the cultivation of roses, however, the differences lie in the disposition that each government seeks to have with the flower sector.

Keywords: World Bank, competitiveness, Porter's diamond, exports, flowers from Ecuador.

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1.1 Historical background

1.1.1 Ecuador during colonial times

Ecuadorian foreign trade during the colonial era was affected by its lack of autonomy. Being part of the Royal Audience of Quito make it depended on the pronouncement of the Viceroyalty of Peru. The Spanish Crown based on the administration of its colonies, decreed a monopolistic policy of the economy creating two institutions, the Council of the Indies and the Casa de la Contratación de Sevilla to regulate colonial politics and trade, in this way the Spanish Crown prohibited the trade of other kingdoms with the Spanish America (Ordoñez, 2012).

Ecuador during the colonial era, was unknown by European importers of raw materials and products of the country, until the mid-nineteenth century the cinchona was known by the name of "Peruvian bark", however, the cinchona was one of the main sources of incomes to the Royal Audience of Quito (Ordoñez, 2012). Likewise, during the colony, Ecuadorian merchants did not know how to market and sell the products elaborate in the country, such was the case of the toquilla straw hat produced in Manabí and Cuenca, which since the second half of the 19th century became the second item more important for the Ecuadorian economy, that due to the lack of promotion of this authentic product in international markets it was known as the "Panama hat" (Ordoñez, 2012).

The main products exported by Ecuador during the colonial era were wood, cinchona, sarsaparilla, copé, tobacco, soles and coffee, on the other hand, the main extractable mineral was gold. The extraction of this mineral was generated from the mines

of Cuenca, Zamora and Zaruma during the 16th century and part of the 17th. The exportable amount directed to Spain was 800,000 thousand pesos per year, falling to 3,696 pesos due to excessive exploitation (Ordoñez, 2012).

Cocoa experienced its first boom in exports, this did not last long due to the fall in international prices and restrictions on the export of the grain, between 1660 and 1720 the activities of the mills and textile exports by the Sierra, contributed enormously to the economy of the country (Ordoñez, 2012).

1.1.2   Ecuador during the republican period

In the stage of the republican period, Ecuador was affected by political, economic and independence problems. The Province of Guayaquil in 1820 became independent from Ecuador, the province was a divided territory. On the one hand, people from Guayaquil who sought reduction of customs tariffs, and, on the other hand, Quiteños who were looking for high tariffs for the trade of their textile products (Ordoñez, 2012).

In 1829, Peru had taken Guayaquil until in July of this same year Simón Bolívar helped with the expulsion of Peruvians from the territory. In the same way, Ecuadorian foreign trade was affected by the multiple conflicts of the time, the basket of exportable products changed and during the republican period guano was one of the products with high marketing expectations, but since it did not develop in abundance in Ecuador it was not a highly commercialized product (Ordonez, 2012).

As a result of the industrial revolution that began in Europe at the end of the 18th century and the beginning of the 19th, Ecuadorian cocoa had its new boom, which is why large estates were developed in Ecuador together with the expansion of cocoa planting.

Until 1850, exports of cinchona had a considerable decline, taking three decades to recover and return to the prosperity of previous years. About the exports of the toquilla straw hat at the end of the 18th century, a small-scale export began and through the decades sales increased until it became one of the main economic export products (Ordoñez, 2012).

At the beginning of the 19th century, in the United States, Germany, France and Great Britain, due to the Industrial Revolution, the consumption and production of coffee increased, which was considered a luxury drink, in Ecuador coffee was cultivated since colonial times, but due to economic and political instability, production stagnated and did not prosper, one cause of this stagnation corresponds to the poor selection of the seed, indiscriminate planting and in unsuitable areas (Ordoñez, 2012).

1.1.3 Ecuadorian trade during the contemporary period

At the beginning of the year 1921, agriculture as the export base predominated in Ecuador, especially in the Costa region, however, the agricultural products that were developed to be consumed internally corresponded to the Sierra region. Since this period, the Costa region handled 70% of Ecuadorian exports and 90% of imports made by the country (Ordoñez, 2012).

Within this context, Ecuador records in the trade balance its imports and exports based on oil and non-oil exports, also being able to be subdivided into traditional and non-traditional.

1.1.4 Oil exportations

One of the important products in which Ecuador developed its economy was oil extraction. Between the years 1920 and 1930 around nine companies were dedicated to the

extraction of the mineral, some of these companies were the "Anglo-Ecuadorian Oilfields", "Caroline Company", "Standard Oil Co", among others. When the company "Anglo-Ecuadorian Oilfields" built the first refinery in Ecuador, the investment delivered was a great help to the country since the national production of gasoline was developed. The oil sector provided direct employment to 2,000 people. In 1972 the production represented 2% of the national GDP and by 1974 it represented 16.2%, from this year the oil age starts and would last until 1981, turning Ecuador overnight into a very rich country (Ordoñez, 2012).

1.1.4.1   Non-oil exportations

Within this important item, Ecuador was characterized by several export products, several of them constantly feed Ecuador's trade balance such as canned fish that represent 12% of exports, natural flowers represent 8.3%, juices and fruit preserves represent 2.4%. The banana that was also cultivated during the colonial era, since 1877 Ecuador began exporting this item and plantains to Chile in low quantities (Ordoñez, 2012).

1.1.5   Ecuadorian roses

Roses are among the main traditional non-oil products in Ecuador's trade balance. Starting in 1980, the cultivation and production of flowers began during the government of former president Oswaldo Hurtado, when businessmen and influential economic groups from the Ecuador analyzed flowers as a very lucrative business (Gómez, 2000).

An important character in the history of Ecuadorian flower cultivation was the Portuguese investor Ned Latif who, around 1981, had bought a flower company which he expanded and began exporting flowers, finally settling in the city of Cayambe. Ecuadorian producers looked for a way to grow flowers in greenhouses around 1982, this was a time of experimentation and creation of the different types of flowers that exist today. Between the

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years of 1990 and 1999 the cultivation surface passed from 46% to 64% and in the same way, the increase in floricultural companies went from 38 to 271 companies (Gómez, 2000).

In Quito on November 22, 1984, in the General Registry of Associations of the Ministry of Agriculture and Livestock, the Association of Flower Producers of Ecuador EXPOFLORES was registered, which sought to obtain economic funds from the National Financial Corporation CFN to continue with the cultivation and expansion of Ecuadorian flower exports. Thanks to this association it is possible to verify the expansion in the hectares of flowers produced when in 1996 there were 1484 hectares of fresh flowers cultivated and by 2006 there were 3440 hectares to be cultivated (Gómez & Rea, 2017).

Of the great variety of flowers produced in Ecuador such as gypsophilas, carnations, orchids, roses, which have 60 varieties, are the most demanded in the international market thanks to the good quality of the product, some of the most valued roses in the market correspond to the Red Rose (Figure 1), Freedom, Brighton (Figure 2), Deep Purple (Figure 3), among others.

Figure 1. Red Rose

Source: IMAGUI https://www.imagui.com/a/que-es-la-rosa-roja-T5ep74A7p

Figure 2. Brighton Rose

Source: Much Flowers https://www.muchflowers.com/roses/brighton

Figure 3. Deep Purple Rose

Source: Much Flowers https://www.muchflowers.com/roses/deep-purple

The geographical location of Ecuador helps roses, such as those mentioned above, to achieve their development and cultivation with the characteristic colors, thickness and size, which is why Ecuador is a favored place due to its geographical position in the Sierra region, specifically in the provinces of Pichincha and Cotopaxi due to the luminosity and climate that contribute to the development of roses (Yépez et al., 2019).

1.1.6 Harmonized System

To recognize the specific product used, a Harmonized System was developed that corresponds to an international nomenclature established by the World Customs Organization (WCO), this system is based on the classification of products or merchandise according to six digits that all the member countries follow. The established nomenclature helps the international mobility of goods and based on trade agreements and treaties and allows a homogeneous selection of goods (Guardiola-Esmeral, 2017).

The harmonized system is subdivided into sections, chapters and subchapters, that is, going from the general to the specific. The sections are divided into Kingdom of Nature, Industrial Sector and the Same Economic Sector; the chapters are based on groups of goods that are related, they always go in progressive order, that is, they go from the basic goods to the most elaborate ones. Within Section II of Products of the Plant Kingdom, Chapter 6 of Live Plants and Floriculture Products we find the tariff code for roses, which, being a specific product, are recognized with the tariff subheading 06.03.11 (Guardiola-Esmeral , 2017)

Table 1. Ecuadorian Trade Balance between the years 2007 to 2018

Year	TM (Net weight)	FOB (thousand of $)
2007	6074,2	32891,3
2008	95.199,30	539.142,80
2009	86.643,50	475.915,40
2010	77.506,50	438.399,70
2011	86.983,60	501.746,70
2012	87.895,90	533.331,30
2013	112.273,00	612.087,70
2014	120.267,70	697.617,40
2015	111.424,60	604.459,00
2016	109.854,90	600.569,50
2017	113.855,00	597.770,70
2018	118.167,50	605.480,80

Source: Central Bank of Ecuador

Based on the data obtained from the Central Bank of Ecuador detailed in table no. 1, it can be seen that between the years 2007 and 2018 the roses correspond to a favorable income for the Ecuadorian economy, being the year 2014 that presented the highest income in the country, this increase was due to the implementation of technology and efficiency in production and the increase in the purchase of roses for the Valentine's Day (Castro, 2017).

1.1.7 Free trade agreements

Free Trade Agreements are commercial agreements that are signed between two countries or between a country and a group or union of countries to increase their international trade in goods and services, and also to improve trade relations between them (Berghe Romero, 2014).

Some of the objectives of the Free Trade Agreements correspond to the increase in international trade and exports of goods and services with comparative advantages between the signatory countries, increase foreign investment by the signatory countries or third countries, strengthen cooperation ties by promoting integration, create new employment opportunities, allow buying on a variety of items, stimulate creativity and innovation by promoting trade (Berghe Romero, 2014).

1.1.7.1 Free trade agreement Ecuador – European Union

Since 1994, the European Union sought to design a strategy to become commercially involved with certain countries or groups of countries in Latin America that reacted to the post-Cold War reality and began to conclude Association Agreements such as Mexico and Chile and the beginning of MERCOSUR. Andean and Central American countries also try to get involved in this process so as not to be at a disadvantage, however,

the European Commission considered that these countries had not yet achieved an integration and development that would allow them to sign an Association Agreement (Villagómez, 2011).

On April 19, 2007, during the Ministerial Meeting of the Andean Community and the European Union, the ministers expressed their intention to begin negotiations based on three pillars Political Dialogue, Cooperation and Trade (Villagómez, 2011).

In 2009, Ecuador decided to stop negotiations with the European Union until the conflict with the European block comply with the resolutions agreed by the World Trade Organization (WTO). On December 2009 the conflict was resolved with the signing of the Geneva Agreement so that Ecuador will continue with the negotiations with the European Union in February 2010 (Villagómez, 2011). From this moment, Ecuador sought to remove tariffs on its traditional non-oil products such as tuna, cocoa, roses, but the negotiations were directly involved with banana exports, for which negotiations had previously been stopped in 2009.

On November 11th, 2016, Ecuador and the European Union reached an agreement that will enter into force on January 1st of 2017; the need to sign this Free Trade Agreement with the European Union was the weakness of non-oil exports according to the Minister of Foreign Trade in 2016 Juan Carlos Cassineli (Jaramillo Rodríguez, 2018).

1.1.7.2 Free trade Agreement: United States – Ecuador

The beginning of the Free Trade Agreement between Ecuador and the United States started in October 2003 when former President Lucio Gutiérrez sent a letter addressed to former US President George W. Bush until, through his Commercial Representative Robert Zoellick, sent a statement to the United States Congress confirming the start of negotiations

with the countries of Colombia, Peru, Ecuador and Bolivia only as an observer (Flores Agreda, 2008).

The agreement initially details that both Ecuador and the United States would reduce their tariffs on exported goods until reaching 0% tariffs. The interest that the United States has in signing a Free Trade Agreement with Ecuador and Central American countries is to consolidate a block with standardized norms and that also serve as support in the multilateral negotiations of the World Trade Organization (Ortiz & Mena, 2005).

For the year 2004, within an agricultural context, the Ministry of Agriculture declares that 70% of exportable products are made with a 0% tariff, within these products are Ecuadorian roses; the other 30% of the supply is under the General System of Preferences (SGP) and the Andean Trade Promotion and Drug Eradication Act (ATPDEA) (Ortiz & Mena, 2005).

The ATPDEA was an agreement between the United States and Colombia, Ecuador, Peru and Bolivia since 1991 in order to offer better marketing channels by reducing drug trafficking to the United States. Thanks to this agreement, in 2005 the exports of the member countries increased from 2001 with 13% to 2005 with 35%. For Ecuador, the ATPDEA agreement was very relevant in exports since, due to the benefit of the 0% tariff on some products, until 2010 Ecuador presented an increase in the economy (ECLAC, 2020).

On December 8, 2020, Ecuador and the United States signed a first phase agreement, an agreement that was ratified on May 4, 2021 by the General Assembly of Ecuador. In this first phase, the important points to be discussed will be the Facilities for international trade, Good regulatory practices, Fight against corruption and Benefits for MSMEs (Fedexpor, 2020).

Faced with this agreement and in order to consolidate a Free Trade Agreement with the United States, it is important that this country find a way to partially relax the negotiations so that by the end of this year the Agreement can be signed.

1.2 Flower export cycles

1.2.1. Flower growers booms

Roses had their boom in the late 1980s, and over time roses have established themselves as one of the premium products in Ecuador's exports due to their quality and durability, which makes them highly valued in the world.

The boom in flower exports was basically due to the modernization of production, the increase in the number of producers, an increase in the number of exported varieties, the high level of investment in the area thanks to non-agricultural investors of the time, availability of cheap labor, among others (Waters, 1993). The aforementioned factors helped make the production of roses known in the international market and generate greater economic income for Ecuador.

Currently there are several companies created for the production of flowers, they continue to work and provide employment, around 29,000 people in Ecuador work in the flower sector taking into account the location of the companies mainly in the provinces of Pichincha and Cotopaxi according to what indicates the National Financial Corporation (CFN, 2017).

1.2.1.1 Trade Balance of Ecuador

The trade balance is based on an economic record in which the imports and exports of a country are analyzed in a period of time, usually annual. When the trade balance has

positive values, it indicates that exports have been higher than imports (surplus) during the year analyzed, and when negative values are reflected in the trade balance, it is indicated that imports have been higher than exports (deficit) (Pazmiño, 2018).

Ecuador's trade balance is further divided into oil, corresponding to oil and its derivatives, and non-oil, corresponding to non-oil products such as bananas, shrimp, cocoa, flowers, among others.

Table 2. Trade Balance of Ecuador period 2007-2018

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Exp.	14321.32	18489.78	11146.09	14274.27	17682.05	19951.7	20673.5	22033.9	15697.6	13778.4	15718.8	18234.8
Oil Exp.	8328.57	11672.82	5477.66	7817.43	9955.46	11797.8	11883.3	11716	5980.2	4407.3	5594.9	7596.7
Non Oil Expt.	5992.75	6816.97	5668.43	6456.84	7726.59	8153.9	8790.2	10317.9	9717.4	9371.1	10123.9	10638.1
Total Tax	12907.11	17608.95	11404.64	15793.89	18958.84	20062.3	21887.3	21884.2	17583.6	12576.6	15534.4	18498.3
Total Trade Balance	**1414.21**	**880.83**	**-258.55**	**-1519.62**	**-1276.79**	**-110.6**	**-1213.8**	**149.7**	**-1886**	**1201.8**	**184.4**	**-263.5**

*FOB values expressed in millions of dollars USD

Source: Central Bank of Ecuador

According to table no. 2 Ecuador in its trade balance for the years of 2007 and 2008 experienced a surplus, in these years the country exported more than what it was imported, which reflects a positive value for the Ecuadorian economy. However, for Ecuador there were years in which there was a trade deficit, such as between 2009 and 2013, which, although the values of exports compared to imports were not so different, meant a negative result. By the year of 2010 Ecuador was greatly affected by the deficit presented with a negative value of -$1519.79.

Ecuador, after presenting a constant deficit year after year, from the year 2014 variations were presented, being the years 2016 and 2017 in which a considerable surplus was reflected for the benefit of the Ecuadorian economy.

1.2.1.2 Gross domestic product of Ecuador

The Gross Domestic Product (GDP) allows to measure the value in economic terms of the goods and services produced within the country for a period of time, usually one year, so it could be said that the GDP represents the size of the economy of a country (Benitez & Garcia, 2016).

The GDP is subdivided into two types, a nominal GDP that corresponds to the sum of the values of final goods and services at market prices, which have been produced by a country in a given period of time, and a real GDP. which corresponds to the sum of the values at constant prices of final goods and services of a base year that have been produced in a given period of time (Cervantes 2019).

Table 3. Percentage of partition in the ecuadorian GDP of natural flowers in the period 2007-2018

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Stake in the GDP	8,2%	8,3%	7,9%	7,9%	7,4%	7,6%	8,1%	6,7%	7,2%	7,3%	7,5%	6,9%

Source: Ecuadorian Central Bank

According to table no. 3 with information obtained from the Central Bank of Ecuador, natural flowers according to their contribution to the GDP of Ecuador has remained between a range of 6 to 7%, however, the years in which the contribution within the GDP was higher was 2007, 2008 and 2013. From 2013 to 2014 there was a

considerable decrease in the contribution of GDP with a value of 1.4% trying to recover for the year 2015 increasing its contribution by 0.5%.

1.2.1.3 Competitors countries in the export of flowers

According to the analysis carried out by Proecuador, the cultivable areas of roses in China have decreased over the years due to environmental factors, reducing by 2016 to 13,251 hectares for cultivation. A fact of China is that the population that buys flowers corresponds to young people, especially men, having an annual demand for roses of 14% (Comercial & Comercial, n.d.).

Ecuadorian roses bought by China are more used in certain festivities such as Valentine's Day, New Year, Women's Day, Mother's Day. On the other hand, the most attractive roses in Chinese culture are the colorful and dyed ones, the same ones that Ecuador is characterized by.

Within the Chinese market, there are some competing partners such as Colombia with 9% of the imported volume and Kenya with 50% of the imported volume, within this category Ecuador contributes with 37% of the imported volume of roses. The competition is on the lower prices that Colombia or Kenya can offer compared to Ecuadorian prices that range between $2.80 and $3.20 per kilogram (Comercial & Comercial, n.d.).

According to the Ministry of Agriculture and Rural Development of Colombia, the main flower producing and exporting countries between 2014 and 2018 correspond to those detailed in figure no.4 of which will be analyzed individually below.

Figure 4. Worldwide flower exporters

Worldwide Exportations (Expo Value Thousand FOB USD)					
País	2014	2015	2016	2017	2018
Holland	4.672.015	3.854.158	4.169.944	4.206.998	4.300.170
Colombia	1.374.246	1.295.399	1.312.262	1.399.600	1.458.170
Ecuador	918.243	819.939	802.438	881.462	851.931
Kenya	553.453	479.141	509.565	540.895	575.045
Ethiopia	174.473	194.738	190.976	196.620	232.076
Others	1.629.679	1.324.977	1.359.546	1.405.936	1.589.189
Total	9.322.109	7.968.352	8.344.731	8.631.511	9.006.581

Source: Ministry of Agriculture and rural development
https://sioc.minagricultura.gov.co/Flores/Documentos/2019-12-30%20Cifras%20Sectoriales.pdf

1.2.1.4 Dutch market analysis

The Netherlands, is a country with a favorable location and climate in the European territory. It is a strategic point for the flowers to be produced and also for the flowers that are imported from Ecuador and the world to be distributed within the European Union. The flower sector in the Netherlands has around 10,000 hectares for the cultivation that are recognized worldwide for their quality and durability, however, the high costs of labor and the environmental care that the government requires make it difficult to increase the volume in flower production (Morán, 2018).

