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Faculty of Economics and Management

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Diploma Thesis

Foreign Trade of Ethiopia – Case study of coffee export

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et Ph.D.**

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

B.Sc. Elsabet Sisay Tsegaye, Art.D.

Economics and Management
Economics and Management

Thesis title

Foreign Trade of Ethiopia-In the case of coffee export

Objectives of thesis

The main aim of the present Master thesis is to conduct an analysis of foreign trade of Ethiopia on coffee export. Partial aims are to analyze the trade balance of Ethiopia, to identify determinants influencing on coffee export and to test which determinant has a significant impact on Ethiopia coffee export.

Methodology

To accomplish the objective of this research,

The study obtains data from various reliable resources represented by printed literature, available books related to foreign trade. The analysis and practical part of the Master's thesis will be done based on statistical techniques and tests elaborated in Gretl software, regression analysis, and MS-Excel.

The proposed extent of the thesis

40 – 60 Pages

Keywords

Ethiopia, Coffee, forien trade, Import, export, econometric model

Recommended information sources

CSA (2013). Agricultural sample survey 2012/2013 (2005 E.C.); report on area and production of major crops. Central Statistical Agency, Addis Ababa
Kikkawa, R. (2018). Ethiopia coffee business. Sub-saharan report. Marubeni Research Institute. Marubeni
Minten, B., Tamru, S., Kuma, T. and Nyarko, Y. (2014). Structure and performance of Ethiopia's coffee export sector; working paper 66. EDRI, EFPRI, Addis Abeba

Expected date of thesis defence

2019/20 SS – FEM

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Declaration

I declare that I have worked on my diploma thesis titled "Foreign Trade of Ethiopia – Case study of coffee export" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any third person.

In Prague on 20.03.2020

Elsabet Sisay Tsegaye

Acknowledgement

First of all, I would like to thank the supreme power the Almighty God who is the one who has always guided me to work on the right path of life. Without his grace, this work could not become a reality. Secondly, I would like to express my gratitude to my supervisor Prof. Ing. Mansoor Maitah, Ph.D. et Ph.D. for his great support. I also want to thank my parents, whom I am greatly indebted to me brought up with love and encouragement to this stage. I cannot express enough thanks to my beloved husband Dr. Astatike Bantirgu, my dear brothers Ezekiel Sisay and Dawit Sisay for their continued support and encouragement. I'm feeling obliged in taking the opportunity to sincerely thank to my dear friends Dr. Shiferaw Alem and his lovely wife Eyerusalem Mitiku and Dr. Niguss Solomon and, all other persons, for their advice, patience, and support during my work on this thesis.

Etiopský zahraniční obchod - případová studie vývozu kávy

Souhrn

Káva je jednou z nejrozšířenějších a nejobchodovanějších komodit v Etiopii i na světě. Slouží jako prostředek obživy pro většinu drobných etiopských zemědělců. Tato diplomová práce je zaměřena především na ekonomické zhodnocení etiopského obchodu s kávou na základě dostupných národních údajů z let 1998–2017. Práce je rozdělena na teoretickou a praktickou část. Teoretická část se nejprve zabývá světovou výrobou a spotřebou kávy. Dále popisuje význam kávy pro světovou ekonomiku, hlavní vývozce a dovozce kávy, faktory ovlivňující její vývoz a mezinárodní organizace na světovém trhu s kávou. Praktická část se nejprve zabývá obchodní bilancí Etiopie, historickým přehledem výroby etiopské kávy, exportem a analýzou vybraných faktorů. Následuje analýza vývozu kávy z Etiopie v letech 1998 až 2017. Z analyzovaného výsledku vyplynulo, že Etiopie vyváží převážně kávu. Z vývozu kávových výrobků vydělala země v průměru 490 754 353,6 USD ročně. Procento vývozu nezpracované kávy (zelené kávové boby) bylo mnohem vyšší než procento vývozu zpracované, což by mohlo naznačovat, že země musí věnovat větší pozornost vývozu zpracované kávy, která má vyšší kvalitu a konkurenceschopnost na trhu.

Klíčová slova: Etiopie, káva, zahraniční obchod, dovoz, vývoz, ekonometrický model

Foreign Trade of Ethiopia– Case study of coffee export

Summary

Coffee is one of the most widely produced and traded commodities in Ethiopia as well as in the world. It serves as a means of livelihood for the majority of smallholder farmers in Ethiopia. This diploma thesis is mainly aimed on the economic assessment of Ethiopian coffee trade based on the national available data set in the year between 1998-2017. The thesis is divided into theoretical and practical part. The theoretical part firstly deals with a world production and

consumption of coffee. Furthermore, it describes the significance of coffee to the world economy, major coffee exporters and importers, determinants of coffee export and international organizations in the world coffee market. The practical part initially deals with trade balance of Ethiopia, The history overview of Ethiopia's coffee production, export and analysis of chosen determinants. This is followed by an analysis of Ethiopia coffee export in the period from 1998 to 2017. The analyzed result revealed that Ethiopia is mainly exporting coffee. From the export of coffee products, the country earned on average US\$ 490,754,353.6 per year. The percentage of exporting unprocessed coffee (green coffee bean) was much higher than that of the export of processed coffee, which could indicate that the country has to give more attention in exporting processed coffee that has higher quality and competitive in market.

Keywords: Ethiopia, coffee, foreign trade, import, export, econometric model

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Introduction

The coffee tree is a tropical evergreen shrub that grows between the Tropics of Cancer and Capricorn, and the climate and conditions must be just right to grow the most popular bean in the world. Coffee is produced in over 70 countries and it is an extremely important agricultural commodity, produced in tropical countries. The main coffee producing regions in the world are Central and South America, Southeast Asia and Africa. The two species of coffee beans that are most widely cultivated (accounts for almost all cultivation) are the “Arabica”, which has a distinctively sour flavor and the “Robusta”, which has a somewhat bitter taste and is inexpensive compared to Arabica (Kikkawa, 2018).