An important issue in the Netherlands is that, after the crisis that occurred in 2008, its economy decreased in values never seen before, going from a growth of 5%, it decreased by -3.5%, which was significant for the country, but due to its location territorial and its high degree of development, managed to grow again and gradually improve its exports and imports in the world. Based on this, what influenced the Netherlands in its relations with Ecuador is the Trade Agreement in force between Ecuador and the European Union, which means and is reflected in better trade relations on both sides, in this case the Multiparty Agreement between these two countries generates great satisfaction for

Ecuadorians since it improves the commercial relationship at lower costs and better benefits for Ecuador

Regarding the data on flower exports, it is important to know that the Netherlands has been recognized for its flower production. The main suppliers of flowers for the Netherlands correspond to Kenya with 34%, Belgium with 17%, Ethiopia with 15% and Ecuador with 9%, the main reason why Ecuador ranks fourth in flower suppliers to the Netherlands is because of the production costs, but, nevertheless, they continue to be acquired because of the superior quality to those of Ethiopia (Morán, 2018).

1.2.1.5 Colombian market analysis

Twenty-five years ago, Colombia was listed as the second flower exporter in the world, having a 15% annual participation in flower exports. From the beginning, the Colombian flower sector was born with an international approach since 95% of its production is exportable. One of the advantages that Colombia has is the implementation of transportation of flowers by air and sea, corresponding to 6% of its production reaching markets such as Japan, the United Kingdom and Australia (Sierra, 2020).

According to the Colombian Agricultural Institute, the development of floriculture corresponds to an area of 6,000 cultivable hectares, located mainly in the Sabana of Bogotá. During 2012, flower exports reached a FOB value of $1,270 million dollars with 214,076 tons exported (Sierra, 2020).

According to figure no. 5 it can be seen that Colombian exports have a base market corresponding to the United States, characterized by being the first exporter of carnations in the world.

Figure 5. Colombia export by country of destination
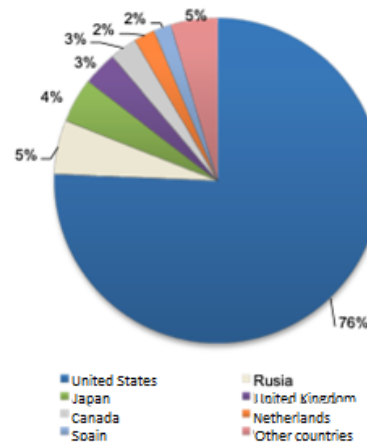
Currently Cundinamarca and Antioquia are two of the main departments that produce the most flowers in Colombia, due to the climatic conditions to develop high quality flowers, and in addition to this Cundinamarca and Antioquia also have a land and airport infrastructure for the export of this delicate product (Sierra, 2020).

1.2.1.6 Ethiopia market analysis

Ethiopia has 3 million hectares of cultivable flowers, one of its main benefits is the geographical location and its climatic conditions. The geographical proximity to some of the main importers of flowers such as Europe, Russia and Asia, helps it to get involved in this market by lowering transportation costs (Morán, 2018).

The Ethiopian industry was promoted between 1999 and 2002 when several companies decided to form the Professional Association Ethiopian Horticulture Producer Exporters Association, it was created with the idea of gain more development in the flower sector and strengthening trade links. It is currently the fifth non-European exporter of flowers and the third exporter in Africa (Borella, 20115).

1.2.1.7 Kenia market analysis

Kenya presents itself as the fourth largest exporter of flowers worldwide. Having a favorable climate for the production of flowers, very similar to the South American Andes, has benefited from direct foreign investment for the flower sector. Some of the investors correspond to the Netherlands and England, including Colombia as one of the probable investors in this country (Morán, 2018).

According to data from the Kenya Flower Council, around 500,000 constitute the labor force of the flower sector. As these workers have a very low salary between $40 and $100 makes Kenya very attractive for foreign investment (Morán, 2018).

One of the advantages that Kenya has is its proximity to markets such as Europe, which, due to its geographical location reduces transportation costs. Another advantage of Kenya is that is considered a great importance in the European market, it has a special day within FloraHolland called "Kenya Day". Its main buyers are from the Netherlands with 69%, the United Kingdom with 18% and Germany with 7% (Robalino, 2019).

1.2.2   Flower Crisis

Ecuador and a large part of the world faced a financial crisis that continues with certain repercussions in the present, it was a crisis that undoubtedly affected the economy and directly affected Ecuador's exports.

The economic crisis of 2008, which originated in the United States, began with the real estate bubble of 2005 due to a constant increase in housing prices, that is when lenders began to deliver "subprime" loans, which consisted of selling homes to people who in other conditions wont but them due to higher risk of credit default (Buitron, 2013)

Initially, they were a set of state bonus inserted in the main banks of the United States that were offered to investors and these had a high yield at a low risk in general terms, basically these bonds were mortgaged houses with a low rate of interest (Buitron, 2013). In this way the Banks offer loans with high interest in large amounts without analyzing the applicant, or their credit history, or their income levels, and when the state bonus were decreasing due to lack of payment and Buyers' liquidity is when the trouble started.

As a result of this economic crisis, there was also an increase in unemployment since companies were also affected, causing massive dismissals of their employees (Buitron, 2013). There was no money to pay the mortgages, families had to sell their land, and food production in general, was scarce.

To try to solve the problem, the United States implemented a measure to help banks and the financial system in general seeking economic reactivation, so the US government increased its debt and the public deficit, which caused the devaluation of the dollar, which generated the fall in the price of oil, the main economic product in Ecuador (Buitron, 2013).

In the case of bananas, cocoa and flowers, they also decreased considerably, importers from large countries such as the United States and Europe did not have money and a stable economy, so they could not buy from Ecuadorian exporters or producers. The Ecuadorian economy was severely affected when the government had to reduce public investment, banks no longer granted loans, factories had to close, raw materials became more expensive and it became complicated the elaboration of products, or when food and basic necessities became more expensive (Rosenthal, 2010)

After the economic crisis, Ecuador experienced economic repercussions that lasted several years, but Ecuador continued to make its way with the export of one of its star

products, flowers, especially roses. Ecuador sought to expand its sales not only to the United States but also to countries like China, which historically was a producer of flowers. Currently, due to climate and environmental changes, its production has decreased, in addition to the fact that Chinese flowers develop with small buttons and opaque colors, production that does not supply to local demand (Comercial & Comercial, n.d.).

1.3   Competitive impact of flower exports

As indicated at the beginning, the floricultural activity, especially the production of roses in Ecuador, had its beginnings with the cultivation of roses in greenhouses and the experimentation of new species of flowers.

There are several countries that are in the flower industry, the international market demands quality and quantity that meet the standards of the domestic market of each country. Ecuador, having a subtype of tropical climate characterized by high temperatures and abundant rainfall throughout the year, allowed it to have the perfect conditions for growing roses (Pazmiño, 2018). The flower industry is located directly in the Sierra region in the provinces of Carchi, Imbabura, Pichincha, Cotopaxi and Azuay.

Figure 6. Political map of Ecuador with provinces that grow flowers

Source: Brainly https://brainly.lat/tarea/7341676
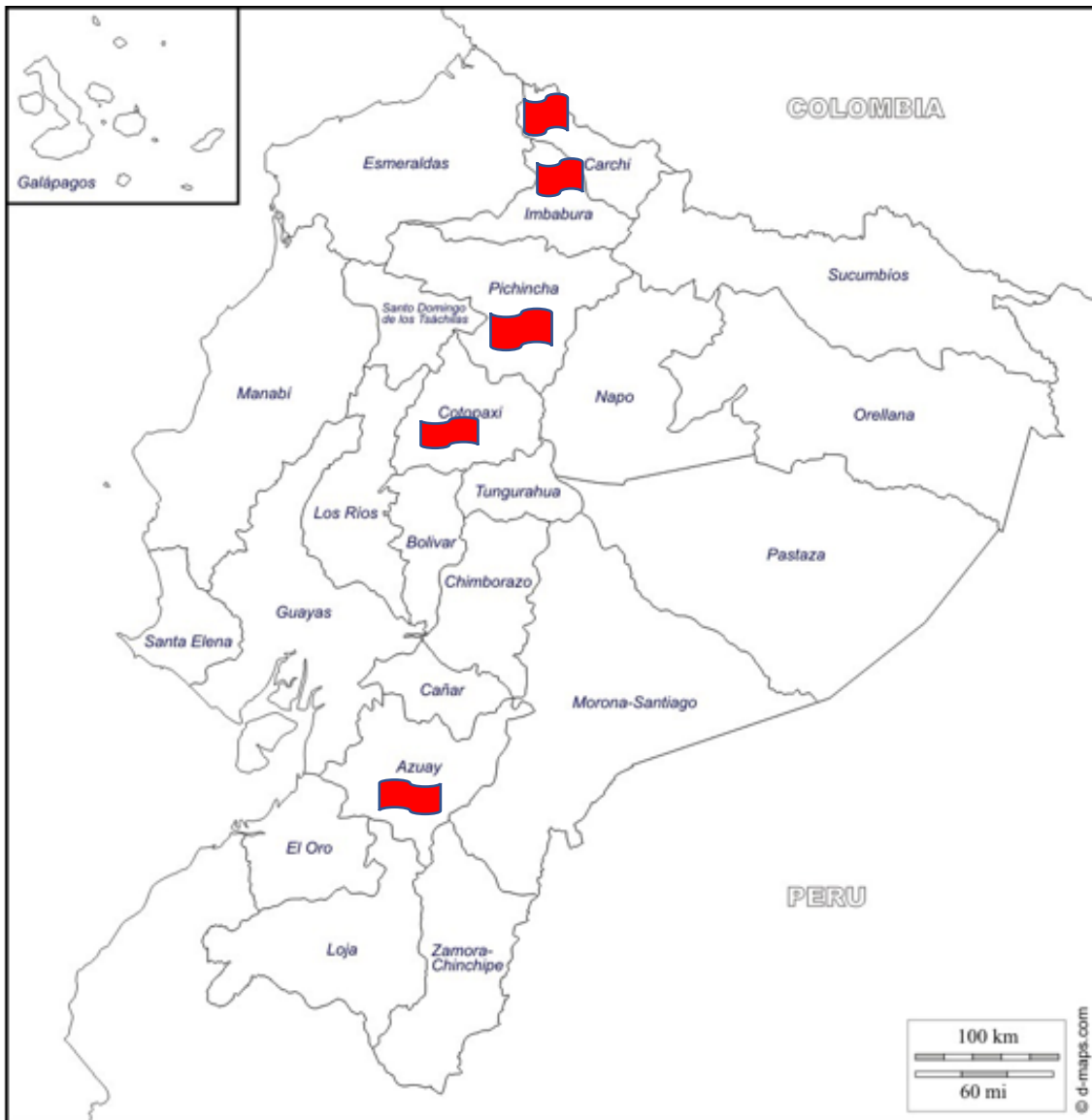
Analyzing figure no. 6 on the political map of Ecuador, we can more easily locate the areas that the country has destined for cultivation, in this case there are mostly the cold areas of the Sierra region, especially in the north of the country since the roses for their cultivation need greater exposure to the sun in a perpendicular way so that the buds of the roses get the size that satisfies the market.

Some generalities for the good cultivation of roses are the climatic conditions: Temperature: for the roses to have optimal growth, the temperature should vary between 17° and 25° degrees. Temperatures below 15° degrees delay the growth of the rose, and temperatures above 25° degrees cause the roses to appear with small buds, opaque colors and almost without petals (Flores, 2015).

Radiation: it should be between 5 to 6 hours of daily exposure to the sun for optimal growth, since they increase the number of sprouts, which produces a more accelerated stem growth (Flores, 2015).

Humidity: when grown in a greenhouse, roses must maintain a constant humidity that should be around 60-70%, since it favors the sprouting of the button. In the case that it does not exceed 60% and there are high temperatures, the roses do not grow with the same characteristics and in the territory the appearance of pests such as mites and aphids would be caused (Flores, 2015).

Soil conditions and pH: for the roses to develop a good quality, the soil must contain elements such as clay and sand that exceed 75%. Also, it must contain elements such as coarse sand and gravel without exceeding the 50%. Roses could withstand acid soils but the pH should be kept around 6 for optimal growth (Flores, 2015).

The nutrients that a rose must have for its optimal growth, are the Nitrogen, which gives the green color of the leaves and increase its size. If the nitrogen is not administered, the rose would be delayed in its blossom and it would turn a light green color and reduce in size; Phosphorus, helps the growth of the rose with the rapid formation of roots and to protect the rose in case of frost, if there is an excess of phosphorus, the roses will harden and growth will be affected. Finally, Potassium helps the rose not to get infected with any existing pest (Flores, 2015).

The cultivation of roses in Ecuador, being stationary, the country produces a necessary quantity monthly, increasing in times with higher sales, as previously stated for Valentine's Day, Carnival Festival, among others.

Like any other crop, roses can also have unconvenients while growing if they are not properly cared for. Pests are one of the important factors to be considered since they could occur due to climatic variations, temperature or excess of fertilizers and nutrients put on the rosebushes.

Mites can appear after 3 to 4 days of continuous rain. After a few days, yellowish white dots could be seen on the leaves of the roses. If there is no constant monitoring, the roses can become opaque until they dry out and the plant will die (Flores, 2015).

Another type of pest that can affect rose plantations are aphids, corresponding to one of the main pests in the Ecuadorian highlands. These little animals measure 3mm, are green and attack young roses by sucking the sap and at the same time injecting substances that soften the tissues of the plant. Dry environments are favorable for the development of aphids (Flores, 2015).

1.4. Competitiveness concepts

Regarding competitiveness, it is necessary to revise its concept and methodology that has been developed by an American economist businessman, who used his knowledge to collaborate with the international economy. Michael Eugene Porter, born in 1947, had the idea and the need to develop a thought in which industries could be helped to improve the use of resources and how to implement new techniques or different ways to take advantage of the resources and materials provided by the country of origin (Castillo & Castellanos, 2011).

For Michael Porter, competitiveness is the ability of a company to produce and commercialize their products in better conditions of price, quality and timeliness than its rivals (Burgos, 2017).

According to Adam Smith, with free trade each country could specialize in the production of goods in which it had an absolute advantage or that a country could produce a product more efficiently than another and import products in which it had an absolute disadvantage (González Blanco, 2011).

On the other hand, for David Ricardo, competitiveness is given by having low production costs, in this theory of comparative advantage Ricardo indicates that countries tend to specialize in the production and export of goods whose relative costs are lower compared to the world (Relationships & Monterroso, 1998).

But, for the economists Eli Heckscher and Bertil Ohlin, the theory postulated by them indicates that comparative advantage consists in the fact that a country must export the good that it uses more or its abundant factor and must import the good that uses its more scarce factor (González Blanco, 2011).

Based on the ideas outlined above, competitiveness can be considered as the ability to develop advantages based on the available resources and to be able to analyze possible ways to improve their products in order to reach the market proposed by each productive sector, knowing how to evaluate production processes correctly in order to reduce costs and sell good quality products at low prices.

It is considered that Ecuador has a comparative advantage over its competitors. One of its advantages refers to climatic conditions, being located on the equator or in the middle of

the world are adequate conditions for flower production. The concepts detailed above are a basis to indicate that Ecuador, having a reputation for flowers that are produced specifically from roses, could be included as an absolute advantage due to the quality of these, taking into account that Ecuador has a great variety of flowers for sale, however, roses are the most valued flowers in the international market.

To analyze the situation in Ecuador, it is important to know how to use and apply some of the knowledge provided by Michael Porter so that productive sectors such as the flower sector can develop the know how to take advantage of their competitors. Some of the tools that Michael Porter provides is Porter's diamond and his five forces that are used to directly analyze a productive sector and know how to reinforce the activities carried out and increase the efficiency of the sector.

Porter Diamond

Figure 7. Elements of Porters Diamond
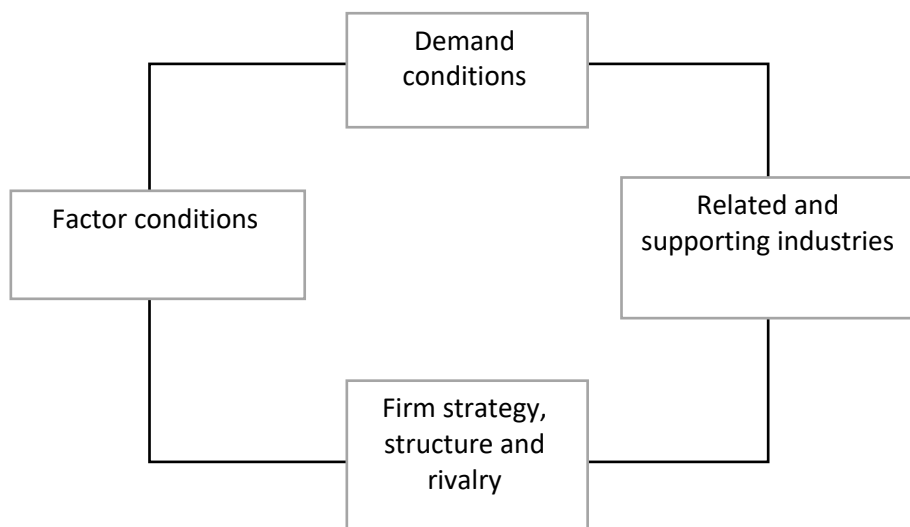
Source: El modelo del Diamante de Porter https://studium.ucss.edu.pe/index.php/SV/article/view/229/213

Porter's Diamond analyzes the competitive advantages of a sector, it is a method that increases the benefit of the sector to be able to analyze and solve problems that could be generated.

Factor conditions: here is a list of the daily elements that the sector has, such as land, labor and capital, to which specialized (scientific) knowledge and skilled labor must be applied (Benetti, 2001).

Conditions of demand: it refers to the purchasing power or as its name indicates the demand that exists inside and outside the country to obtain the product, this influences the sector to seek continuous improvement in its processes to obtain better goods or services (Benetti, 2001).

Complementary and support industries: this factor influences the development of the industry if related industries (flower cultivation) are inside the country and also other industries that complement or help the development of the former (Benetti, 2001).

Structure and rivalry of industries: this last element refers to the fact that a competitive advantage consists of the context in which an industry was created, organized and constituted to perform its functions (Benetti, 2001).

In addition to the elements detailed above, for Porter two other external aspects that affect the development of the industry are also involved, such as causality and government. Causality consists of the external factor that involves wars, problems, financial crises, social changes; and the government is considered by Porter as a determining factor that will directly influence the other detailed elements since it regulates laws and decisions, it can invest money in the sector and as a buyer and client of the sector.

Figure 8. Porters Diamond in the ecuadorian flower sector

Conditions of demand: the countries that buy roses need to verify the phytosanitary, agro-quality permissions, and other documents in order for the products to be imported in the country.

Conditions of the factors: the geographical position of the floricultural sector is beneficial due to the climate, luminosity, minerals of the earth.