As per the historical evidence, the geographic home of Arabica coffee has been traced to the Ethiopian plateau where from it spread to the world (Mesfin, 2017). More than 10% of the world’s coffee is produced in 10 African countries led by Ethiopia and Uganda (Kikkawa, 2018). In Ethiopia, roughly 50% of the coffee production is locally consumed making the country to be also the leading consumer of coffee beverages in Africa.

Coffee production is crucial to the Ethiopian economy, it generating about 30% of total export earnings. In Ethiopia coffee is produced under several types of production systems, including forest, semi-forest, garden, and modern plantation. More than 15 million Ethiopians are directly and indirectly employed in the coffee sector, and also, 95% of Ethiopia’s coffee is produced by smallholder farmers on less than two hectares of land (Tefera, 2013). Khat (*Eculis*) is a narcotic plant that is increasingly competing with coffee for production. Therefore, coffee is one of the most important commodities limiting economy of small-scale coffee growing farmers and the whole country and more work is needed to investigate factors limiting the trade.

Objectives and Methodology

Objectives

The main objective of the diploma thesis is to conduct analysis of foreign trade of Ethiopia with the intention of coffee export during the period 1998 to 2017. Partial aims are to analyze trade balance of Ethiopia, to identify the major types of coffee the country is exporting and, to identify the most important factors influencing the export of Ethiopian coffee.

Methodology

The literature review of the thesis is processed on a basis of available scientific articles and books with a focus on the foreign trade of coffee, econometrics and statistics. The analytical part of the thesis firstly deals with the trend analysis of selected determinants of coffee export within the period from 1998 to 2017. This is followed by an econometric analysis in which the main instrument is an econometric model.

The raw data are obtained from the Ethiopia Revenue and Customs Authority (ERCA), International Coffee Organization (ICO), Food and Agriculture Organization of the United Nations (FAO), FAOSTAT, the U.S. Department of Agriculture (USDA) and World Bank. The individual parameters of the model are estimated through the method of Ordinary Least Square. After the estimation of parameters, the economic, statistic and econometric verification of the one-equation econometric model were performed.

The econometric analysis is concluded by the application of the model, which consists of calculation of elasticities and prognoses for the year 2018, 2019 and 2020. The analytical part of the thesis is conducted using statistical tests and techniques by the use of Gretel software and MS Excel.

1. Literature Review

This literature review part of the thesis deals with a world coffee production and consumption and importance of coffee to the economy. In addition, there is described world coffee market, major exporting and importing countries, determinants of coffee export, trade policies of selected countries, development of price of coffee and international organizations associated with coffee. The literature review is elaborated on a basis of available literature and articles.

1.1. World production and consumption of coffee

Coffee is one of the cash crops grown, processed, and traded across the world. Its origin has been traced to Africa where it anciently grew as wild plants in the Ethiopian highlands (Jeff Koehler, 2017). Coffee has two species which are Arabica and Robusta. Whereas the former has a sour flavor and highly valued, the latter has a bitter taste and less expensive (Kikkawa, 2018). Currently, coffee is a significant cash crop cultivated in more than seventy countries with tropical climate across the world.¹ Coffee is grown by about 25 million farmers worldwide, (International Coffee Organization, 2014), 80% of whom are smallholders making it an important socio-economic factor in producing countries.²

Being a tropical crop, coffee is virtually grown in the southern globe of the earth while most consumption occurs in the northern part of the globe especially in Europe where about half a trillion cups consumed per year. For instance, as shown by 2015 statistics of coffee consumption, the Netherlands has the leading per capita consumption. Thus, globally, the leading regions in coffee production include the central as well as South America, South East Asia, and some parts of Africa. In 2017/2018, around 161.74 million kilograms bags of coffee were consumed worldwide, a slight increase from 158 million bags in the previous year. With global consumption

¹ "The History of Coffee," accessed November 12, 2019, <http://www.ncausa.org/About-Coffee/History-of-Coffee>.

² "Coffee Market," *State of Sustainability Initiatives* (blog), accessed November 12, 2019, <https://www.iisd.org/ssi/coffee-market/>.

forecast at a record of 163.2 million bags, exports are expected up in response to strong demand in the year 2018/2019 (USDA, 2018).³