Complementary and supporting industries: associations within the country that help the creation of commercial ties to mutually benefit from lower costs.

Rivalry of industries: the main flower producers are located in the provinces of Pichincha, Cotopaxi, Imbabura, Carchi. They would determine the competitiveness between them on the greater production of roses.

1.4.1   Porters five forces

Porter's five forces strategy is used when a country seeks to develop a competitive advantage over its rivals, so the following diagram shows the distribution of the ideas that, according to Porter, the industry must have to analyze in this case the situation of the flower sector compared to its competitors.

Figure 9. Five elements of Porters forces
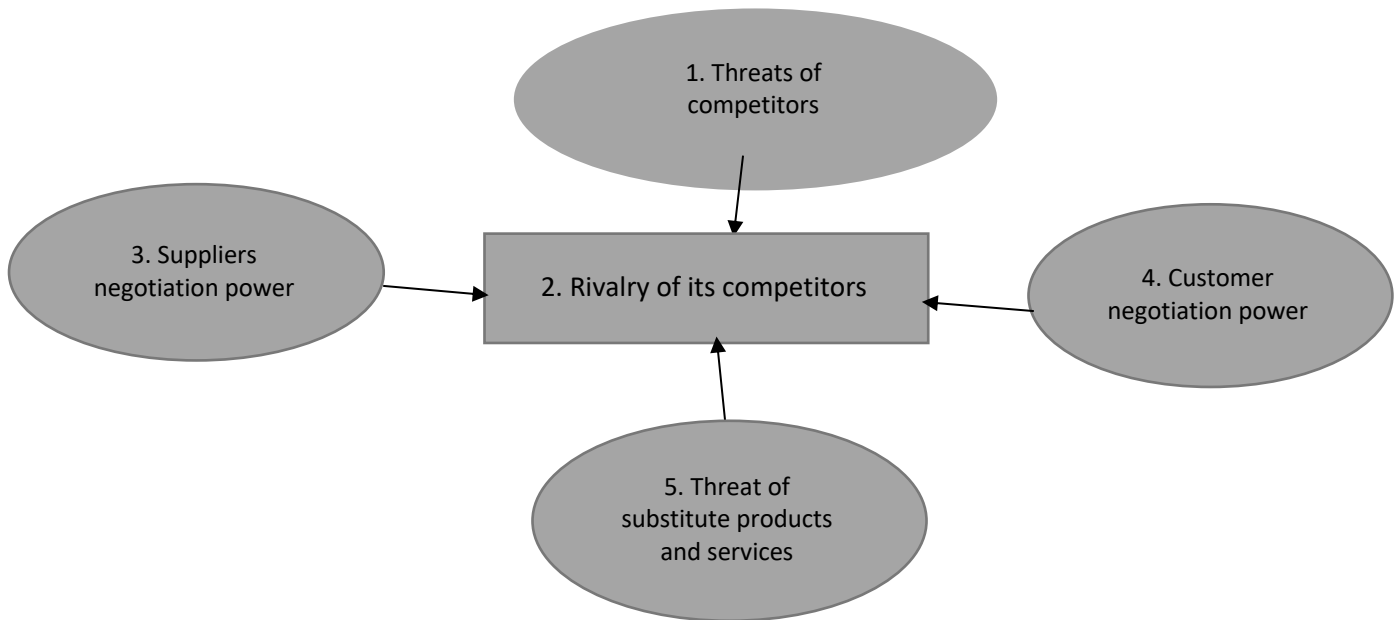
Source: The five forces of Porter

Threat of new competitors: refers to the desire that an industry has to enter a market that is relatively new, but taking into account certain aspects such as economies of scale, provided that there is the risk of entry of new actors national prices they must remain low compared to the others or, in turn, the national industry must choose to increase investment (Porter, 2008). Another point to consider within this element is the differentiation of the product that in the Ecuadorian case by the sales references that Ecuadorian flowers have such as their quality, durability, fragrance, that is, in addition to their cultivation and production method, weather conditions are favorable.

Rivalry between competitors: it refers to the costs of storage, distribution, production capacity, beliefs of the producing countries, since there is greater rivalry when the barriers for the exit and entry of the product are more demanding, in terms of the beliefs that is also a point to be considered, the market to which you want to enter should be taken

into account and the similarities and differences in terms of religion should be analyzed, although in the case of flower growers there would be no greater appreciation or difficulty for the product (Porter, 2008).

Bargaining power of suppliers: this force consists in the fact that suppliers have the ability to obtain higher income, charging more than they should in order to have more income, within this scope raw material suppliers and labor suppliers are included; the type of powerful suppliers are reflected in those gathered in the same block where buyers acquire the corresponding inputs (Porter, 2008).

Bargaining power of customers: the power that customers give is the ability to make or request lower prices as well as to demand and request better quality in goods or services, these can make participants within the industry confront each other to reduce costs and compete for better products (Porter, 2008). The United States, being one of our main buyers, must take into consideration that the cost of the rose product must be competitive in relation to countries such as Colombia and the Netherlands; As stated above, customers who are related to the industry can tip the negotiating balance in their favor when there are better quality substitute products on the market, with superior service and low prices, which leads suppliers to compete with each other. for those demands.

Threat of substitute services and products: these types of elements are constantly present, since they fulfill the same function as the original product or service; however, a substitute product should not always be focused on buying something new or better, since the same sector can develop a product or service without having to buy the existing ones. On the other hand, these types of elements also affect the sector since they can be causal for presenting ceilings on purchase prices and if in this case the sector does not know how to

get away from substitute products by improving its own products over time, they will suffer losses profitability (Porter, 2008).

Figure 10. Porter's forces in the rose industry
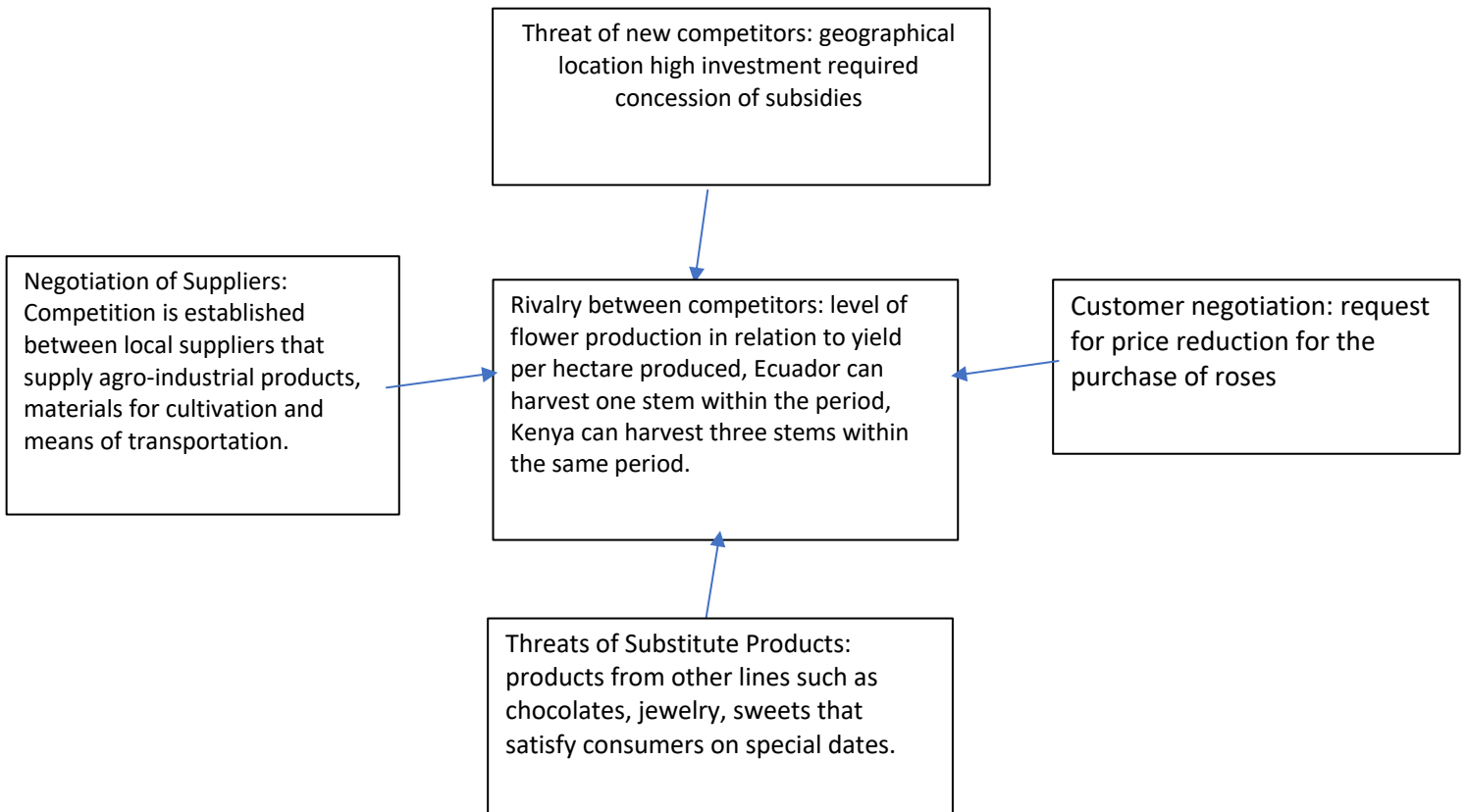
Source: Strategic plan to strengthen the floricultural sector 2011-2015

1.4.2 Value chain

Figure 11. Value chain elements
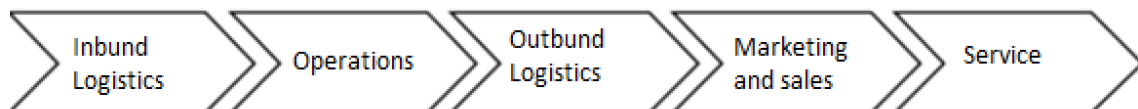
Source: The value chain: A tool for strategic thinking

It is based on a process or continuous actions carried out with the objective of giving value to a product or service so that it is successful in the market, taking into account a viable economic model. In addition to this, the value chain has three specific objectives, which are: improve services, reduce costs, and create value to the product (Quintero & Sánchez, 2006).

The value chain in the production of roses involves the production, marketing and distribution of the product. It is a continuous process in which suppliers, materials, infrastructure, transportation, vendors, wholesale and retail distributors are involved until reaching the final consumer. It corresponds to a collection process from time to time, but the transportation and sale of the roses is constant due to the storage of the product (Financiaci, 2018).

The value chain consists of two types of activities, primary and secondary, within the primary activities are detailed:

Inbound logistics: this is made up of all the activities prior to the production of the product such as reception activities, storage, handling of raw materials, inventories, among others.

Operations: consists of all the activities that are developed for the elaboration of the product such as assembly, labeling and installation operations.

Outbound logistics: it is based on the distribution of the final product and additional storage, orders and vehicles to distribute.

Marketing and sales: are based on all activities for the sale and acquisition of the final product, advertising marketing is included here.

Service: consists of all the activities after the customer buys the product.

Regarding the secondary or support activities, the following are detailed:

Purchases: It is based on the purchase of raw materials, supplies and other items to make more products.

Technology development: all activities and training acquired for procedures and technological inputs for each activity of the value chain are involved (Quintero & Sánchez, 2006)

Human resources management: based on the activities of selection and placement of personnel in the institution.

Institutional infrastructure: it is made up of the activities of management, planning, finance and accounting within the institution.

By indicating that the value chain is a continuous process that seeks to increase the value and quality of a product so that it is recognized in the international market, the floricultural sector implements an adequate process for the acquisition of necessary inputs for cultivation, sowing and harvesting of the finished product and transport to final consumers.

Figure 12. Links that make up the value chain of the flower sector
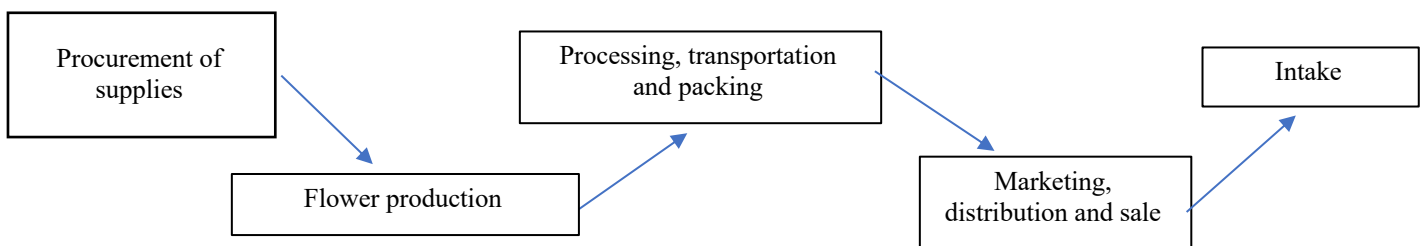
Source: Daniela Nieto, Value chains and industrial links in the sub-floricultural sector of the La Plata district, 2015.

Based on figure no. 12 the procurement and supply of inputs is one of the necessary links within the value chain in the floricultural sector. It corresponds to all activities related to the collection of seeds, materials to build greenhouses, devices for watering flowers, agrochemicals, among others (Nieto, 2015).

The second link in the floriculturist value chain corresponds to the production of flowers. It is one of the most important steps since the growth of flowers must be managed and controlled correctly, includes applying the correct nutrients, choosing the land to build the amount of necessary greenhouses with its fundamental characteristics. Within this step, it is also necessary to control the levels of radiation and exposure to sunlight, control of pests and possible diseases that may originate in the flower until reaching the time of harvest and post-harvest to proceed to the following step (Nieto, 2015).

The processing, transportation and packaging correspond to the third link. Within this point the flowers grown in the previous step proceed to be classified by species and are placed according to established packages, within this step the best flowers grown to be sold in the market (Nieto, 2015).

As for the fourth link: marketing, distribution and sale, they correspond to the entire process that is carried out between a seller and a buyer, within this step new negotiations are sought between new buyers and to be able to open up new places for sale (Nieto, 2015). The last link in the distribution chain of the floricultural sector corresponds to the consumption, in this step the flowers proceed to be transported to the final consumers that is usually carried out by air with a refrigeration system so that the flowers do not lose their quality and can arrive fresh at their final destinations.

Figure 13. Value chain on the production of ecuadorian roses

Fertilizer reception and land preparation	Planting and caring for the growth of roses	Selection of roses, packaging and transportation	Sale and promotion of the product. Obtaining license and certifications	Shipment of roses by air
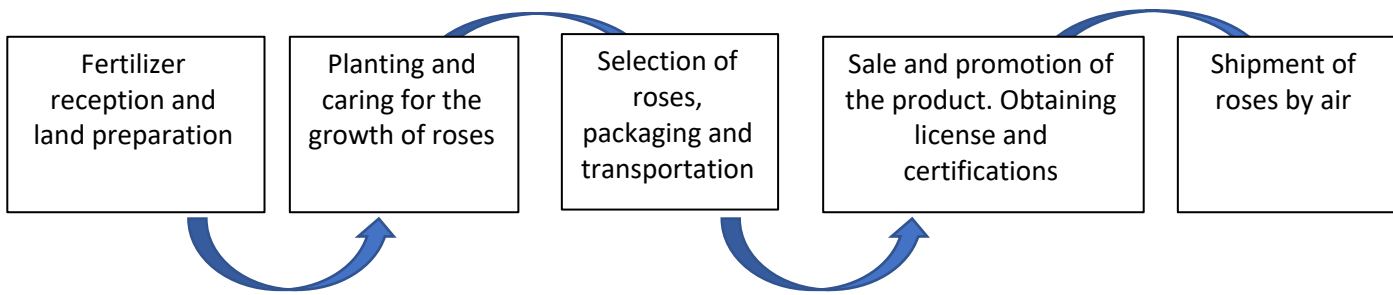
Source: Financing and investment guide, flower chain

1.5 Competitiveness of the flower sector

1.5.1 Current situation of the competitiveness of the flower sector in Ecuador

Comparative advantage, being the pillar in international trade theory, guarantees the achievement of the well-being for the flower sector within a country, so that consumers or potential buyers will choose the country that provides the most accessible offer on the market (Pérez Caldentey & Ali, 2007). In this context, the technological component that the flower sector can incorporate to become more competitive against recognized markets such as the Colombian case, can influence positively. Just as comparative advantage is an important factor for the applicable theory within foreign trade, innovation can be considered as a synonym of the first since a country needs to be constantly changing its products considering the same products but seek to grow and breakthrough in other markets, entering with advantages or characteristics that are typical of this sector, as is the case of the Pacari chocolate shop (Días, Zamora Campoverde, & Mora Sánchez, 2019).

For a country like Ecuador, it should be important to consider specializing in a product, especially in roses, since Ecuador have a good climate and good land for their

production. Even that, Ecuador needs to take on account that in the logistics process spends more than what is produced and sold, this could not be a viable product for Ecuador to focus all its efforts on developing and selling.

It is important to analyze Ecuador's direct competitors in the export of flowers around the world, such as the Netherlands with $4,207 and Colombia with $1,399.6; both countries expressed in millions of dollars. The Netherlands has vast areas of cultivation, especially of tulips that make them recognized for this variety above all within the European Union has several benefits and trade agreements with various countries.

Flower exports are more abundant, either because tariffs are not charged or because export costs may be lower depending on each type of agreement, but the Netherlands also has a strength, as it has the capacity to establish the prices of flowers around the world for an activity that takes place here that is known as "the great auction of the day", this consists of several hundred sellers and buyers meeting and passing the product from the producers to the largest wholesalers easily which makes it possible to set the world price of flowers. (Ochoade, 2019).

Currently, the main flower exporting countries are Holland, Colombia and Ecuador, due to the climatic conditions that favor cultivation and make the product develop with a superior quality than its competitors. Ecuador, when starting flower exports from 1980, has developed around 120,000 jobs, in addition, Ecuador has a greater demand for roses on special dates such as Valentine's Day and Women's Day (Gutiérrez & Victoria, 2016).

Ecuador, compared to its closest competitor, which is Colombia, presents a notorious disadvantage compared to the sale of flowers, since Colombia has been

increasing sales prices while Ecuador has decreased them, this was due to logistical processes. In other words, to move the flowers from the production plant to the port to be dispatched, in 2015 there was a rise in the prices of supplies, so that wages decreased and the transport and sale processes were affected by the high prices of payment (Gutiérrez & Victoria, 2016).

On the other hand, Colombia is the second largest exporter of flowers in the world, with only 10 varieties of flowers directly for cultivation and export. Colombia has a world-renowned partner, the United States, which prefers Colombian and Ecuadorian flowers because of their territorial "closeness", which means that the flowers arrive fresher, faster and with better quality than a longer journey.

In this context, it is also important to analyze new spaces or countries to which Ecuadorian flowers can be exported, but for Ecuador to become more competitive, it must be able to make its way into a new market such as Hungary, which according to Proecuador:

"According to information collected from Hungarian importers, the Ecuadorian rose is highly valued, which is acquired in the Netherlands and then transported to Hungary (...) there is a lot of interest in making direct purchases from Ecuador that establish good prices for both countries (...) " (Proecuador, 2021).

In this context, Ecuador may have a greater opportunity to include this market as one of its direct buyers of roses, as can be seen above, direct importers from Hungary are preferring the quality of Ecuadorian roses. Flower exports to Hungary in 2017, were 586 thousand dollars (Proecuador, 2021) and thus, with the increase in commercial exchange, it

is possible to continue opening the way and increasing the level of exports and income to Hungary.

1.5.2 Variables of competitiveness of the flower sector in Ecuador

Over the years, the cultivation of roses in Ecuador has developed strongly based on several characteristics. The competitiveness variables that Ecuador has correspond to:

Geographical location: especially for the cultivation of roses in Ecuador, it is carried out in the Sierra region of the country in the provinces of Pichincha, Cotopaxi, Cayambe, and some varieties of flowers are produced in the Coastal region of the country such as in the province of Guayas. In the Sierra region, the production of flowers is more favorable and pertinent due to the climate that ranges between 7 and 21 C, also including the fact that the sun's rays fall perpendicularly on these high areas, which favors the development and growth of the buds. By 2017, Ecuador had 471 farms for planting flowers and the total production was around 4,200 hectares, of which 3,100 were destined only for the cultivation of roses (Zúñiga, 2005).

Characteristics of the flowers: worldwide the characteristics and quality of the flowers and especially of the roses is increasingly recognized since the beauty and exclusivity of the Ecuadorian roses favors the purchase of the product in the international sphere, the color, the intensity, thickness of the stem, the size, the durability of the button are influencing factors for the sale of the product (Pazmiño, 2018).

Labor: Ecuador uses the labor of indigenous, rural, peasant, immigrant women with low salary costs who, being women, will have an easier time handling flowers with the delicacy necessary for the good treatment of flowers (Korovkin & Sanmiguel-Valderrama, 2013).

Technology: year after year we seek to improve the technology applied to plant nutrition due to abiotic stress, which is caused by droughts, extreme temperatures, and high salt concentration. Current biotechnology helps counteract the negative effects of poor performance on rose growth (Gómez & Rea, 2017).

1.5.3   Competitiveness index

The Competitiveness Index or Global Competition Index (GCI) measures the microeconomic and macroeconomic fundamentals of each country's competitiveness. In the same way, the World Economic Forum (WEF) defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country (Chacón, 2010).

Regarding the competitiveness index, there is a worldwide ranking carried out by the WEF that is based on certain criteria such as the development of institutions, environmental factors, health, and economic growth, among others, to analyze how competitive a country is compared to the world. Ecuador until 2018 was presented in a position 86 but in 2019 it was presented in a position 90, even so, when presenting a reduction of 4 points, Ecuador is constantly located between positions 80 and 100, according to FEDEXPOR Ecuador does not presents a notable advance in terms of the country's competitiveness since development has not been progressive (Schwab, 2018).

CHAPTER 2

2   ANALYIS OF THE INFORMATION OF THE FLOWER SECTOR IN ECUADOR

2.1 Identification and characterization of the main floricultural factors of Ecuador

The information detailed in Chapter 2 has been compiled based on data obtained from various sources of information, some of them being the World Bank, Central Bank of Ecuador, TradeMap, among others.

At the beginning of the study, a matrix was prepared with data from the flower exporting countries with respect to tariff subheading 060311 during the period 2007-2019, in a general way to be able to choose the main rose exporting countries from the entire matrix and proceed with the analysis of each one. Ecuador was taken as the base country, in relation to the total of its exports, the countries that had up to less than 50% with respect to Ecuador were selected, for which the Netherlands, Ethiopia were chosen, Colombia and Kenya met the above condition.

The information can be analyzed in two parts: first in a qualitative part and second in a quantitative part. Regarding the qualitative information compiled from the World Economic Forum, the following indicators have been obtained to analyze in relation to flower exports:

- Quality of Air Transportation Infrastructure

- Intensity of Local Competition

- Width of the Value Chain

- Sophistication of the Production Process

In order to specify the information for each year based on each detailed indicator, the linear regression technique was used to help and predict the behavior of one (dependent) variable from another (independent) in this way it was possible to complete the matrix of qualitative data for the analysis of each country (Dagnino, 2014).

The second part of the information collected from sources such as TradeMap, the World Bank and the Central Bank of Ecuador, seeks to analyze the quantitative information of the economic pillars that influence rose exports. The information obtained corresponds to the following pillars:

- Trade Balance of Goods and Services at Current Prices

- GDP Per Capita, PPP at Current International Prices

- GDP, PPP at Current International Prices

- Inflation (annual %)

- Tons Exported

- FOB Exported

- Percentage of Exports per GDP

- Total Exports

- Total Oil and Non-Oil Exports

It is important to mention that for the graphic presentation of the information collected from each matrix of qualitative and quantitative variables, the statistical program R was used, which is a system with a programming language based on commands with all the procedures that are carried out can be reflected, they are developed as the data is entered to generate the statistical graphs (Salas, 2008).

2.2 Obtaining data corresponding to the flower sector in the proposed years

For the collection of qualitative information, the World Economic Forum was used as a source of information, which was based on 12 pillars that analyze qualitative variables between 137 and 144 countries of the world (Pilaló & Salazar, 2017), some of the pillars that analyze the World Economic Forum are:

- Institutions

- Infrastructure

- Macroeconomic stability

- Health and basic education

- Efficiency in the labor market

- Market sophistication

- Innovation

For the elaboration of the chapter, the pillars and indicators that compose it were analyzed in order to choose the best that identify and demonstrate what the rose exporting countries are doing to improve against their direct competitors.

On the other hand, for the analysis of quantitative information, several sources of information were used, such as Trade Map, from which general data such as total exports, oil exports, tons exported, in order to obtain accurate information from each country also the research was complemented with data collected from the Central Bank of Ecuador. Another source of information used was the World Bank, from which specific data were obtained from the countries under study Ecuador, Colombia, Kenya and Ethiopia such as Trade Balance, GDP based on current prices and GDP Per Capita based on the purchasing

power parity of the countries, in the same way the information of the Inflation was obtained based on the annual percentage of each country.

2.3. Analysis of the variables corresponding to the product

2.3.1. Qualitative variables

Based on the review of the corresponding information of the variables Air Transport Infrastructure, Intensity of Local Competition, Amplitude of the Value Chain and Sophistication of the Production Process, published by the World Economic Forum, a qualitative analysis was carried out in order to contrast the information collected from each competitor country against Ecuador during the study period 2007 - 2019.

According to the reports presented year after year by the World Economic Forum, the pillars and indicators did not change until 2018, however, a change could be noted regarding the year 2019 report since certain indicators of the pillars detailed above no longer reflected as part of the study.

The World Economic Forum presented a document indicating the reason that some indicators no longer appeared in 2019, within the document they were able to indicate that:

"For economies that do not have a regular train service or where only a portion of the territory is covered, the sub-pillar in Transport Infrastructure corresponds to an average score on the components of land, air and maritime transport (*The Global Competitiveness Index 4. 0 Methodology and Technical Notes, 2019).*

Another of the indications given by the World Economic Forum is that for countries that do not have access to the sea, they are not included in the score of the maritime components, but correspond to the score of the indicator on the Efficiency of Services in

Maritime Ports (The Global Competitiveness Index 4.0 Methodology and Technical Notes, 2019).

In this way, it is justified that the complete analysis of all the qualitative variables with respect to the year 2019 cannot be carried out.

As indicated above, for the analysis of the information it was necessary to use the computer tool for data analysis R. Additionally, it should be considered that the Netherlands has been analyzed more than a producer of roses as a marketer, which is why there are variations with respect to the other competing countries for the analysis of the graphs. Based on this analysis Russia us not considered as a country to be studied because it is considered a country who commercialized being a country who Ecuador sell a big quantity of roses. The analysis is based on countries who produced not the ones who commercialize roses.

Figure 14. Quality of Air Transportation Infrastructure 2007 to 2019
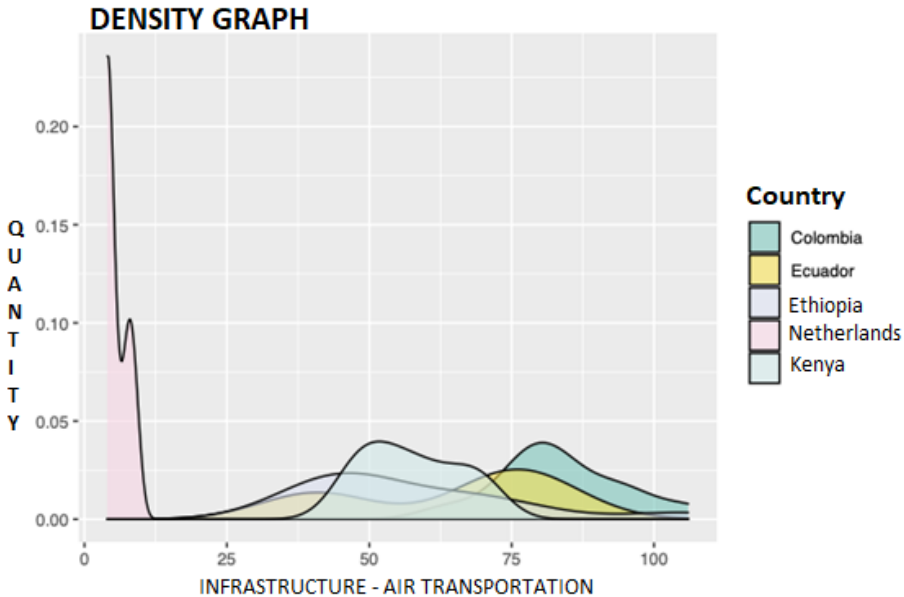
Source: World Economic Forum

In relation to figure no. 14 of the indicator called "Quality of Air Transportation Infrastructure" which, as its name indicates, corresponds to the mobilization of air transport, facilitating economic relations and world foreign trade, helping to improve productivity levels for the benefit of an economy (Giraldo-Velásquez et al., 2015). Within this pillar, the competing countries present a similar information behavior during the study period 2007-2018.

This first indicator integrates all the necessary facilities to support air services with adequate levels of safety, reliability and economy that must be governed by the preparation, application and maintenance of laws at the national level and according to the scope of the aviation program allow the competent authorities to carry out inspections, investigations, among others, to determine if the established regulations are being complied ("Security Manual for the Protection of Civil Aviation Against Acts of Illicit Interference Security Manual for the Protection of Civil Aviation Against Acts of Unlawful Interference," 2008). The two main indicators that were measured for these facilities correspond to airport services and air navigation services, due to the fact that the main transportation for this product under analysis is by air (BENITO & ALONSO, 2018). In this sense, Ecuador is stable in the first years of the period, ranking within the 77th position in 2007 and 73rd in 2011, however, an increase in this variable is reflected, moving to 83rd position in 2012 which makes Ecuador's performance look reduced. For the year 2013, Ecuador moves to position 80 in the ranking, the reason for this development is due to the fact that in 2013 Ecuador inaugurated the new Quito airport, which receives national and international cargo, in addition to being a departure gate and entry for Ecuadorian tourism.

The airport has a 4,100-meter-long runway and is located 2,390 meters above sea level, a feature that allows larger and heavier planes with more cargo and fuel to land there

(Herrera Aulestia & Mejía Burbano, 2017). Also, with the implementation of this new terminal, new logistics centers were placed, one of them is the Alpachaca logistics center, which is located 7 kilometers from the airport and mobilizes around 90% of the country's flower cargo, which favors the development of the logistics for the exportation of flowers, especially roses, for which the increase in position within the ranking would be demonstrated (Herrera Aulestia & Mejía Burbano, 2017). Another of the airports destined mostly for the transportation of flowers, especially roses, is the Cotopaxi International Airport located in the city of Latacunga, thanks to the intensified production of roses at the end of December 2019 and the beginning of January 2020, the harvests on the farms were brought forward and, therefore, the departure of international flights to Amsterdam, Russia, Qatar, Canada, the United States and Luxembourg were brought forward, considering that around 6 flights left directly from the Cotopaxi airport and 300 flights from the Quito airport (Mackay et al., 2020).

In relation to the increase in production detailed in the previous paragraph, the influence that the climate has in this regard, which was favorable at the end of 2019 and the beginning of 2020, is reflected in the increase in both production and transportation that makes Ecuador more competitive due to the ability to promptly deliver more product to its customers.

It should be considered that during 2019 Ecuador had an improvement in the intensity of its rose exports until December, when the first outbreaks of COVID-19 occurred in China, another of the main rose export destinations, affecting thus to the economy of Ecuador due to the progressive closure of ports in the different countries of the world, including Ecuador (Mackay et al., 2020).

In the Colombian case, it is observed in figure no. 14 Quality of the Air Transportation Infrastructure that year after year the country gradually moved away from its goal to improve its development, as reflected in 2007, starting in 82nd place in the ranking and for 2013 appearing in the 106th position. However, in 2016 Colombia is ranked 74th, this is due to the fact that in Colombia the airport ecosystem that has six airlines with international cargo ports such as Avianca Cargo, LAN Cargo , Centurion, Air Cargo, UPS, Martinair and Cargolux that handle 80% of perishable and non-perishable cargo improve air transport by developing it in a more fluid way, in addition, national cargo transportation is handled within the country with four airlines such as Avianca Cargo, Aerosucre, LAN Cargo and LAS that handle 90% of internal cargo (Martínez-Ortíz & García-Romero, 2016). For the development of airport infrastructure and air navigation services, Colombia has sought public policies that benefit the sector, such as investment, regulatory and institutional improvements, which have helped the growth of tourism and trade, thus achieving the development of the competitiveness and boost the country's economy (Martínez-Ortíz & García-Romero, 2016).

Another of the characteristics that influences the quality of air transportation in Colombia corresponds to the concession of airports, which has meant an increase in investments for airport infrastructure, 2.4 billion pesos have meant the concession of 18 airports, from which a growth of 87% in the movement of passengers and 29% in the movement of cargo between 2009 and 2014 (Martínez-Ortíz & García-Romero, 2016). Within this context, during 2019 Colombia also sought to improve its logistics process in the cold chain when transporting roses, by having an air transportation for its exports, the delivery time is reduced compared to the maritime transportation that could last for forty-five days or more for the roses to reach their destination. It is for this reason that Colombia

sought to improve its cold chain inside its planes to prevent pests and bacteria affecting the roses and arrive with better quality (Pérez et al., 2020).

In the case of Kenya, according to figure no. 14 Quality of Air Transportation Infrastructure, it can be seen that their positions within the ranking varied during the period, going from 2007 in position 50 to 2010 to position 69, continuing in 2013 in position 55. The transportation of both passengers for tourism and cargo transport contribute positively to the increase in GDP, as the case in 2015, when this item represented 5.1% of GDP (ANNEX 2 - KENYA, 2018). During this year, Kenya was presented in the 54th position in the ranking, which indicates an improvement in the development of this variable.

In Kenya, there is Kenya Airways, which is a national company in which the state is the main shareholder with 48.9%, however, the main international airport with the largest movement in Kenya is Jomo Kenyatta located in Nairobi, the airport for the year 2017 mobilized 291 million tons of cargo making it one of the most used airports in the region (Annex 2 - Kenya, 2018). Thus, it can be shown that during the period 2007-2018, Kenya was concerned with caring and developing its airport structure, and is currently seeking to expand terminals B, C, and D of the Jomo Kenyatta airport to increase movement for entry and exit people and cargo. Kenya, during the year 2019, sought to improve its position ranked in the 50th position out of 141 economies, this reflects that Kenya has sought to develop its process and logistics chain for the transportation of flowers from their farms to the airport of output. The improvement in the cold process in the mobilization of roses has improve the temperature of the trucks, which has made them seek and go from a low quality of their stems and bouquets of roses to a higher quality at moment of the production (Button, 2020).

Finally, in the case of Ethiopia, during the established period, it has been a country that has cared for and has been interested in its airport infrastructure, ranking in 2007 in 42nd place, which makes it competitive in terms of the processes they carried out at the time, moving to 48th place in 2011 and in 2015, ranking 38th, this being the year in which they best knew how to develop this indicator.

The Ethiopian Airlines airline is among one of the three most important in Africa to transport and it commercializes national and international cargo that also stands out for meeting international standards in the quality and care of airports. One of the important characteristics that this airline has is that, even though it is a public company, it has been allowed to operate freely at a distance from the central government, since it has managed to develop on solid commercial principles, seeking to implement international transport more than national transport to promote tourism (Foster & Morella, 2012).

The main airport in Ethiopia is the Addis Ababa Bole International Airport, which ranks as one of the three important airports of entry and exit of Sub-Saharan Africa. However, one of the main problems that the airport faces is the low control over air traffic since they have not implemented the use of technology, it affects its perfect functioning (Foster & Morella, 2012). In the case of Ethiopia during the year 2019, the state has sought to be a collaborative part in the flower sector by promoting financial initiatives such as five years free of taxes, imports free of taxes, easy access to loans, or as exceptions in the payment of taxes on exports, which has helped attract foreign direct investment for the improvement and maintenance of Ethiopian Airlines and the Bole Airport that help move cargo to the export destinations available to Ethiopia (Button, 2020).

Figure 15. Intensity of local competition

DENSITY GRAPH
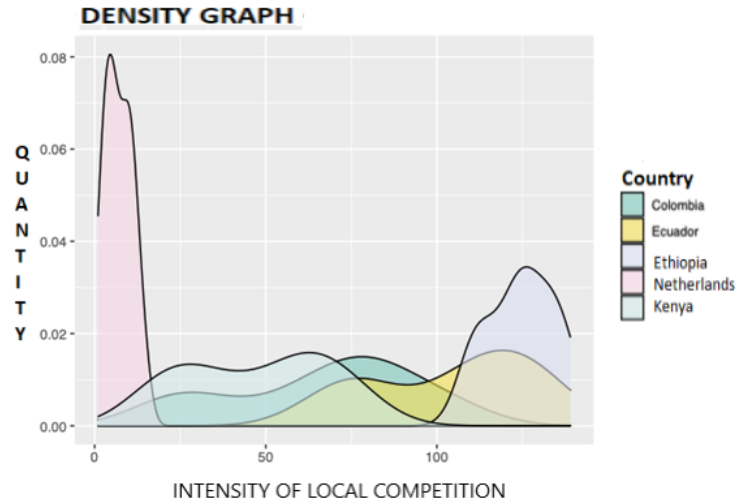
Source: World Economic Forum

According to figure no. 15 of the indicator called "Intensity of Local Competition", refers to the set of political institutions and factors that determine the productivity of a country, which in turn establishes the level of prosperity that an economy can achieve ("Global Competitiveness Index," 2016).

Within this pillar, it can be seen that the countries were at the same level with the development level within each country. Ecuador, having a considerable number of flower producing and exporting companies, makes the government interested in seeking the well-being of each one, since flower exports, especially roses, contribute significantly to Ecuador's GDP (Espinoza, 2019). The flower sector is well seen by foreign investors for economic growth due to the great production of flowers in the Ecuadorian territory, that is why in Ecuador an agricultural policy was implemented seeking internal and external marketing (Espinoza, 2019), therefor at the internal market minimum support prices will be applied; and for external commercialization, the adequate importation of sensitive products (sensitive for the local industry) with bilateral and multilateral negotiations.

Between the study years 2007-2019, Ecuador and Colombia experienced a development that could be considered similar. Colombia, was projected to unify businessmen and producers to obtain an alignment in export policies by the government to achieve low exports, but, in turn, achieving subsidies for peasant producers and profitable businesses for exporters. Colombia, in addition, through flower exporters and investors, sought rapid acceptance of development changes to improve efficiency through various international trade actors (Espinoza, 2019).

In the case of Kenya, according to figure no. 15 Intensity of Local Competition, can be seen that its spot within the ranking of the World Economic Forum has been constantly changing, going from position 77 to position 19, this can be seen as a benefit for the growth of the sector.