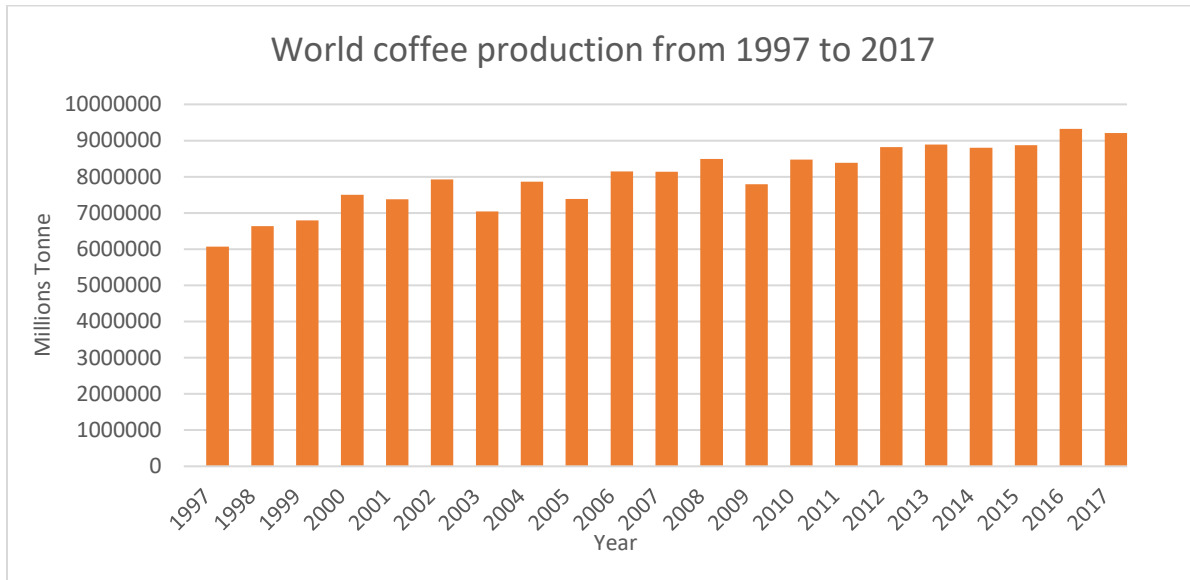
In the year 2018/2019, it is approximated that coffee production rose by about 4% as compared to 169 million bags of the year before. Particularly, the yield of Arabica was 103 million bags which was an increase of about 2% while Robusta production upped to around 67 million bags representing a 7% increase. The increased consumption of coffee in the period 2018/2019 was apparent from the expanded exports which increased by about 10% to around 120 million bags exceeding the quantities exported in the year before. In the coffee year 2018/19, world consumption is estimated to be 2.1% higher at 164.82 million bags, but coffee production exceeded this by 4.05 million bags. This surplus is a major factor in the low prices this season.⁴

The world's coffee production for the period 1997-2017 had a general growth in production to about 10 million tons at the end of 2017. In this case, slumping in some years over the last twenty years can be attributed to certain calamities. For example, in 2008 and 2009, heavy rains resulted in Colombian coffee crops being hit by a leaf disease known as coffee rust. Between 2010 and 2017, global coffee production rose from 134 million bags to around 151 million bags. South America is the leading coffee producing region in the world where Brazil's production accounts for about 40% of the world's production. In Asia, Vietnam is the leading producer which supplies about 20% of global coffee consumption.

³ nationalcoffee, "World Coffee Market and Trade: 2018/19 Forecast Overview," *National Coffee Association Blog* (blog), June 19, 2018, <https://nationalcoffee.blog/2018/06/19/world-coffee-market-and-trade-2018-19-forecast-overview/>.

⁴ "USDA (2018). Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service, USA. <https://apps.fas.usda.gov/psdonline/circulars/coffee.pdf> (Accessed on 23 October 2019) - Google Search," accessed November 12, 2019,

Figure 1: world coffee production from 1997 to 2017



Source: Food and Agriculture Organization of the United Nations (2017)/Own elaboration.

The above Figure 1 visualizes the global production of coffee in million tones for the period 1997-2017. Despite variations over time, overall, the world output of coffee has rapidly increase for the last twenty years, reaching close to 9.5 million tons in 2017. In 2008 and 2009, heavy rains resulted in Colombian coffee crops being hit by a leaf disease known as coffee rust. With regard to market fundamentals, total coffee production increased from 133.99 million bags in 2010/11 to approximately 151.6 million bags in 2016/17.

The top coffee producing countries are Brazil and Vietnam, it accounted for 40 percent of the global coffee supply from Brazil and followed by Vietnam 20 percent of the world coffee production. The majority of the world’s coffee is produced by South America, specifically Brazil.⁵

To illustrate, Brazil yielded around 62 million bags as compared to Vietnam’s 30 million bags in the year 2018. Nevertheless, while Vietnam is the second leading producer of coffee in the world after Brazil, it is the leading exporter.⁶ For example, in 2018, it is estimated that it exported around 3.5 million bags of coffee. At the onset of the 19th century, Brazil supplied

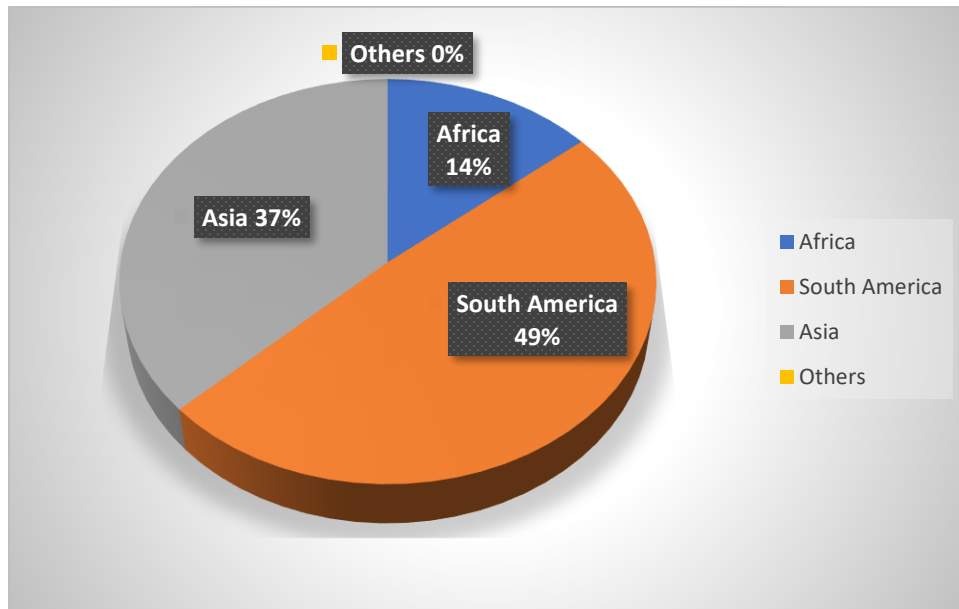
⁵ Sarada Krishnan, “Sustainable Coffee Production,” *Oxford Research Encyclopedia*, June 1, 2017, 1–34, <https://doi.org/10.1093/acrefore/9780199389414.013.224>.