In Kenya, the production and cultivation of roses has been carried out since 199. With the support of the government, the roses are cultivated in the vicinity of Lake Naivasha and Thika with its two main producing farms Oserian and Sulmac that occupy around 300 hectares of the 2,000 hectares dedicated to the cultivation of roses and benefiting around 5,000 employees. The ranking position of Kenya at the beginning of the period was in the 47th position, continuing in the 61th position for the year 2010 but for the development of the sector it is due to the new implementation of a Kongoni River flower farm that since 2014, it began it functions in Kenya, where it was ranked 35th, which meant an important advance in the development of the variable. This farm belongs to the company Vegpro Group, it has 80 hectares of crops from which 27 hectares are specifically for the cultivation of roses. They employ around 500 people who have transportation, lunch, medical help and good pay, which improves the quality of life of the population, improving the standards within the ranking. In addition, with the creation of the Kenya Flower Council

(KFC) they sought for a fair treatment, well-paid employment and better quality rose crops (Nowakowska, 2015).

In the case of Ethiopia, it can be seen that within the ranking of the World Economic Forum during the period 2007-2019 it has not had a significant development in the sector in relation to the variable Intensity of Local Competition, since during the aforementioned period there have passed from position 111 in 2007, continuing to position 123 for the year 2010 and for the year 2013 moving to position 139 and finally for the year of 2018 finishing in position 134 within the ranking. Ethiopia currently has about 81 rose farms, two of the oldest flower growers are Meskel Flower since 1997 and Ethio-flora since 1998. The sector is also one of the largest employment providers with around 70,000 new jobs which has helped the development of the population's ways of living, in addition to food security and poverty reduction (Hatch & Wells, 2012).

Additionally, in the Ethiopian flower sector, as of 2010, employers have look to support their employees by granting them good pay with equal salaries, legal benefits, annual vacations, health care, among others (Hatch & Wells, 2012), that is why workers have sought to be part of the flower farms and also to the employee organizations that exist to ensure that all their benefits are met.

Figure 16. Breadth of the Value Chain
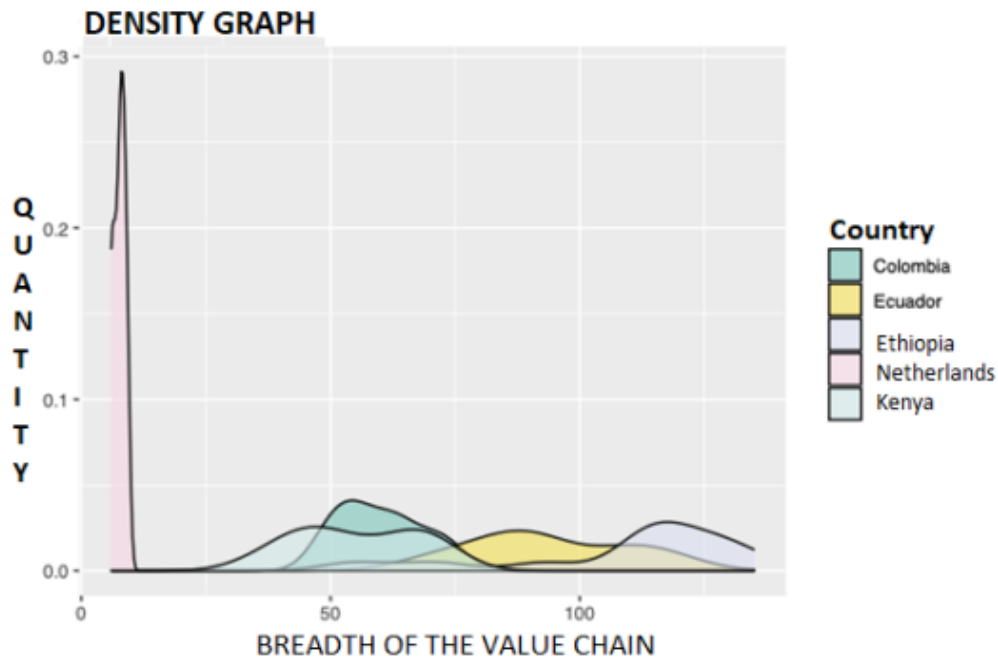
Source: World Economic Forum

The figure no. 16 on the indicator "Breadth of the Value Chain", refers to business efficiency that helps to find the competitive advantages in a sector and to determine the particular activities of each organization at a local and international level (Arnedo, 2012). During the study period 2007-2019, the rose-producing countries had a similar development.

The figure no. 16 shows that Ecuador during the study period, remain very competitive, however, it began to lower the level in the ranking of the World Economic Forum because Ecuador started in 2007 in position 114, for the year 2012 an improvement was reflected with the development of the variable on the 82nd position. The year 2014 was the year in which they best sought to develop the variable, ranking 70th. However, for the year 2018 Ecuador was ranked the 118th position, this can be influenced by the lack of breadth of the sector's value chain, that is, by the lack of facilities to transport the product, the acquisition

of good quality national materials, labor trained, among other points that will be analyzed below.

The issue of prices of export roses can be affected by the influence projected by suppliers of seeds, packaging cartons and air freight, it is important to highlight the last topic since, thanks to variations in the price of oil the profitability of the flower has been affected, in addition the fact that Ecuador has the most expensive air freight in the region, which makes it less competitive compared to other countries (Miño, 2013). Another factor that influences the improvement within the value chain is the cost of production of roses, and the large number of people who are needed to work in the different production areas and also the increase of the minimum wage which has caused the unemployment rate to increase leading to a reduction of personnel (Miño, 2013).

Analyzing figure no. 16 breadth of the Value Chain, the movement that Colombia had during the period under study was likewise constant since it began in position 63 in 2007, for the year 2009 it was located in position 49, which represents being the year with the greatest development of the variable, for the year 2014 it is reflected in position 74, ending the period with the year 2018 in position 55 within the ranking. In relation to Ecuador, Colombia achieved significant development in the application of this competitiveness variable. Colombia, being one of the main exporting countries of flowers in the world, the value chain that they use must have well-structured processes, being that one of the factors that would influence the reduction of positions within the ranking. Would be the lack of communication and selection. of suppliers of raw materials that offer low prices, immediate availability, various forms of payment and, above all, quality of the products (Bedoya et al., 2019), in addition to this, Colombia must improve the implementation of the technological part such as the use of Internet so that they can effectively receive orders made by

customers both nationally and internationally, in order to also use marketing through the networks of each company and additionally, use software in which all information can be stored without risk of loss or theft (Bedoya et al., 2019)

According to figure no. 16 Width of the Value Chain, Kenya presents a development within the ranking of the World Economic Forum going from position 72 to position 42, which shows a benefit for the development of the sector, this may be due to the fact that the processes have been improved including with the delivery times of the roses. Due to the climate that Kenya has, the production and cultivation of roses has been favorable, so the cultivation of roses has intensified every two months, with the quality control that is given to the product verifying the size and quantity. of the petals and whether they are developing according to customer specifications. Being a producer and seller of roses, Kenya must maintain the quality of its products to be able to transport efficiently to a large part of the European countries such as the Netherlands, which is its main buyer, Germany, Dubai, and several countries in the Middle East, this It has made the roses produced in Kenya have worldwide recognition, which led the country to improve its processes and improve the quality of its roses (Nowakowska & Tubis, 2015).

Finally, in relation to figure no. 16 on the variable Width of the Value Chain, Ethiopia has presented a development for the flower sector, since within the ranking of the Economic Forum.

Figure 17. Sophistication of the Production Process

DENSITY GRAPH
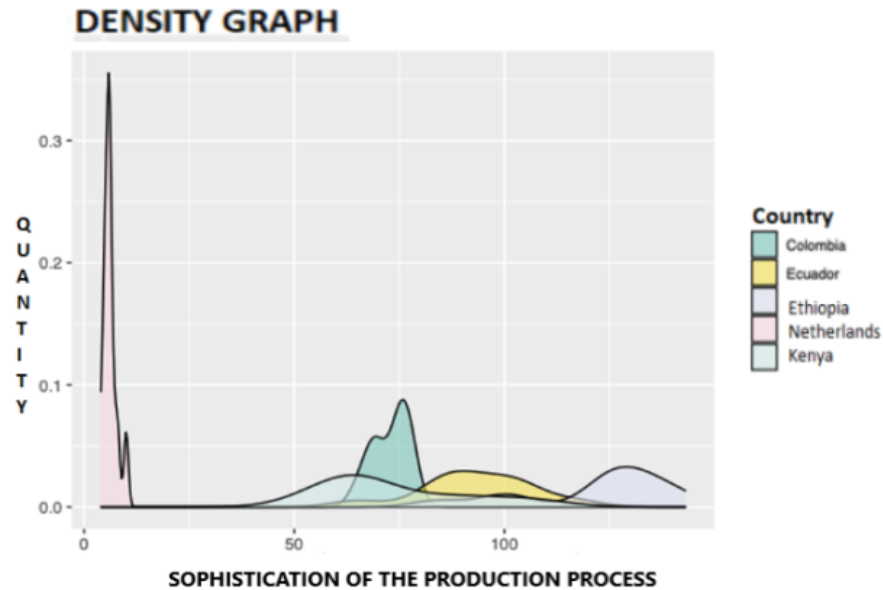
Source: World Economic Forum

According to figure no. 17 of the indicator called "Sophistication of the Production Process", it corresponds to one of the real indicators to analyze national and international data to represent the quality of a product created and exported from each country (Jiménez et al., 2018). According to the analysis, Ecuador within the ranking had different positions during the 2007-2019 period, going from position 65 to position 117, the decrease was due to lack of improvements during the production process, the country must improve the acquisition of supplies to facilitate the transportation of flowers with ergonomic cars, the same ones that must give good support to the flower boxes to avoid mistreatment, they must have cold rooms with availability for more than the average quantity of cultivated roses, among other characteristics necessary to improve the conservation of roses during the post-harvest (Jarrín, 2013).

In the Colombian case, during the analyzed period it can be observed that there was a decrease corresponding to the variable, going from position 65 to 78, which is not an

aggravating factor for the sector. However, it influences the flower production process. Colombia is characterized by having modernized farms with high technological levels that are reflected in the yield and quality of the flowers. In the facilities of the Center for Agricultural Biotechnology of SENA, a new system of cultivation in substrate with automated recirculation in cultivation of roses and carnations was started, the system is composed of ionic sensors, cards for data acquisition and software (Barrientos et al, 2011), this new system that was integrated into rose crops is beneficial for the development of the sector in relation to the Production Sophistication variable. However, the lack of government support can influence the decrease within the ranking due to the lack of subsidies that makes products more expensive.

According to figure no. 17 sophistication of the Production Process, during the period 2007-2019, Kenya presents a development within the ranking of the World Economic Forum going from position 108 to position 55, which demonstrates a benefit for the development of the sector, this may be because the Kenya Flower Council sought to improve rose production processes by getting companies to implement the idea of crop protection strategy, pesticide application and worker protection. The use of pesticides that affect the health of workers in rose farms has been one of the risks that employees have decided to go through for the benefits that companies provide them (Nowakowska & Tubis, 2015). Within the process of flower production in Kenya, one of the problems that affects companies and for which a formal solution has not yet been found is obtaining seeds for the cultivation of roses, since the "formal seed system" is not used among producers, the "informal seed system" is usually used, which consists of the exchange of seeds of plant varieties among them of roses, even on varieties of protected species. The exchange of saved seeds between farms can be risky for the same reason that they can cause infections

or plagues that would damage the crops, even being risky for the health of the employees in the area (Munyi & de Jonge, 2015), this could be one of the reasons why the sector does not develop the variable.

Additionally, another factor that affects the development of the sector in Kenya is the transport of roses to the airport in refrigerated trucks, because terrorist attacks or vehicle accidents can occur on the road (Nowakowska & Tubis, 2015), these delivery process delay shipments of buyers of roses causing Kenyan growers to lose production and sales, even losing customers due to these incidents.

In relation to figure no. 17 of the variable Sophistication of the Production Process, Ethiopia has presented a slow development of the sector going from position 143 to position 84 during the period 2007-2019, however, Ethiopia presents certain problems that are the reason for the slow development of the sector for the production of roses, which is a relatively new practice within the country.

To transport the roses produced from the farms to the Bole International Airport in Addis Ababa, it is done with refrigerated trucks, the distance from the rose farms to the airport is relatively long, so the transportation costs increased considerably therefore, the life of the roses in the vase decreases. Regarding this same problem, the refrigeration system at the airport is not very good, so the producers must calculate the time it takes to transport the roses to the airport, since the roses cannot spend a lot of time due to lack of refrigeration (Tizazu & Workie, 2018).

The lack of development in the logistics process for the transport and storage of roses had a slow the development compared to other producing countries and therefore has not been able to climb positions within the ranking of the World Economic Forum.

2.3.2. Quantitative Variables

After analyzed the chosen qualitative variables of the economic development of the floricultural sector, it is also important to analyze and recognize the quantitative variables of the economic development of sector based on the previously selected competitor countries. It should be noted that the preparation of the graphs that will be presented were carried out using the computer tool for data analysis "R" and the data used for the respective analysis was obtained from The World Bank, Trade Map and the Central Bank of Ecuador.

Figure 18. GDP PPP 2007-2019
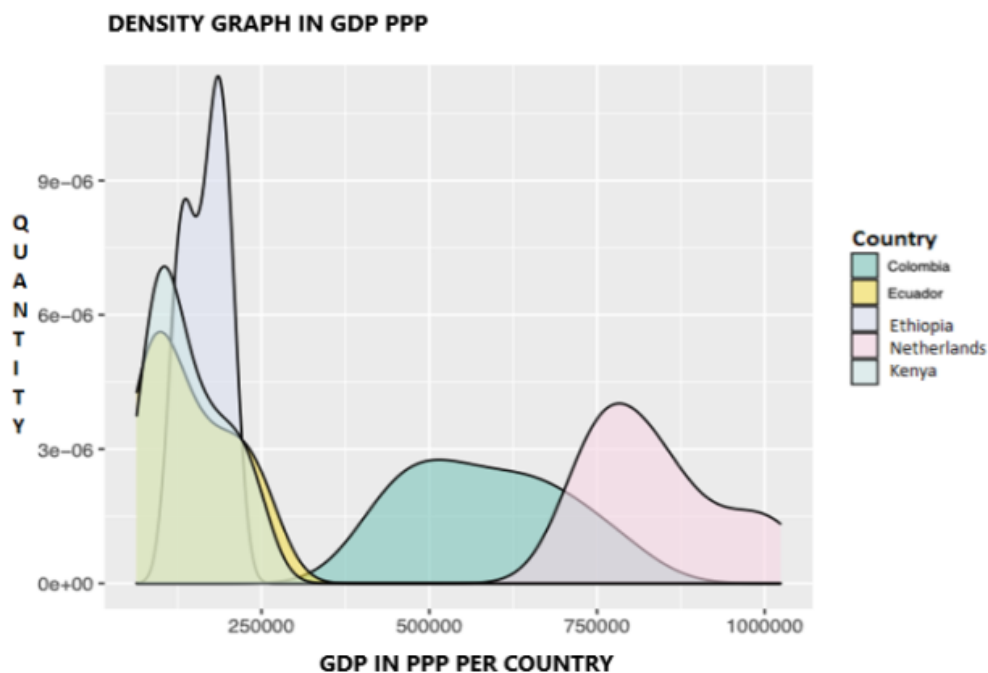
Source: World Bank

About figure no. 18 GDP PPP 2007-2019, Ecuador presented increasing and positive values, which could be due to the protection mechanisms of national production and the compensation of the business sector, favoring the diversification of Ecuadorian

products. Ecuador's GDP was strengthened helping GDP Per Capita to increase, in addition to intermediate consumption that substantially helped foreign trade, especially exports of mainly non-oil exports (Serrano et al., 2020).

During the study period, the government of former President Rafael Correa helped Ecuador's economy to improve progressively, since he sought to develop the country economically with the increase in public investment, reflected in the increase in GDP passing from 4.6% to 8.6% from 2007 to 2008; In this sense, he also strategically sought to develop the infrastructure of transportation, housing, health, education, among others (Tibocha & Jaramillo Jassir, 2008).

On the information collected from the World Bank, within the Ecuadorian GDP, oil has remained a base item for the productive structure of Ecuador, being reflected during the years 2011 with a GDP of $150,266.909 million dollars, in 2012 with a GDP of $159,559.696 million dollars and in 2013 with a GDP of $175,196.209 million dollars. During the years mentioned, the barrel of oil remained at high prices, however, the Ecuadorian economy was not highly favored because other productive sectors that complement Ecuador's GDP did not show significant development oil was the economic support for Ecuador (Sancho, 2018). Progressively, the following years presented an increase in the GDP of Ecuador as well as in the year 2017 a GDP of $195,010.793 million dollars was reflected, and to end the study period, in the year 2019 Ecuador closed the year with a GDP of $205,903.295 million dollars since there was a collapse in internal demand and the weakening of external demand that was reflected in a drop in imports and exports of products (Economic Study of Latin America and the Caribbean, 2021).

On the other hand, Kenya decided to adopt a plan that will help improve the country's economy, Vision 2030 is a plan that seeks to develop Kenya to improve its

economic stability between 2008 and 2030, on this idea the authorities seek to improve, with five-year plans, the generation of economic growth and employment, necessary to reduce poverty, correct disparities in family income while seeking to improve the governance of Kenya (Annex 2 - Kenya, 2018).

For the years 2008, Kenya experienced a strong crisis that affected its economy, the first one due to the global economic recession that caused Kenyan exports to decline; Secondly, for the agricultural and energy sectors, they were affected by the lack of rain, thus leading to one of the droughts that affected Kenya in the cultivation of its crops and for the generation of electricity, which is based fundamentally on the hydropower (Annex 2 - Kenya, 2018).

According to figure no. 18 on GDP PPP 2007-2019, Kenya presents more competitive values in relation to Ethiopia and Colombia. For Kenya, services are those that represent the greatest contribution to GDP, transport, communication, tourism and banking services are those with the highest incidence, thus being reflected with 49.1% of GDP for 2011; followed by the agriculture sector, which for Kenya was very important, since most of its population is dedicated to this activity, and in 2011 it contributed 21% of GDP (Annex 2 - Kenya, 2018).

For subsequent years, Kenya's GDP showed a growing trend as exports grew, mostly tea exports with 24.61% and horticultural products, especially fresh flowers with an increase of 20.20% in the year 2015 (Hecklau, 2017) closing it with a GDP of $160,965.413 million dollars and for the year 2016 mainly, the manufacturing sector represented 19.5% of the GDP (Hecklau, 2017) closing the year with $178,315.879 millions of dollars.

In the case of Colombia, for figure no. 18 GDP PPA 2007-2019, a favorable trend is reflected in the growth of the country's GDP, this is due to the stimulation generated by the

Colombian economy with the strengthening of internal demand, giving greater emphasis to investment, thanks to the re-election of the president of that moment, it helped develop economic-based projects, also giving continuity to investment programs such as housing and highways ("Colombia: PIB, Inflación y Desempleo, 2012-2014 8 16," 2015) closing the year 2014 with a GDP of $625,019.202 million dollars, being the year in which most improvements are reflected in the country's economy. Since 2007, according to data from the World Bank, Colombia reflected a GDP of $427,839.048 millions of dollars.