⁶ “Top Coffee Producing Countries,” WorldAtlas, accessed November 20, 2019, <https://www.worldatlas.com/articles/top-coffee-producing-countries.html>.

more than 70% of the global coffee market and though its market share has since fallen, it remains the leading producer and seller of coffee.⁷

According to the Food and Agricultural Organization (FAO), apart from Brazil, other top producers of coffee have almost similar outputs. In Asia, Colombia and Indonesia are other leading producers of coffee. In the 1990s, Colombia's yield recorded a sharp increase in coffee production and is currently the third leading producer after Brazil and Vietnam. For instance, it produced around 0.9 million metric tons in the period 2017/2018. Unlike Brazil and Vietnam, Colombia is known for producing quality coffee. Vietnam has become a fierce competitor as the total value of its output is currently second only to Brazil's. Indonesia is the fourth biggest producer. As compared to Brazil, Vietnam, and Colombia whose production may fluctuate at some points, Indonesia's coffee yield is always steady.⁸

Figure 2: Share of major producers by continent in 2017



Source: Food and Agriculture Organization of the United Nations, Coffee Market Monitor (2017)

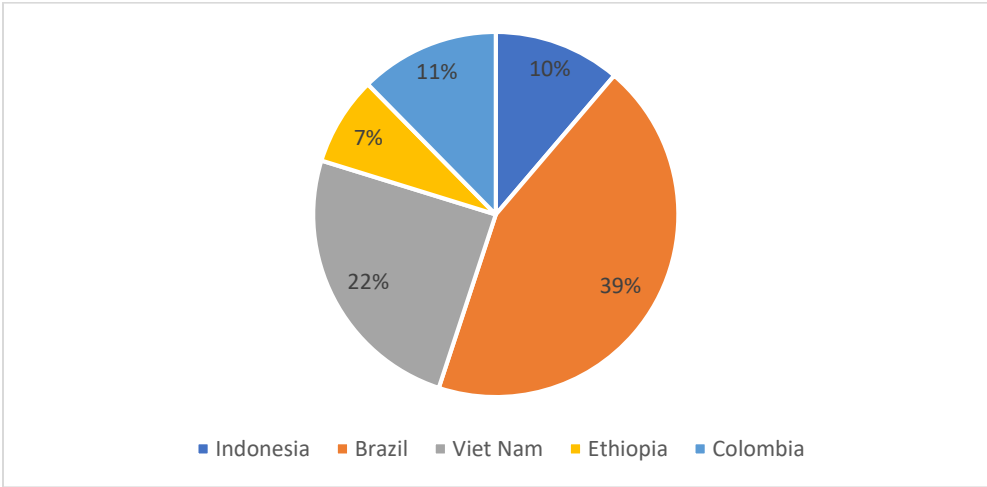
⁷ "Worldwide Coffee Production," Statista, accessed November 12, 2019, <https://www.statista.com/statistics/263311/worldwide-production-of-coffee/>.

⁸ "FAOSTAT," accessed November 12, 2019, <http://www.fao.org/faostat/en/#data/QC>.

As shown by the above figure 2, South America, at 49%, was the leading coffee producer while Asia, at 37%, came second. The third position was occupied by Africa with a 14% yield. Overall, the output of coffee in the world has experienced a noticeable increase in the last twenty years. However, Brazil, the leading producer, has been surpassed by Vietnam and Indonesia in some years as a result of fluctuation in production.⁹

As seen from the figure below, Brazil`s production has tripled over the last twenty years and thus remains the most influential producer and exporter of coffee in the world.¹⁰ In 2017, Brazil alone produced about 3.5 million tons represent about 40% of the global production while Vietnam`s 1.6 million tons is about 17% of the world`s coffee production. Colombia, in third place with about 10%, yielded almost 0.9 million tons of coffee over the same period.

Figure 3: Share of major producers by country in 2017



Source: Food and Agriculture Organization of the United Nations, coffee Market Monitor (2017)

Countries producing coffee are also some of the leading consumers. For example, in 2017, Brazil exported 14% of its production to earn 4 billion dollars while the rest were locally consumed. In Vietnam, 10.5% of the production was exported while the other portion was locally

⁹ “Worldwide Coffee Production,” Statista, accessed November 12, 2019, <https://www.statista.com/statistics/263311/worldwide-production-of-coffee/>.

¹⁰ “The World’s Top Coffee Consuming Nations,” weaverscoffee.com, accessed November 12, 2019, <https://weaverscoffee.com/blogs/blog/the-worlds-top-coffee-consuming-nations-and-how-they-take-their-cup>.

sold earning a total of 6 billion dollars. About importing, the United States of America (USA) spent about 6 billion dollars to buy coffee representing 19% of the global exports while German bought coffee worth 4 billion dollars which is about 11% of the total world’s exports.¹¹ This can be observed in the following Table 1 where are compared top exporters, importers, producers and consumers of coffee.

Table 1: Leading countries of world coffee exports, imports, production and consumption in 2017

Rank	Exports	Imports	Production	Consumption
1.	Brazil	United States	Brazil	Finland
2.	Vietnam	Germany	Vietnam	Norway
3.	Germany	France	Indonesia	Iceland
4.	Switzerland	Italy	Colombia	Denmark
5.	Colombia	Netherlands	Ethiopia	Netherlands

Source: The U.S. Department of Agriculture (USDA) (2017)/ Own elaboration

World consumption is estimated to have declined slightly from 155.47 million bags in 2015/16 to 155.06 million bags in 2016/17. This decline was attributed to a decline in coffee imports by about 500,000 bags. In the same period, domestic consumption representing almost 30% of the consumption recorded a slight increase. However, consumption in Asia, Oceania, and South America slightly rose by about 0.2% even as the consumption in other parts of the world collapsed. Africa recorded a drop in consumption of about 0.5% while in Mexico and Central America, the consumption declined by close to 1.3%. In North America and Europe, a drop of 1.4% and 0.1% were recorded in that order.

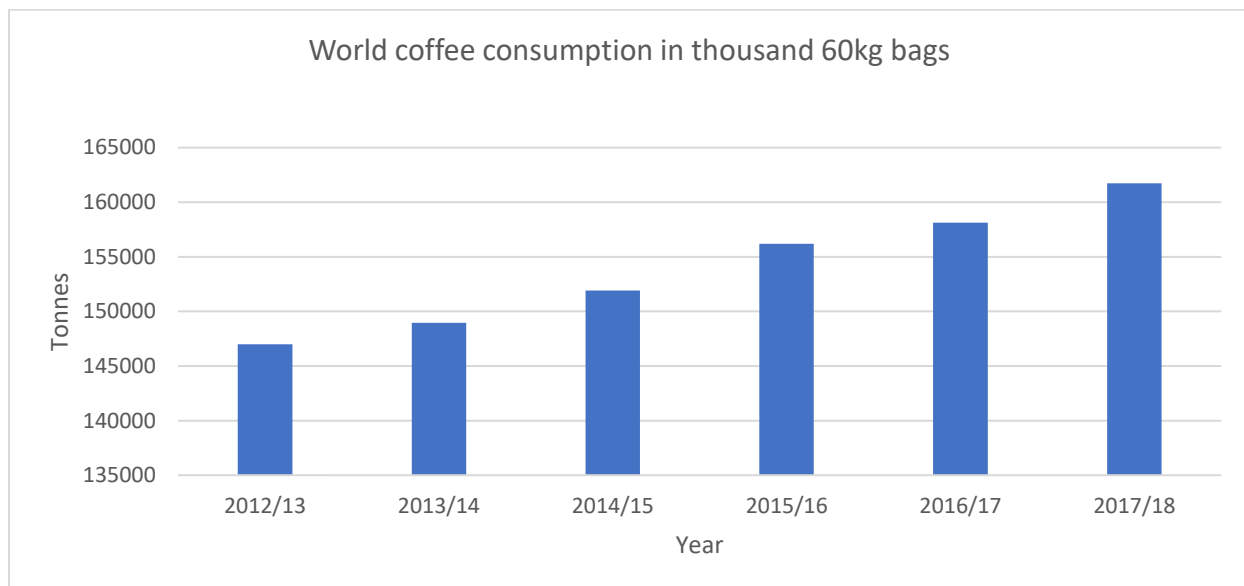
The coffee trade is one of Brazil’s most prolific industries. In December 2016 alone, it is estimated that Brazil exported over 3 million coffee bags. During the same period, Brazil was noted as the leading domestic consumer of coffee in South America. According to the World Atlas report, Finland was the leading consumer of coffee in the world while other Nordic countries which are the top consumers of coffee include Iceland, Denmark, the Netherlands, and Norway.¹²

¹¹ “Coffee Imports by Country,” World’s Top Exports, September 25, 2019, <http://www.worldstopexports.com/coffee-imports-by-country/>.

¹² “The World’s Top Coffee Consuming Nations.”

Amongst the beverages consumed across the world, coffee is dominant. However, its growing prominence has been threatened by several issues like unpredictable supply, erratic environmental conditions hampering production, and sustainability of its production. In 2017/2018, around 161.74 million 60kilogram bags of coffee were consumed worldwide, which an insignificant growth as compared to 158 million bags of the year before.¹³

Figure 4: Development of world coffee consumption from 2012/13 to 2017/18



Source: Food and Agriculture Organization of the United Nations 2017

As estimated by the International Coffee Organization (ICO), coffee consumption might have grown by 2% to around 165 million bags in the period 2018/2019. Even as global demand grows, it was estimated that a surplus of 3 million bags was produced in 2018/2019.¹⁴

¹³ “Global Coffee Consumption, 2017/18,” Statista, accessed November 13, 2019, <https://www.statista.com/statistics/292595/global-coffee-consumption/>.

¹⁴ “International Coffee Organization - What’s New,” accessed November 13, 2019, <http://www.ico.org/>.

1.2. Importance of Coffee to the World Economy

Coffee production plays a considerable role in the world's economy. Particularly, it is one of the leading trade commodities in international trade earning the exporting countries millions of dollars. In some of the developing countries, exporting coffee is the second important foreign exchange earner after the crude oil. The production chain of coffee ranging from cultivation to selling in the market is proving many job opportunities. Coffee beans are not only used for brewing a cup of coffee, but (through decaffeination) also provide caffeine for beverages (cola), pharmaceuticals, and cosmetics. Accordingly, it is estimated that more than 120 million people, mostly in developing countries, depend on coffee in their daily livelihoods. More than 50 countries, also in the developing world, rely on coffee as the major export commodity to earn foreign exchange.¹⁵ On the same note, around 25 million households are small scale producers of coffee. According to Ryota Kikkawa, overall, coffee exports are a key source of foreign exchange and national income for many developing countries. For example, above 10% of the global coffee production is in African countries like Ethiopia, Uganda, and Kenya.¹⁶ For that reason, most of the developing countries depend on coffee exports to earn hard foreign currencies and boost their gross domestic product (GDP).