During the government period of former President Álvaro Uribe Vélez, an increase in Colombian GDP was reflected between 2010 and 2017, GDP increased by 9.7% since they managed to improve the security of the country, accessibility to credits was improved and the increase in consumption and foreign investment (Carlos et al., 2018) going from the year 2010 with a GDP of $485,313,993 million dollars to closing the year 2017 with a GDP of $693,117,075 million dollars. Finally, for the year 2019 the registered Colombian GDP reflected a growth ending the period with $789.57,066 million dollars. This was reflected by the growth of financial activities, trade, the effects of the Financing Law at the end of the year 2018, among other measures developed in the country that reflected the increase in Colombian GDP (Preliminary Balance of the Economies of Latin America and the Caribbean 2019, 2020).

In the case of Ethiopia, being one of the growing economies in Sub-Saharan Africa, Ethiopia has shown an accelerated development of its economy, thus demonstrating the year-on-year increase in its GDP beginning in 2007 with a value of $63,922.607 millions of dollars for the year 2013 with a growth of 5.7%, state-owned companies reflected a growth trend which demonstrated an increase in investment within Ethiopia ("The Federal Democratic Republic of Ethiopia," 2015).

For the years 2014 and 2015 Ethiopia's GDP grew by an estimated 8.7% particularly with the development of the manufacturing and construction sectors. Some improvements within Ethiopia were reflected with the 50% increase in foreign direct investment, and with the increase in foreign exchange reserves, improving the coverage for the payment of imports to two months, ending the year 2015 with a GDP of $167,119, 104 million dollars, improving the GDP growth due to the acquisition of the Eurobond for $1 million euros that helped develop and promote industrial parks, the sugar industry, among others, ending the study period in 2018 with a GDP of $235,271.659 million ("The Federal Democratic Republic of Ethiopia," 2015).

Figure 19. GDP Per Cápita by country 2007-2019
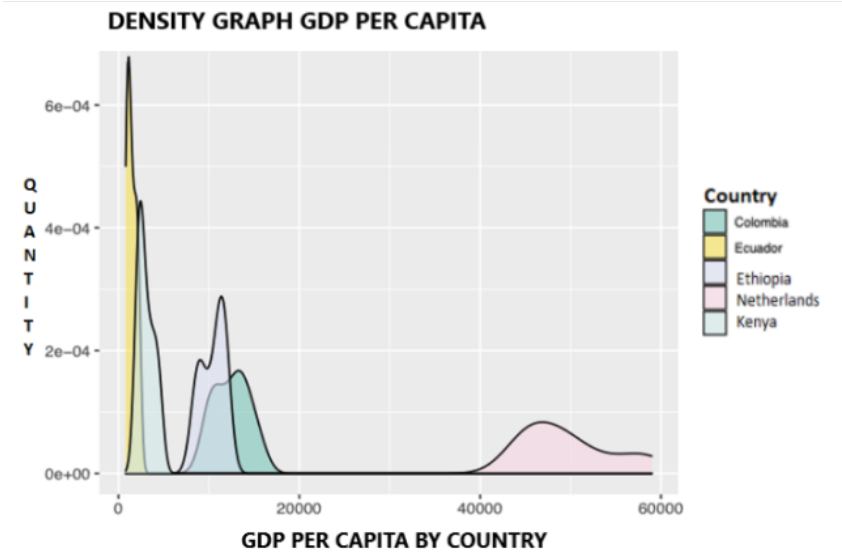
Source: World Bank

According to figure no. 19 GDP Per Capita by country 2007-2019, Ecuador shows a dispersion to the right of the graph which means the progressive increase in per capita income in the Ecuadorian population. An example of this is shown in the year 2011 in

which Ecuador presented a GDP Per Capita of $9,857,521 dollars, due to the implementation of economic policies, the high prices of basic goods and the inflow of capital (Central Bank of Ecuador, 2012).

The progressive increase in per capita income in Ecuador is largely due to the support received during the period in which external conditions favored economic income, such as the increase in oil prices, remittances in the form of foreign currency sent by immigrants and the construction of the Heavy Crude Oil Pipeline that helped to improve the extraction and distribution of Ecuadorian crude for sale (Central Bank of Ecuador, 2012).

The Colombian GDP Per Capita, year after year, shows a dispersion to the right, which can be understood as a positive trend for the Colombian economy, as shown in 2007, it had a GDP Per Capita of $9,781,970 dollars going to the year 2011 with a value of $11,604,102 dollars and finally showing in 2014 a GDP per capita of $13,307,425 dollars. This increase in the economic income of the Colombian population corresponds to several factors, one of them being the extraction of oil, the growth of the manufacturing industry and construction (Vargas Ardila, 2018). The progressive increase in per capita income would also be related to the oil boom that was experienced during the years 2010, 2011 and 2012, being reflected in figure no. 19 GDP per capita by country 2007-2019. During the following years from 2013 to 2017, the economy presented reduced values of its GDP Per Capita in relation to previous years, finally for the years 2018 and 2019 there was an increase in GDP Per Capita ending the year with $15,688,633 dollars due to the implementation of the Vision Colombia II Centennial plan, which seeks to achieve economic development in various areas such as infrastructure, productivity, competitiveness, among others, in order to develop a more just and equitable Colombia (Castro et al., 2009).

Based on Kenya and the analysis of figure no. 19 GDP Per Capita by country 2007-2019, it can be analyzed that Kenya's Per Capita income has not been as favorable as in relation to Colombia, however, when Kenya decides to implement the Vision 2030 plan for the country seeking to develop the economy, was seen as a progressive improvement in the income of its population, so in 2007 they had a GDP Per Capita of $2,434,792 dollars, passing to the year 2012 with a value of $2,830,694 dollars and finally finished the period with values $4,443,179 in 2018.

The progressive increases in GDP Per Capita income in Kenya can be influenced not only by the regulations of the Vision 2030 plan, but also by the strength of domestic consumption, the recovery of the tourism sector and the implementation of infrastructure projects (Hecklau, 2017).

Finally, Ethiopia was the country with a slower development in relation to figure no. 19 GDP Per Capita by country 2007-2019, proves to be the country with the least dispersion in the data analysis since it is a developing economy.

Ethiopia, over the years, has sought to improve the development of its economy, including the per capita income of the population, which is why, with the help of the government, poverty has been reduced by improving citizen well-being. This is reflected in the income of the GDP Per Capita in the year 2007 with $792,354 dollars proving to be the year with the lowest income for the population of Ethiopia, in relation to the year 2011 with a GDP Per Capita of $1,134,785 dollars being the year in which the country's income began to improve, thus being able to reflect the development of government policies, reducing costs for business creation, promoting competitiveness among those that stand out in manufacturing and construction. In this way, the increase in monthly salary income of 33% can be reflected to 46% by 2011 ("The Federal Democratic Republic of Ethiopia," 2015).

Through these developments and improving the economic policies of Ethiopia, at the end of the period under study, in 2018, a GDP Per Capita of $2,154,021 dollars is reflected, thus demonstrating a slow but constant development in the income of the population.

Figure 20. Inflation 2007-2019
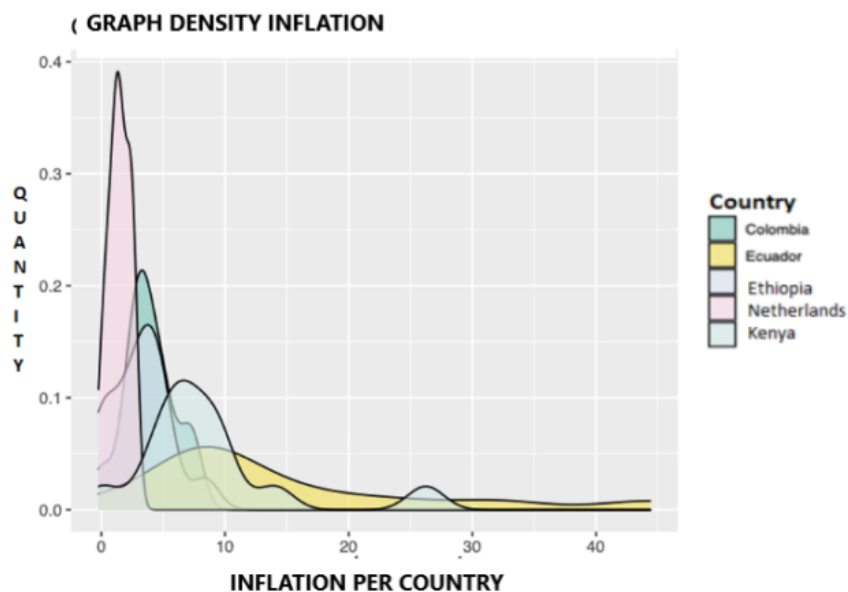
Source: World Bank – Trade Map

In relation to figure no. 20 Inflation 2007-2019, Ecuador has gone through several episodes of inflationary increases and decreases, until it stabilized with a dollarized economy. During the government of former President Rafael Correa, current spending was increased as well as the fiscal deficit by 4% in 2007, this problem could not be solved thanks to the problem in the competitiveness of its export products, making the currency unable to be devalued, in this way a solution was sought, a long-term external debt strategy with China (Guerrero, 2017).

During 2011, inflation in Ecuador remained above the inflation registered in the United States, this was mainly due to the increase in prices directly in five categories:

- Food and non-alcoholic beverages

- Clothing and footwear

- Education

- Restaurants and hotels and

- Transportation.

These five categories reflected an increase in inflation in Ecuador by 72.73%, ending the year 2011 with 4.475% inflation in the country (Guerrero, 2017).

For subsequent years, Ecuador's inflation remained at constant levels, with variations due to the increase or decrease in oil prices, increase or decrease in the fiscal deficit, among others. However, for the year 2016 there was a reduction in inflation, ending the year with 1,728%, because of the better divisions in consumption, with the increase in the CPI (Consumer Price Index) for alcoholic beverages, goods and services. various, water, electricity, gas, among others (Guerrero, 2017).

In Colombia the inflationary problem has been trying to control since 1992 with a policy implemented by the Banco de la República. During the years 2013 and 2014, inflation in Colombia reached 2,018% and 2,898% respectively, this was due to the depreciation of the peso due to the drop in oil prices, in addition to the increase in the prices of agricultural products that use imported raw materials (Villanueva & Merino, 2019).

For the year 2017, inflation represented 4.312% since thanks to the ravages caused by the El Niño phenomenon with the cultivation of agricultural plantations, it was possible to increase the prices of the products, however, for the second quarter of the year there is a rise in prices due to the applied tax reform (Villanueva & Merino, 2019). During the year 2019, a growth in inflation could be observed in the Colombian economy, ending the

period with 3.525% due to public spending and investment in civil works that has been implemented since the previous year (León et al., 2019) including. By the end of the year inflation was reflected in the economy thanks to the protests produced within the country and the increase of the dollar in the exchange rate with respect to the Colombian peso (Rodríguez Pinzón, 2020).

In relation to Ethiopia, figure no. 20 Inflation 2007-2019 reflects a varied movement since it has presented inflationary increases and decreases during the study period, one of these years represents 2008 having an inflation of 44.391% due to the rise in food prices from 22, 8% to 60.9%, and in the same way the rise in the prices of non-food goods from 10.5% to 23.4% (Hailu, 2009).

For the year 2011, Ethiopia presented an inflation of 32,015% due to the devaluation of the Birr in minus 16%, this could be reflected from the end of September 2010 where Ethiopia was looking for ways to improve its economy (Durevall & Sjö, 2012). It can be reflected in the years 2017 with 10,682% and in 2018 with 13,831%, this shows that Ethiopia, having an economy based on agriculture, the increase or decrease in prices significantly influences the inflation of the country that also directly influences in economic policies and possible reforms of the sector (Durevall & Sjö, 2012).

Finally, Kenya in figure no. 20 Inflation 2007-2019 represents a more controlled variation, since the years in which it presents the highest inflation correspond to the year 2008 with 26.240% and the year 2011 with 14.022%, this corresponds to the increase in the prices of raw materials and the crisis of the country together with the violence generated after the 2008 elections (Durevall & Sjö, 2012). In Kenya, an attempt was made to implement a monetary policy that would stimulate economic growth, however, by implementing this monetary policy with little rigor, inflation in Kenya decreased between

2009 and 2010, a trend that could be noticed in the same way in Ethiopia. When inflation increased again in the following years, the authorities continued to use a loose monetary policy, causing the KES to depreciate and by the end of 2011, taking it to be valued at 1 dollar equal to 100 KES (Durevall & Sjö, 2012).

Figure 21. Exported Tons 2007-2019

DENSITY GRAPH EXPORTED TONS
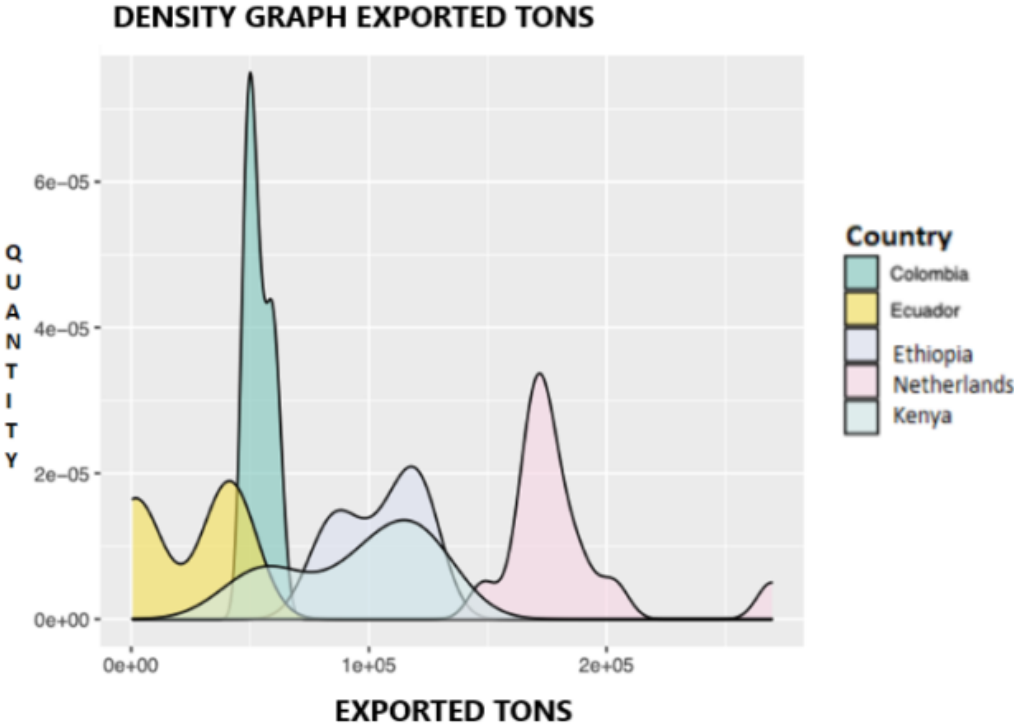
Source: World Bank – Trade Map

Based on figure no.21 Exported Tons of Flowers 2007-2019, Ecuador does not reflect a prominent dispersion since during the study period Ecuador presented highs and lows in flower exports, during the years 2008 and 2009 Ecuador according to the Central Bank of Ecuador, exported 103,559 and 87,485 tons respectively, alluding to the increase in international prices (Cedillo Villavicencio et al., 2021), so there would be a good period for the production and sale of Ecuadorian flowers.

Flower exports, in addition to generating production, also generate benefits in the country's economic income, as well as in 2014 flower exports reached 120,268 tons, but by 2016 the exported tons were reduced as a result of the global oversupply of flowers. Raw materials that affected the flower sector, the country's lack of competitiveness and additionally the consequences generated by the earthquake ending the year with 109,855 tons exported (Chóez, 2021).

During the year 2017 there was a notable increase in exports from the flower sector, thanks to a growth in the demand for Ecuadorian roses, which already corresponds to the flower exported to the largest number of destinations, thus ending the year 2017 with 124,408 tons of flowers, progressively from this year the tons were reduced and at the end of the study period, in the year 2019 the exported tons were 122,816 this as a consequence of internal problems that the country went through such as the October protests in the country that did not allow the normal development of transport, mobilization and output of the product (Chóez, 2021), in this way the trajectory seen in the exported tons of flowers reflects that it is a sector that is in constant development contributing positively to the Ecuadorian economy.

For Colombia, according to figure no. 21 Exported Tons of Flowers 2007-2019, did not have a noticeable growth in its exported tons of flowers since at the beginning of the period in 2007 its total exports were 59,682 tons of flowers, the highest peak that in Colombia corresponds to the year 2010 with a total of 63,043 tons. For the year 2013, despite representing a reduction in the tons exported compared to 2010, the flower sector experienced a growth in its production of 1.2%, in its exports by 4.4% and in its cultivated hectares by 4.3% (Fernández, 2015) ending the year with 50,540 tons of flowers. This

favors the following years for the growth of its exported tons, thus ending the year 2014 with 53,816 exported tons.

One of the practices implemented by the Colombian floricultural sector has been the constant care of its processes so that a better production and cultivation of flowers can be given, this constitutes the change of plastics in greenhouses, the maintenance of deep wells and change of irrigation networks, construction of roads, and maintenance of all the equipment (Fernández, 2015), which has reflected benefits in the sector since most of the crop is destined for commercialization, that is, it does not remain much of the production within the country, which would make Colombia export 50,430 tons of flowers at the end of 2018. However, for the year 2019, the exported tons of flowers in Colombia were reduced, closing the year with a value of 49,057 tons, this was due to the low growth of the flower sector and the low external demand for the product, complementing this with competition in the domestic market due to the increase in imported products in the country (Preliminary Balance of the Economies of Latin America and the Caribbean 2019, 2020). Even so, by presenting ups and downs in its data, Colombia has tried to keep it constant year after year, which is why it continues to be one of the economies and one of the recognized exporters in the sale of flowers, and especially roses.

In relation to Ethiopia, on figure no. 21 Exported Tons of Flowers 2007-2019, little development is shown in the flower sector, the Ethiopian government sought to improve its processes and develop the various crops to increase its exports, with this idea a plan called "Growth and Development Plan" was implemented. The transformation last 5 years that and was implemented in 2010, thanks to this plan Ethiopia was able to improve the amount of its exports from 2010 from 1,843 tons to 2012 with 38,121 tons, this development was due to investment in companies of the country (Perry, 2012).

In addition to what is indicated, Ethiopia is located within the LDC - Least Developed Country Category in English, this means that, being located within the least developed nations, it has won the free access rate for several products in Europe under the "Everything But Arms" agreement (Perry, 2012), thus passing its exported tons to 2015 with a quantity of 44,213 tons, maintaining until 2017 with 43,800 tons exported of flowers.

Finally, in the figure no. 21 presented Exported Tons of Flowers 2007-2019, Kenya shows a progressive expansion during the study period, since having implemented the Vision 2030 plan, year after year the development of Kenya's exports has been improved and therefore its economy counting on better income. Kenya, by demonstrating a high volume in its exports and agricultural production, shows the increase in flower exports, involving 25% of GDP in this sector (Perry, 2012).

Kenya, being the only country is not part of the LDC category, it is not considered one of the least developed countries, so it does not benefit from the agreement for the free entry of its products as Ethiopia does (Perry, 2012). However, this did not stop Kenya after years its exports were growing. An example of this is how in 2009 the country exported 66,812 tons of flowers and passed the year 2013 with an export of 101,678 tons, from this year the tons exported from Kenya increased more and more until reaching the end of the period with 120,978 tons of flowers exported.