Apart from the aforementioned primary impacts, coffee farming has had several secondary effects on the global economy. For example, it is one of the economic activities offering job opportunities to immigrants. Similarly, some of the coffee production activities have attracted foreign direct investments while many infrastructures especially the transport systems have been established to support coffee agricultural activities. In Latin America, coffee production is thought to have incentivized industrialization. Moreover, coffee exports are responsible for macroeconomic stability through balancing equilibrium in the balance of payment (BOP). Again, income earned from coffee exports is normally reinvested in other economic sectors. In this regard, coffee has played the role of stimulating the general economy in coffee-growing countries. On the same consideration, job creation through coffee farming and export is deemed to have occasioned social stability in the concerned societies.

¹⁵ Krishnan, "Sustainable Coffee Production."

¹⁶ "The African Position in The Global Coffee Market - CoffeeBI," *CoffeeBI | Coffee Business Intelligence* (blog), December 11, 2018, <https://coffeebi.com/2018/12/11/the-african-position-in-the-global-coffee-market/>.

1.3. World Coffee Market

This chapter concerns the basic quantities of international trade with coffee. It is focused on the most significant exporting and importing countries. Additionally, the topic will analyze the international developments of coffee prices and how they have influenced the world coffee market.

1.3.1. Coffee Trade

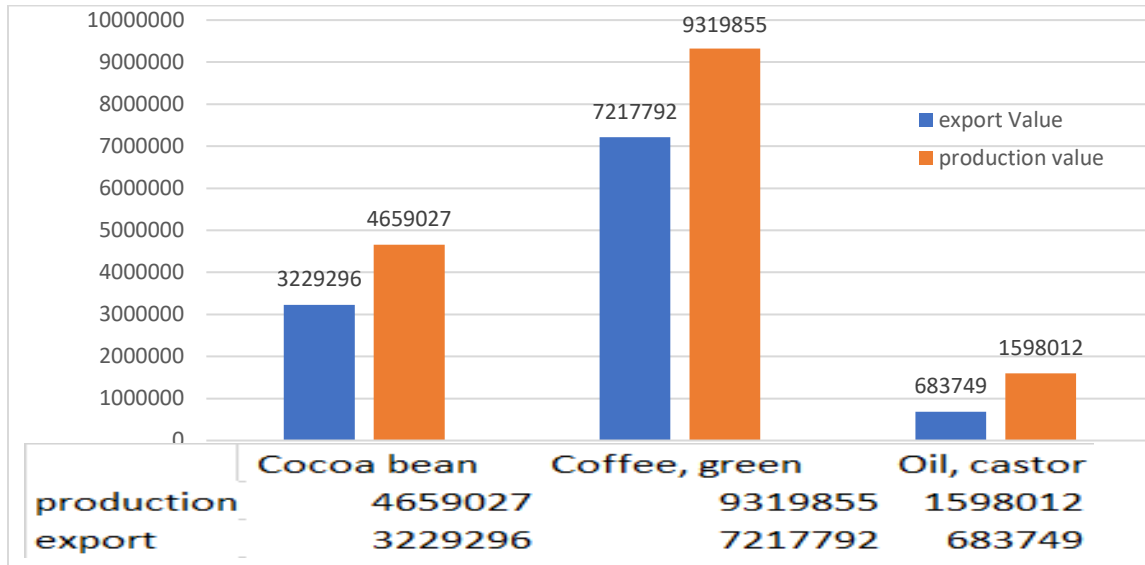
Coffee, one of the agricultural raw materials, is playing a significant role in intentional trade. As noted in the preceding section, coffee is a vital international trade commodity in consideration that it is majorly produced in developing countries in Asia, South America as well as Africa and mostly consumed in the developed nations especially in Europe. ¹⁷The coffee harvests each year naturally fluctuate due to climatic conditions, trading conditions, and several other factors. On the other hand, coffee trade may be insignificantly determined by its substitute products. For instance, tea is a famous alternative beverage to coffee. When the tea is comparatively cheaper in the market, the demand for coffee may decline. Coffee is an excise good and subject of remarkable international trade. This product is signed in international produce exchanges and is one of the most important agricultural raw materials globally. From the supply perspective, the most outstanding problem is that weather conditions determine the coffee yield to a large extent. About the demand side, the most vital aspect is the changes in the patterns of consumption including the taste and preferences of the consumers.¹⁸

The amount of coffee being exchanged in the international markets is lower than the total production in consideration that the producers are also significant consumers as mentioned in the preceding section.

¹⁷ “Competitiveness and Determinants of Coffee Exports, Producer Price and Production for Ethiopia Boansi, David and Crentsil, Christian - Google Search,” accessed January 24, 2020,

¹⁸ Aron Torok, Attila Jambor, and Tamás Mizik, “Comparative Advantages in the Global Coffee Trade,” 2017.

Figure 5: World production and export of selected crops in 2016



Source: Food and Agriculture Organization of the United Nations, FAOSTAT (2017)/ Own elaboration

As an illustration, global coffee production in 2016 stood at 157 million bags while at the international market, only 107 million bags were sold. In this respect, it is implied that around 48 million bags were internally consumed by the producing countries.¹⁹ Nonetheless, compared with other agricultural products like cocoa and oil castor, the amounts of coffee being exported are high. For example, in 2016, the global coffee exports were twice the cocoa exports and four times the exported oil castor.

1.3.2. Major Exporters and Importers of Coffee

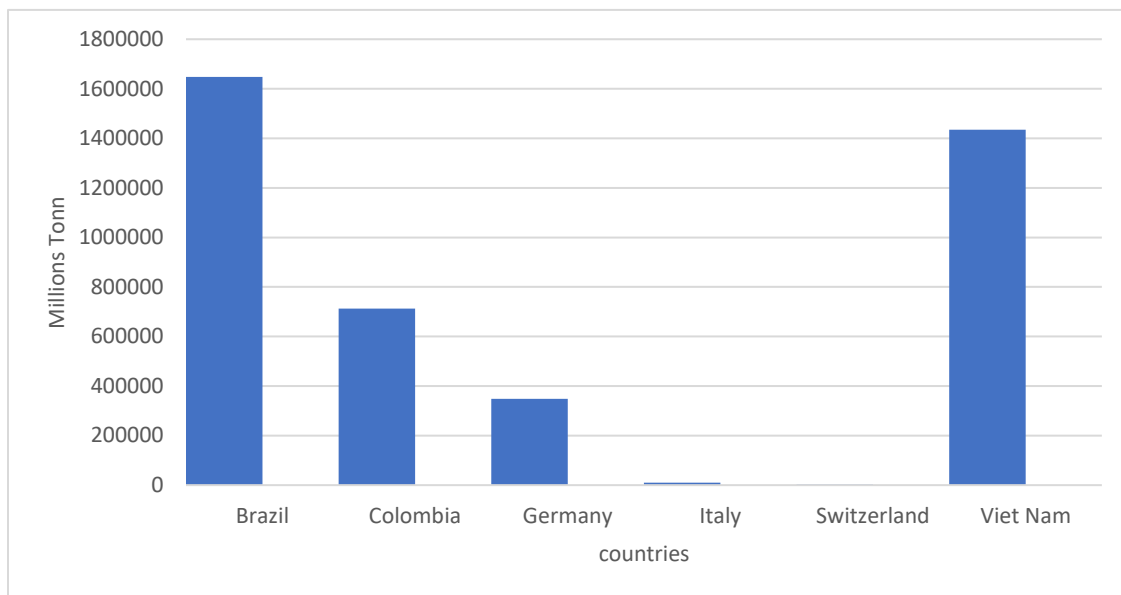
Global exports of green coffee increased from approximately 5.922 million tons in the year 2006 to 6.581 million tons in 2010 (representing an increase of 11.13%). In the period 2006-2010, America was the leading exporter of green coffee at around 52% followed by Asia and Oceania with 30%. Similarly, Africa and Europe’s exports accounted for 10% and 9% in that order.²⁰

¹⁹ “USDA (2018). Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service, USA. <https://apps.fas.usda.gov/psdonline/Circulars/Coffee.Pdf> (Accessed on 23 October 2019) - Google Search.”

²⁰ Boansi David, “COMPETITIVENESS AND DETERMINANTS OF COFFEE EXPORTS, PRODUCER PRICE AND PRODUCTION FOR ETHIOPIA,” n.d., 27.

At the country level, Brazil was the topmost exporter of coffee in 2017 with over 15 million tons.²¹ On the other hand, Vietnam and Colombia, both Asian countries, were the second and third leading exporters of coffee in 2017 respectively. The Figure 6 reflects top exporting countries in 2017.

Figure 6: Top 6 coffee exporting countries in 2017



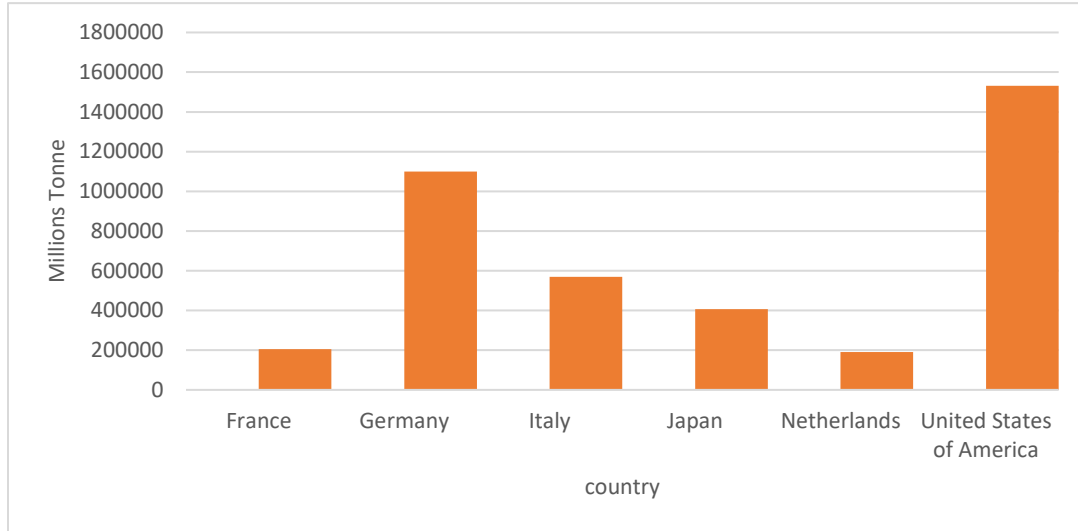
Source: Food and Agriculture Organization of the United Nations, FAOSTAT (2017)/ Own elaboration

This was followed by America at 25% while Asia was the third leading importer at 15%. Then Africa was the least importer of green coffee over the same period at only 4.2% of the global production.²²

²¹ “USDA (2018). Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service, USA. <https://apps.fas.usda.gov/psdonline/Circulars/Coffee.Pdf> (Accessed on 23 October 2019) -

²² “The African Position in The Global Coffee Market - CoffeeBI,” *CoffeeBI | Coffee Business Intelligence* (blog), December 11, 2018, <https://coffeebi.com/2018/12/11/the-african-position-in-the-global-coffee-market/>.

Figure 7: Top 6 coffee importing countries in 2017



Source: Food and Agriculture Organization of the United Nations, FAOSTAT (2017)/ Own elaboration

Concerning particular country importers, the USA was the leading importer of coffee in 2017 accounting for almost 40% of the total imports across the world. However, the other leading importers are European and Asian nations with German becoming the second leading importer at 27% while Italy's import proportion stood at 14%. Other prominent coffee importers in 2017 included Japan with 10%, as well as France and the Netherlands, accounting for 5% imports each.