This growth in tons exported may be due to the fact that, thanks to the formation of the KFC – Kenya Flower Council in English, standards were taken into consideration with the implementation of a "code of practice" thus helping to improve the image of the sector and improve its production, some of the standards include Fair Trade, Fair of Flowers and Plants, among others. Thanks to this, the KFC has implemented standards at two levels: the Silver Code, which is based on a constant audit during the first year of belonging and, on

the other hand, the Gold Code, which is the recognition of good cultivation practices, care and maintenance of the environment that is controlled daily (Perry, 2012), in this way Kenya has managed to develop its production to demonstrate its growth year after year. It should be noted that the Kenya Bureau of Standards with its acronym KEBS in English, currently continues to function and ensure that both national and international standards are applied correctly and in accordance with the laws and regulations established within Kenya ("Kenya Bureau of Standards", 2022)

2.4 Determination of the findings

Based on the information developed during Chapter 2, the findings are that the economies can be based on two categories for the analysis of their development, these two correspond to qualitative variables and quantitative variables that help to project what are the improvements that has reached the country during a certain period of time and seek to increase development to continue implementing competitiveness within the country for its production processes in each sector.

According to the detailed information, the data of the qualitative and quantitative variables, respectively, for the study period between the years 2007-2019 correspond to the following:

1. Quality of Infrastructure in Air Transport

2. Intensity of Local Competition

3. Width of the Value Chain

4. Sophistication of the Production Process

5. GDP PPP

6. GDP Per Capita

7. Inflation and

8. Tons Exported

The variables detailed above are analyzed since they maintain a strong relationship with the export of flowers and their competitiveness, since the infrastructure and logistical processes are studied in order to be able to relate the benefits or losses of the flower sector for Ecuador to the economic data.

Regarding the qualitative variables, it was possible to show that African countries such as Kenya and Ethiopia, being growing economies, are seeking to improve and implement innovation more and more thoroughly to gain the competitiveness of their productive sectors. In this case by floricultural sector; presenting difficulties in the process of mobilizing roses due to the risks of terrorists on the main roads, Kenya and Ethiopia have sought to implement assistance jointly with their governments to reduce the risks, since the flower sector contributes income to the economy of these countries.

Regarding the logistics for production in the Latin American market, it has not been as developed since what is needed is for the countries to improve the scarce physical and technological infrastructure that they have, also including transport logistics, since by influencing costs of transportation as well as in the final prices of the products ("Logistics for Production, Distribution and Trade," 2019).

In the case of Africa, it is understood that the African market is one that continues to develop constantly, logistics costs imply being more expensive than in relation to other countries in the world, mainly due to the trade imbalance that affects the region together with its lower volume of trade and connectivity in its maritime transportation, these problems could be solved if the people and institutions that are in charge of developing trade policies in Africa decide to invest to solve this situation, creating port reforms as well

as reforms for the facilitation of maritime trade, in transit systems and others ("DIGITAL CONNECTIVITY AND COMMERCIAL LOGISTICS," 2017).

From the information collected, Colombia was identified as the country with a more stable economy since it presents year after year an increase in economic values according to the variables analyzed, as can be exemplified Colombia for the year 2011 had a PPP GDP of $529,875, 187 million dollars compared to Ecuador, which had a PPP GDP of $150,266.909 million dollars, this difference would be reflected with the greater influence that Colombia has with respect to its economic freedom in relation to its trade agreements and greater openness of its economy to the market.

However, between Ecuador and Colombia, which being the countries that stand out the best in the quantitative analysis, a noticeable difference can be seen in the Tons of Exports between each country. For the year 2017 Ecuador exported 124,408 tons of flowers and Colombia exported 48,482 tons of flowers, which reflects the implication that Ecuador seeks to export more of its flagship product, red roses, although on the other hand, Ecuador compared to Kenya, which is the country with the largest tons exported compared to Ethiopia, exported 125,478 tons of flowers in the same year, which indicates that there is strong competition between Ecuador and Kenya even as both countries increasingly seek to enter their product within the European Union.

CHAPTER III

3   PROPOSAL OF THE COMPETITIVE MODEL OF THE FLOWER SECTOR

3.1. Competitiveness variables of the Ecuadorian flower sector

As has been developed throughout the investigative work, the competitiveness variables available in the flower sector are several that also cover a lot of aspects, thus also including global and economic competitiveness. These variables make Ecuador stand out from the rest of the countries, competition or in turn that make Ecuador seek to develop and exceed those standards imposed by the country competition within the flower sector.

One of the first variables that we sought to analyze was geographic location, which is a very important variable. The geographical location of Ecuador for the cultivation and production of roses, as has been said, is beneficial as it is located mainly in the Ecuadorian Sierra, which has a favorable climate ranging between 7 and 21 C degrees, making it a climate that is neither cold nor warm. In addition to this, it was mentioned that the sun's rays falling perpendicularly on these high areas, help and favor the good formation of the rose buds.

Another of the variables that positively influences the flower growing sector in Ecuador is the workforce, this helps in two ways. Directly in the cultivation since being women has the necessary delicacy not to mistreat the roses and on the other hand, by being indigenous women who work in the sector, the benefit is to offer well-paid sources of work for the sustenance of their families, in addition to the fact that the flower sector is a sector in constant growth in the future, more sources of work can be provided for the population.

Taking care of the plant during its growth can be considered as an important variable of competitiveness since, preventing the plant from sprouting pests is a good start, since at the time of cutting and subsequent sale it does not present any condition or sign that the plant will wilt or rot faster.

Regarding competitiveness as such, several elements or steps that a company must follow in order to be more competitive were detailed. The Porter Diamond corresponds to a method that helps to analyze and solve the possible problems that are generated within a company, it is based on four elements such as:

Conditions of the factors: it is the detail of the elements with which the company daily counts such as land, work and capital to which the workforce could be applied to be able to develop it;

Demand conditions: corresponds to the search for constant improvement in the face of the country's internal rivalry, while also wanting to seek improvement in the face of external demand for the production and cultivation of flowers.

Complementary and support industries: seeks to improve flower producing companies as well as companies that complement the sector for mutual economic benefit.

Structure and rivalry of the industries: it is the advantage that each company has according to the context in which it was created, national companies can compete to establish the costs of selling flowers.

In conclusion on the competitiveness variables of the second chapter, it was possible to analyze the qualitative variables used, importance is demonstrated in relation to the study, one of the analyzed variables was the Quality of Air Transport, it can be shown that

Ecuador has improved with the implementation of a larger airport and with an area dedicated to the departure of roses for their transport, but it has been little competitive against Colombia, Ethiopia and Kenya since these countries have their own airlines and more support from the state and investment that make its development more evident and favorable and at the same time its costs are more accessible for international transport.

On the second variable analyzed corresponding to the Intensity of Local Competition, it was possible to demonstrate that for its development, agricultural policies and government aid should be used and implemented in order to stand out with the flower trading and producing company, as in the case of Ecuador, but in the Colombian panorama it was sought to have a more entrepreneurial panorama where it was sought to implement export policies taking in fact the subsidies, and finally, for the African countries it is shown that they decided to seek to implement organizations or entities that help them establish standards and rules for a fair trade and good salaries.

Regarding the variables of the Width of the Value Chain and the Sophistication of the Production Process, it is analyzed that the countries under analysis had a significant development since they began to use production standards, techniques for water conservation, it was also analyzed that Based on the variables described, producers have sought ways to expand their market and increase their sales, such as the case of the auctions used by the Netherlands to be able to promote roses within their auctions.

Regarding the conclusions of the quantitative competitiveness variables, it was possible to analyze that the economy of the countries under analysis is based on four different pillars, the PPP GDP in the case of Ecuador was maintained by oil as the basis of the economic structure of the country, Kenya On the other hand, by implementing a plan that

helps improve the economy, it helped to establish regulations and rules to be able to develop even the horticultural sector, causing the GDP in reference to increase. In Colombia, the regulations imposed by former President Álvaro also helped. Uribe, in addition to the implementation of a plan that ensures the improvement of the economy year after year, and for Ethiopia, growth was experienced, especially in the manufacturing and construction sectors, together with foreign investment and the acquisition of a Eurobond to finance various productive areas for economic development.

As for the GDP Per Capita, Ecuador experienced an increase thanks to the implementation of economic policies and the growth of the Pipeline to transport a greater amount of heavy crude oil for a better extraction and distribution of crude oil for sale; In Colombia, a very varied GDP per capita was presented, since the increase in GDP was due to an oil boom until 2012, with reductions being seen during the rest of the period until 2017, in which the Vision Colombia II Centennial plan was implemented, which helped to the improvement of the economy; Regarding Kenya, it can be said that the increase in GDP per capita is due to the Vision 2030 plan that the government implemented to improve the economy and economic processes in general, as well as having experienced an increase in the recovery of the tourism sector and projects. infrastructure; and in another case, Ethiopia has obtained more help from the government, thus reducing poverty and improving citizen welfare, creating businesses, promoting competitiveness in the manufacturing and construction sectors, achieving an increase in wages, which helped Ethiopia during the study period.

In the case of Inflation, a constant growth and decrease was reflected for Ecuador during the study period, due to the increase or decrease in exports and the price of oil, better

divisions of consumption with the increase in the CPI on alcoholic beverages, electricity, gas, among others; In the Colombian case, an inflation is reflected that is increasing due to the depreciation of the currency, the increase in the prices of agricultural products, the damage caused by the El Niño phenomenon, the increase in prices thanks to the tax reform that has caused inflation to increase year after year during the period. On the Ethiopian side, a varied movement is reflected, beginning the period with an increase in the prices of food and non-food products, presenting high inflation, influencing the devaluation of the currency and Ethiopia being an economy based on agriculture, production and sale of them causes inflation to be influenced according to these product movements.

Finally, in relation to the variable of Tons Exported to Ecuador, a series of ups and downs were presented, since during the period there was an increase in international prices, which helped the production and sale of roses, however, by the end of the period there was a reduction in the tons exported due to the global oversupply of raw materials, adding the earthquake that seriously affected the Ecuadorian economy. In the case of Colombia, there is a constant variation, being influenced by the processes of production and cultivation of flowers, changing the plastic of the greenhouses, maintaining the wells and irrigation networks, building roads and maintaining all the equipment, however, it presents low production due to low demand for the product abroad. In Ethiopia, the Growth and Transformation Plan was implemented in 5 years, which helped flower exports to grow. This was also due to the investment in the country's companies and Ethiopia, being within the LDC category, gave it access to a free tariff for products within the European economy; and in the case of Kenya, it continues to be shown that the implementation of its Vision 2030 plan favors the improvement of its exports by always seeking to develop its

production taking into account the code of practices imposed by the Kenya Flower Council, the Trade Fair and the use of good practices such as care and maintenance of flower production.

3.2. Relationship of the competitiveness variables of the Ecuadorian flower sector for the international market

It can be indicated that the relationship between the competitiveness variables of the Ecuadorian flower sector for the international market is very close, since all the variables described above, both qualitative and quantitative, are necessary to be able to link all the recognition that roses have in the international market.

The exposed variables such as the geographical location in the Sierra region and the climate that corresponds to the exposure to the sun that the crops have, help to reflect that from the beginning of the production processes and care of the plants, it is possible to have a favorable growth which leads to the roses being highly sought by the international market, which has made the roses gain the current fame they have.

Based on the qualitative variables that are detailed as the Quality of Air Transport, Intensity of Local Competition, Amplitude of the Value Chain and the Sophistication of the Production Process, the intensity they have with the international market is reflected in daily life. Since, all the logistics that are carried out within an airport must always be in accordance with the latest trends so that it is considered an effective and efficient work, implementing standards of care and transportation. Based on the three missing variables, the intensity they have in the international market is also reflected mainly since Ecuador constantly seeks to improve its production processes, seeking to lower costs by improving quality and work efficiency.

Regarding the quantitative variables, Ecuador is also influenced by the international market since when analyzing the GDP PPA, the GDP Per Capita, the Inflation, and the Tons Exported, it can be understood that Ecuador will always seek to have a stable economy seeking to develop the other products of its basic basket in addition to just oil, since it does not prove to be a resource that lasts a lifetime.

3.3. Conclusions

With a historical analysis regarding the emergence of the flower sector, it was noted that the 80s correspond to a key period for the raise of the sector since from this period the expansion of flower nurseries begins and through the technification of the production process evidenced a reduction in costs, being able to diversify the exportable supply by increasing the cultivation of variety of flowers, also adding the increase in investment in the sector by people who were not farmers, this is how the aspects mentioned above favor the good development of the sector.

It can be concluded that the floricultural sector, being a sector with a strong demand throughout the year but mainly during festivities such as Valentine's Day, Women's Day, Mother's Day, the production and cultivation of roses will be constant since being the star product in exports favors producers to develop new cultivation techniques to improve the quality of roses, taking on account that they have competing countries such as Kenya, Ethiopia, Colombia and Holland also considering that The Netherlands is not seen as a flower producer, rather it is seen as a flower marketer, thus leaving Kenya, Ethiopia and Colombia as a strong competition against Ecuador.

Also, it was possible to identify that Ecuador is a country strategically located for the cultivation of roses, since the favorable climate of the Ecuadorian Sierra provides the

necessary nutrients for the growth of roses, thanks to the constant rains and constant exposure to the sun, which without leaving behind the moisture and nutrients that the soil of the Ecuadorian Sierra possesses, make a favorable and prosperous environment for the growth of roses that are so striking and requested in the international market. It was possible to identify that the cultivation of roses is mainly carried out in the Sierra region of Ecuador, mainly located in the nurseries in the provinces of Carchi, Imbabura, Cotopaxi, Pichincha and Azuay, these provinces having a subtropical climate make the conditions enriching for the cultivation and production of the best internationally recognized roses.

Similarly, the Ecuadorian flower sector was shown to have certain difficulties that prevent it from developing to the maximum to become more competitive against Colombia and the Netherlands, which are the countries that lead in the sale of flowers. On this it can be mentioned that the competing companies producing roses that are entering Ecuador are becoming a constant threat to local producers and exporters, due to the fact that the prices of the competition are lower than local prices. It was possible to observe that for Ecuador the costs of storage of roses and transportation are a factor to consider since Ecuador has the highest prices for transportation and mobilization of roses as a finished product to their usual buyers.

Regarding the concepts collected on competitiveness, it was possible to highlight the Economist Michael Porter, who is one of the most influential scholars in terms of the development of an industry, seeking to save resources by implementing various techniques to make most of the resources and materials available. For Porter, competitiveness is seen as the ability of each company to offer its own products with better conditions of prices, quality and opportunities compared to its rivals.

When carrying out a current study, we sought to highlight notable characteristics of authors from earlier times such as Adam Smith, for whom competitiveness is based on the absolute advantage that one country may have over another, being able to export the product that it can develop the most and import the one that have least production. Against this author, it was also possible to find Eli Heckscher and Bertil Ohlin who indicate that comparative advantage is based on the constant export of the product that the country uses the most and importing the good or product that can be scarcely developed or produced with the resources of the own country. This helps us to understand that Ecuador is a country that, by taking advantage of its rich climatic conditions, could be based on development on the theories that the authors denote.

Following the analysis of Michael Porter in the first chapter, it was possible to show that in Ecuador for the export of roses within the flower sector, each company that seeks to develop must be updated with obtaining sanitary records and other pertinent certifications, seeking to support themselves with existing companies to complement their product sales, services, based on the forces that Porter details for the application within a company, Ecuador being located in a strategic geographical location makes the income and rivalry of the competitors not focused on the quality of the product, however, perhaps it can be affected by the threats facing the sector, due to the ease that the domestic market has to seek to request other types of products such as chocolates, jewelry, etc; that cause roses and flowers in general to be affected.

Finally, regarding the logistics of the flower production process in Ecuador, it was found that Ecuador needs to strengthen the second link in the value chain that corresponds to the production of flowers as such, seeking to avoid at all costs that the cultivation of flowers may have pests that directly affect the plant, also seeking to improve the exposure and

radiation to which the roses are exposed, finally, the link that Ecuador must improve corresponds to the transportation of roses and flowers in general, the cold chain must be improved so that the roses do not lose their quality and wither before they reach their final destination.

In relation to Chapter 2 in which the qualitative and quantitative variables of competitiveness are directly analyzed, it was possible to highlight based on the first part of the investigation that corresponds to the qualitative variables, according to the information obtained from the World Economic Forum, Ecuador is developing progressively, however, it was identified that Ecuador, according to the Air Transport Quality variable, needs to develop the supply of logistics centers so as not to overload the new airport and thus be more competitive against Colombia, Kenya and Ethiopia. Compared to other countries, Ecuador does not have its own airline that facilitates the transport of roses in order to reduce logistics and transport costs that benefit exporters and producers with better income and lower expenses; In the same way, the lack of support from the government means that the marketing of roses is lower compared to exported shrimp or bananas.

Regarding the other qualitative variables, it can be concluded that the development reflected in African countries such as Kenya and Ethiopia has been evident since these two countries have sought to improve the treatment of their employees in order to achieve better results while working and producing their flowers, they have reflected a strong demand, especially from European countries that, due to their proximity the offer lower costs, thus increasing consumption in European countries such as the Netherlands.

In relation to the variables Width of the Value Chain and Sophistication of the Production Process, Kenya is relatively more developed compared to Ecuador, since Kenya has sought to improve its product delivery process in less time while maintaining the

recognized quality of the flowers, being not so favorable for Ethiopia since by wasting natural resources it will not last over time, leading to the end of the raw material for flower production. On the other hand, the sale of flowers has been beneficial for Ethiopia thanks to the auction held annually organized by Holland where a ceiling can be established for the international sale of flowers from each country. However, Ecuador was affected since the lack of development of the production process through the lack of acquisition of inputs and the little facilitation of the transport that makes the processes to be accelerated so that its cold chain remains stable and the product does not withered before arriving to the final destination.

It should be noted that for the analysis of the second chapter, the year 2019 was included as part of the analysis. However, to collect data from the World Economic Forum of the qualitative variables, only information of one variable was found because the World Economic Forum changed the method in the data collection and some of the variables were unified or disappeared since they did not consider them relevant.

Regarding the quantitative variables, it could be seen that Ecuador, in relation to the PPP GDP variable, had a similarity with Colombia, due to the increase in flower sales during the 2007-2019, having a PPP GDP at the end of the period of $205,903, 295 compared to Colombia, which, thanks to the investment that was developed in the flower sector, ended the period with $789,57,066, proving to be a stronger competitor with better and more stable economy than Ecuador.

About the inflation presented by Ecuador, the country's progress during the investigation period was considerably negative, actually at the end of the period the inflation of Ecuador increases in a 1.728% compared to Colombia, which ended the period with an inflation of 3.525% being the best year for the Colombian economy.

Finally, the research allows us to establish that Ecuador is the third competitive country in the flower export sector, being surpassed by The Netherlands and Colombia and in turn surpassing Kenya. It is important to point out that after this investigation, new aspects are opened that should be studied, such as the ways of maintaining and increasing the country's competitiveness in this sector, since it has been revealed that Ecuador is a country that has positioned itself in the international floriculture market and it is necessary to deepen the investigation of this market to take advantage of all benefits that the country has over others.

The revealed comparative advantage index applied to the 2007-2019 period in relation to the ranking of the World Economic Forum versus GDP, GDP per capita, Inflation and Tons Exported, indicates that Ecuador is competitive because while making exports by air, exporting companies have seen the need to relocate near the Quito airport, which is the one that handles most of the exportation cargo, however, Ecuador is not competitive due to high freight rates when sending flowers to the European market, its main competitors are Ethiopia and Kenya due to lower logistics and transport costs to Europe.

Another aspect in which Ecuador is not considered competitive is in the support it receives from the government, since in relation to Colombia, Ethiopia and Kenya; Ecuador does not have considerable support from the government, as the case of Ethiopia, which has even sought to improve the salaries of employees in the sector. In Ecuador, foreign companies seek to support and develop the flower sector.

The sophistication of the production process is another variable in which Ecuador is not competitive since it has not sought to develop and implement improvements in the acquisition of inputs, boxes for transport to avoid mistreatment of the product, purchase of new transport trucks, or different alternatives. As in the Colombian case, they have been

able to develop modernized farms with technology to be able to reflect the quality and good performance that flowers have.

Based on the quantitative variables, Ecuador is competitive in relation to Ethiopia and Kenya since these countries are considered mostly agricultural producers and because they do not have oil extractions as in the case of Ecuador and Colombia, either their GDP or tons exported are compared to oil countries.

3.4 Recommendations

As was evident throughout the analysis process, the Netherlands, being the first country dedicated to the export of flowers, is also considered the main country in which a large fair is held for producers to offer their products, and in addition, the Netherlands has the possibility that during this fair a basis for international flower prices is set. Ecuador should enter the flower fair in Holland year after year to be able to introduce its flowers to more countries that could be Asian or European, giving greater rivalry to Kenya and Ethiopia regardless of their geographical proximity.

During the analysis of the structure of the companies in the flower sector, it was noted that foreign companies have decided to enter and settle in Ecuador for the production of flowers, but the national companies should increase since Ecuador does have all the possibilities of develop a purely Ecuadorian corporation as already stated, for the benefit of the geographical location and favorable climatic characteristics for the production of flowers.

Another option that Ecuador could implement for the improvement of producing companies is to seek to promote the production of fertilizers and chemicals necessary for use in plantations, but from national companies, that is, Ecuador should invest more in

research and development. of processes to avoid buying foreign products being able to develop them in Ecuador and that also have a good product quality.

Based on the analysis carried out throughout the investigative process, Ecuador is a country that seeks to be at the same level with countries such as the Netherlands, which, although during the study it was considered as a trading country rather than a producer, the Netherlands maintains a range of stability that it is demonstrated in data from the World Economic Forum in addition to being demonstrated in its economic aspect. Based on this, Ecuador should focus on progressively getting rid of corruption as African countries like Kenya and Ethiopia have been doing, implementing norms and rules that are obeyed in order to even improve the country's economy.

About the transportation and mobilization of the roses, Ecuador should consider a new strategy for the sale costs of roses since it must seek to be competitive with affordable prices compared to Colombia and the Netherlands, so that Ecuador does not lose its buyers. As usual in the United States, improving the mobilization process from the nurseries to the warehouse and finally to the airport was reflected in a benefit in sales costs in order to be more competitive against the competition.

Based on the production process, it has been analyzed that Ecuador already has a defined process for the cultivation, harvest, mobilization and sale of flowers, however, as time and ways of carrying out the process are constantly changing, Ecuador should seek to implement more ergonomic carts and availability of more reinforced boxes so that at the time of transport the flowers do not suffer any type of damage or blow to guarantee a greater durability of the flowers after cutting them.

It could also be indicated that in terms of the purely economic aspect, Ecuador should seek to jointly develop policies that support the country's progress, such as the

implementation of some "plan" as in the case of Colombia with the Plan Vision Colombia or the Vision 2030 plan of Kenya, in this way Ecuador will be able to focus, based on norms, policies and rules already defined, on improving its economy. Improving crop production and also being able to improve trade relations with other countries without losing one of it's our main clients, the United States.

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APPENDICES

Appendix 1. Table of qualitative data of flowers in the period 2007-2019

Periods	Countries	2nd pillar: Infrastructure	6th pillar: Goods market efficiency	11th pillar: Sophistication of business	
		Quality of air transportation infrastructure	Intensity of local competition	Breath of the value chain	Sophistication of the production processes
2006-2007 (N=117)	Ecuador	77	132	114	90
	Colombia	82	105	63	69
	The Netherlands	4	9	9	10
	Ethiopia	42	111	113	123
	Kenya	50	47	72	108
2007-2008 (N=134)	Ecuador	76	128	109	117
	Colombia	84	98	63	69
	The Netherlands	8	3	7	7
	Ethiopia	44	120	135	143
	Kenya	70	77	69	86
2008-2009 (N=134)	Ecuador	77	125	109	102
	Colombia	64	70	49	75
	The Netherlands	9	3	9	8
	Ethiopia	60	126	114	128
	Kenya	68	71	69	101
2009-2010 (N=133)	Ecuador	73	124	91	106
	Colombia	81	78	56	71
	The Netherlands	7	4	6	6
	Ethiopia	67	123	118	124
	Kenya	69	61	66	87
2010-2011 (N=139)	Ecuador	73	116	86	101
	Colombia	89	82	72	68
	The Netherlands	8	10	7	6
	Ethiopia	48	111	115	129

	Kenya	57	55	63	66
2011-2012 (N=142)	Ecuador	83	109	82	86
	Colombia	94	85	62	65
	The Netherlands	5	6	6	6
	Ethiopia	49	125	129	132
	Kenya	61	66	47	60
2012-2013 (N=144)	Ecuador	80	103	88	83
	Colombia	106	79	68	74
	The Netherlands	4	1	6	5
	Ethiopia	50	139	115	137
	Kenya	55	63	53	68
2013-2014 (N=148)	Ecuador	70	112	70	65
	Colombia	96	64	74	77
	The Netherlands	4	5	9	5
	Ethiopia	42	133	127	136
	Kenya	62	35	55	64
2014-2015 (N=144)	Ecuador	42	81	74	85
	Colombia	78	56	56	77
	The Netherlands	4	14	8	5
	Ethiopia	38	113	124	126
	Kenya	54	21	36	55
2015-2016 (N=140)	Ecuador	42	76	92	91
	Colombia	74	35	51	75
	The Netherlands	4	11	8	6
	Ethiopia	69	126	71	99
	Kenya	49	23	44	62
2016-2017 (N=138)	Ecuador	39	76	91	93
	Colombia	76	24	51	76
	The Netherlands	4	11	8	6
	Ethiopia	105	135	55	84
	Kenya	48	19	42	63
2017-	Ecuador	40	68	118	101

2018 (N=137)	Colombia	81	22	55	78
	The Netherlands	4	7	8	4
	Ethiopia	77	134	93	102
	Kenya	47	32	47	69
2019 (N=141)	Ecuador	83			
	Colombia	78			
	The Netherlands	28			
	Ethiopia	69			
	Kenya	74			

Source: World Economic Forum

Appendix 2. Quantitative data table of flowers period 2007 to 2019

YEAR	COUNTRY	TRADE BALANCE OF GOODS AND SERVICES (MILLIONS OF USD AT CURRENT PRICES)	GDP, PPP (MILLIONS OF USD AT CURRENT INTERNATIONAL PRICES)	GDP PER CAPITA, PPP (USD AT CURRENT INTERNATIONAL PRICES)	INFLATION (CONSUMER PRICES - ANNUAL %)	EXPORTED TONS OF FLOWERS	FOB EXPORTS OF FLOWERS (MILLIONS OF USD)	EXPORTS PER GDP (%)	TOTAL EXPORTS (MILLIONS OF USD)	TOTAL EXPORTS (MILLIONS OF USD)	TOTAL NON-OIL EXPORTS (MILLIONS OF USD)	FLOWER EXP /NON-OIL EXP (%)
2007	ECUADOR	$651,062	$118.584,814	$8.294,643	2,276%	82.494,564	$466,803	0,394%	$13,800	$7.428,356	$13,793	33,844%
	COLOMBIA	-$8.726,878	$427.839,048	$9.781,970	5,545%	59.682,000	$327,912	0,077%	$29,991	$5.544,601	$29,986	10,936%
	THE NETHERLANDS	$60.112,237	$718.924,348	$43.885,831	1,614%	189.634,709	$1.111,788	0,155%	$477,641	$128,219	$47.7,640	2,328%
	ETHIOPIA	-$3.940,000	$63.922,607	$792,354	17,238%	2.981,636	$10,932	0,017%	$747,191	$0,000	$74.7,191	0,015%
	KENYA	-$3.2	$83.303,738	$2.434,792	9,759%	51.900,0	$18.5,70	0,223%	$4,08	$0,46	$4,0	45,5

Year	Country											
	A 13,974					00	6		1	1	81	07 %
2008	ECUADOR	$166,964	$128.576,672	$8.845,554	8,40%	103.559,000	$539,143	0,419%	$18,818	$10.567,947	$18,808	28,666%
	COLOMBIA	-$7.140,783	$450.482,195	$10.179,245	6,99%	58.917,000	$346,671	0,077%	$37,626	$9.306,209	$37,617	9,216%
	THE NETHERLANDS	$80.839,314	$763.407,744	$46.420,202	2,487%	203.043,000	$1.180,896	0,155%	$545,853	$262,925	$545,853	2,163%
	ETHIOPIA	-$5.344,000	$72.196,433	$870,715	44,391%	2.055,000	$8,035	0,011%	$866,943	$0,000	$866,943	0,009%
	KENYA	-$4.390,151	$85.121,369	$2.139,159	26,240%	59.356,000	$214,172	0,252%	$5,001	$0,218	$5,001	42,826%
2009	ECUADOR	-$1.004,462	$130.290,805	$8.818,680	5,16%	87.485,000	$475,915	0,365%	$13,863	$6.284,131	$13,857	34,345%
	COLOMBIA	-$5.361,737	$459.089,499	$10.258,971	4,201%	59.506,000	$347,255	0,076%	$32,853	$8.053,481	$32,845	10,573%
	THE NETHERLANDS	$65.839,122	$737.085,358	$44.589,719	1,190%	183.741,000	$1.003,484	0,136%	$431,502	$130,644	$431,502	2,326%
	ETHIOPIA	-$6.278,000	$79.150,400	$928,626	8,468%	1.893,000	$6,664	0,008%	$938,112	$0,000	$938,112	0,007%
	KENYA	-$3.997,725	$88.606,664	$2.166,327	9,234%	66.812,000	$242,637	0,274%	$4,463	$0,087	$4,463	54,361%
20	ECUA	-$3.1	$136.455,680	$9.090,310	3,554%	77.506,000	$438,40	0,321%	$17,490	$8.951,941	$17,481	25,079

Year	Country											
1 0	DOR	39,261				00	0					%
	COLOMBIA	-$4.536,047	$485.313,993	$10.731,646	2,271%	63.043,000	$375,960	0,077%	$39,820	$13.393,973	$39,806	9,445%
	THE NETHERLANDS	$68.446,256	$748.994,017	$45.078,318	1,275%	165.487,000	$966,875	0,129%	$492,646	$180,616	$492,646	1,963%
	ETHIOPIA	-$6.265,000	$90.122,255	$1.028,324	8,137%	1.843,000	$6,471	0,007%	$1,372	$0,000	$1,372	4,716%
	KENYA	-$5.165,171	$97.173,951	$2.311,976	3,961%	47.574,000	$164,755	0,170%	$5,169	$0,053	$5,169	31,873%
2 0 1 1	ECUADOR	-$1.782,012	$150.266,909	$9.857,521	4,475%	87.597,000	$503,580	0,335%	$22,343	$11.799,973	$22,331	22,551%
	COLOMBIA	-$3.072,820	$529.875,187	$11.604,102	3,418%	55.243,000	$381,228	0,072%	$56,954	$23.020,133	$56,930	6,696%
	THE NETHERLANDS	$77.157,982	$777.880,906	$46.599,021	2,341%	166.980,000	$1.434,031	0,184%	$569,358	$62,785	$569,358	2,519%
	ETHIOPIA	-$4.747,934	$102.289,394	$1.134,785	32,015%	1.411,000	$4,549	0,004%	$1,809	$0,000	$1,809	2,514%
	KENYA	-$7.214,618	$105.263,452	$2.437,880	14,022%	92.672,000	$339,300	0,322%	$5,783	$0,016	$5,783	58,673%
2 0 1 2	ECUADOR	-$1.249,842	$159.559,696	$10.311,405	5,102%	94.680,000	$577,281	0,362%	$23,852	$12.711,229	$23,839	24,216%
	COLO	-$4.4	$553.768,023	$12.018,651	3,167%	52.325,000	$363,40	0,066%	$60,274	$26.556,82	$60,247	6,032%

Year	Country											
	MBIA	98,313				00	4			6		
	THE NETHERLANDS	$81.701,815	$792.042,290	$47.272,103	2,456%	148.232,000	$1.270,120	0,160%	$552,502	$332,238	$552,502	2,299%
	ETHIOPIA	-$7.736,727	$112.533,092	$1.213,596	23,379%	38.121,000	$149,302	0,133%	$2,741	$0,000	$2,741	54,464%
	KENYA	-$6.710,124	$112.204,258	$2.830,694	9,378%	97.596,000	$356,217	0,317%	$6,135	$0,010	$6,135	58,068%
2013	ECUADOR	-$2.216,121	$175.196,209	$11.153,685	2,722%	117.484,000	$610,459	0,348%	$24,958	$13.411,759	$24,944	24,473%
	COLOMBIA	-$6.930,705	$553.768,023	$12.727,765	2,018%	50.540,000	$365,189	0,066%	$58,822	$27.644,198	$58,794	6,211%
	THE NETHERLANDS	$89.548,135	$827.475,738	$49.241,518	2,507%	269.499,000	$1.351,733	0,163%	$575,112	$304,572	$575,112	2,350%
	ETHIOPIA	-$7.863,689	$122.434,385	$1.283,570	7,464%	38.051,000	$152,027	0,124%	$2,591	$0,000	$2,591	58,674%
	KENYA	-$7.318,065	$125.971,869	$2.767,397	5,717%	101.678,000	$398,374	0,316%	$5,832	$0,011	$5,832	68,310%
2014	ECUADOR	-$1.632,159	$186.846,614	$11.713,176	3,589%	120.268,000	$697,617	0,373%	$25,724	$13.411,759	$25,711	27,133%
	COLOMBIA	-$16.075,185	$625.019,202	$13.307,425	2,898%	53.816,000	$371,574	0,059%	$54,795	$25.760,766	$54,769	6,784%
	THE	$98.917,	$830.318,572	$49.233,215	0,976%	173.486,	$1.441,9	0,174%	$575,677	$370,062	$575,67	2,505%

	NE TH ER LA ND S	288				000	06				7	
	ET HI OPI A	-$9.708,696	$148.485,605	$1.513,703	6,890%	40.234,000	$159,760	0,108%	$2,978	$0,000	$2,978	53,648%
	KE NY A	-$9.035,531	$141.100,869	$3.021,428	6,878%	111.580,000	$464,958	0,330%	$6,109	$0,017	$6,109	76,113%
2015	EC UA DO R	-$2.708,080	$179.309,604	$11.060,286	3,967%	111.425,000	$604,459	0,337%	$18,331	$6.355,235	$18,324	32,987%
	CO LO MB IA	-$20.720,812	$630.399,534	$13.265,797	4,990%	48.866,000	$315,498	0,050%	$35,691	$12.834,380	$35,678	8,843%
	TH E NE TH ER LA ND S	$57.404,187	$851.884,866	$50.288,591	0,600%	176.850,000	$1.187,369	0,139%	$464,697	$184,061	$464,697	2,555%
	ET HI OPI A	-$13.518,223	$167.119,104	$1.657,345	9,569%	44.213,000	$174,747	0,105%	$2,697	$0,000	$2,697	64,791%
	KE NY A	-$7.061,064	$160.965,881	$3.361,977	6,582%	116.308,000	$399,775	0,248%	$5,932	$0,056	$5,932	67,391%
2016	EC UA DO R	$487,938	$181.967,413	$11.034,269	1,728%	109.855,000	$600,569	0,330%	$16,798	$5.053,937	$16,793	35,764%
	CO LO MB IA	-$19.142,656	$665.398,390	$13.812,096	7,514%	48.150,000	$304,267	0,046%	$31,095	$8.081,951	$31,087	9,787%
	TH E NE TH ER LA ND	$80.011,271	$890.488,127	$52.288,415	0,317%	171.650,000	$1.195,087	0,134%	$468,176	$77,531	$468,176	2,553%

Year	Country											
	S											
	ETHIOPIA	-$14.320,593	$194.651,496	$1.878,813	6,628%	42.473,000	$169,330	0,087%	$2,616	$0,000	$2,616	64,730%
	KENYA	-$6.258,680	$178.315,879	$3.635,277	6,297%	120.956,000	$410,658	0,230%	$5,698	$0,042	$5,698	72,074%
2017	ECUADOR	-$788,566	$195.010,793	$11.617,912	0,417%	124.408,000	$654,043	0,335%	$19,092	$6.189,824	$19,086	34,268%
	COLOMBIA	-$15.570,282	$693.117,075	$14.171,321	4,312%	48.482,000	$309,408	0,045%	$37,770	$10.916,373	$37,759	8,194%
	THE NETHERLANDS	$89.463,862	$943.739,692	$55.088,634	1,381%	177.037,000	$1.238,426	0,131%	$527,908	$65,164	$527,908	2,346%
	ETHIOPIA	-$12.956,495	$215.094,144	$2.021,563	10,682%	43.800,000	$173,313	0,081%	$2,863	$0,000	$2,863	60,544%
	KENYA	-$8.631,593	$203.206,547	$4.046,235	8,006%	125.478,000	$448,048	0,220%	$5,747	$0,411	$5,747	77,965%
2018	ECUADOR	-$1.239,935	$202.267,590	$11.839,343	-0,224%	123.357,000	$635,695	0,314%	$21,628	$7.853,414	$21,620	29,403%
	COLOMBIA	-$15.825,333	$738.255,957	$14.865,893	3,240%	50.430,000	$333,787	0,045%	$41,770	$13.671,260	$41,756	7,994%
	THE NETHERLANDS	$96.327,093	$997.729,933	$57.901,097	1,703%	168.576,000	$1.248,602	0,125%	$587,893	$119,443	$587,893	2,124%
	ETHIOPI	-$12.180,	$235.271,659	$2.154,021	13,831%	560,000	$2,218	0,001%	$2,672	$0,000	$2,672	0,830%

	A	311									
	KENYA	-$8.603,275	$221.233,278	$4.443,179	4,690%	120.978,000	$482,609	0,218%	$6,049	$0,007	$6,049	79,780%
2019	ECUADOR	$21.528,000	$205.903,295	$11.851,465	0,266%	122.816,000	$648,989	0,315%	$22,329	$7.731,163	$14,598	44,457%
	COLOMBIA	$18.812,913	$789.757,066	$15.688,633	3,525%	49.057,000	$330,289	0,042%	$39,496	$12.986,757	$26,509	12,459%
	THE NETHERLANDS	$89.242,269	$1.023.422,582	$59.004,325	2,634%	171.082,000	$1.200,065	0,117%	$576,784	$75,437	$576,709	2,081%
	ETHIOPIA	$12.406,627	$259.501,226	$2.315,348	15,840%	42.360,000	$173,389	0,067%	$2,678	$0,000	$2,678	64,734%
	KENYA	$8.937,282	$244.000,007	$4.641,080	5,236%	127.749,000	$488,152	0,200%	$5,836	$0,006	$5,836	83,645%

Source: World Bank, Trade Map