1.3.3. Determinants of Coffee Export

There were conducted several analyses on determinants of coffee export. Export performance is one of the most widely examined but highly inconclusive areas of international business research (Katsikeas, Leonidou & Morgan, 2000). However, the amount of coffee being exported is determined by several factors. As shown by a research study by Sisay Menjil (2010), among factors influencing coffee export belong exchange rate, GDP of exporting and importing country, export price, production, domestic consumption, domestic price, and international price.

Particularly, the prevailing domestic price of the producing country linked with the level of internal consumption influence the export quantities. Also, the ratio of the global price to that of the domestic producers plays some roles in determining the level of foreign consumption of coffee. Other significant factors include the foreign exchange rates and the levels of foreign direct

investments. As well, relative prices which are determined by the actual effective exchange rates is yet another factor influencing the amount of coffee available for exporting. In this case, when the relative export prices rise, the demand for the exported goods will reduce.

On the other hand, the level of export quantities is determined by the production capacity of the exporting nations and the real gross capital formation of a country. Though real gross domestic product also can be a proxy for production capacity gross capital formation is used to avoid endogeneity between GDP and exports. The GDP of both the importers and exporters of coffee determines the extent to which they can engage in international trade. When the level of production of a country is higher, it can lead to export expansion.

Other variables also affect export supply. One of these is terms of trade where countries may increase their quantities of coffee being exported when they are offered better terms of trading and conversely decrease them if they find the terms not so good as expected. Foreign direct investment is expected to positively increase exports. For example, through foreign direct investment, the exporting country may acquire better technology to improve its coffee production. Additionally, the infrastructural development in a country may influence the amounts of coffee being exported. Particularly, the transport network which determines the movement of goods and people from one place to the other.

An exchange rate is the price of one currency expressed in another currency and it influences the country's international trade to a large extent. The exchange rate of currencies determines the import supplies, wages, and the prices of factors of input. Specifically, when a country's currency is strong relative to other foreign currencies, it may find difficult to export its produce since it will become expensive in the foreign markets.²³ This explains the reason why developing countries may find it easy to export their coffee as compared to the developed nations. On the same note, if a currency is overvalued, the country's reserves will fall promoting the use of trade barriers. The currency depreciation might improve a nation's trade deficit since exports are cheaper and it also improves the export competitiveness of the country. (Kumar et al. (2008) Previous empirical studies performed, revealed a significant and positive impact of exchange rate on exports.

²³ Muhammad Kemal and Usman Qadir, "Real Exchange Rate, Exports, and Imports Movements: A Trivariate Analysis," *The Pakistan Development Review* 44 (June 1, 2005): 177-95, <https://doi.org/10.30541/v44i2pp.177-195>.

Likewise, the level of coffee exports is inversely related to the prices of exports. An increase in export price makes exports more expensive in the world market. However, a study by Kumar et al. (2008) noted a direct relationship between the export quantities and the prices of commodities being exported. Moreover, the extent to which international trading is liberalized in a country determines the level of exports. In this consideration, countries like Ethiopia which have less open economies may find it difficult to export their commodities to other countries as a result of protectionism and retaliatory levies imposed by other countries.²⁴

1.3.4. Development of Coffee Prices

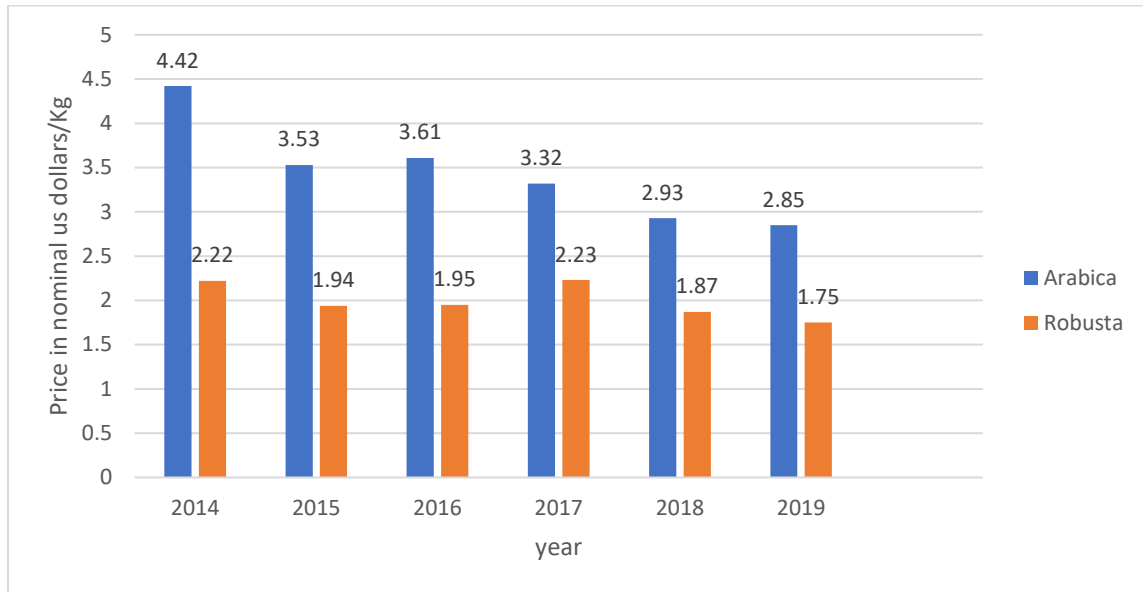
Coffee prices on the international market tend to be very volatile. Like any other agricultural produce, coffee prices are directly linked to the prevailing weather and climatic conditions. In this case, coffee is a crop that is predominantly sensitive to growing conditions and temperature fluctuations. Colombian Mild Arabica remained the most expensive coffee per pound. Even so, its pricing has dropped from about 3 dollars per pound in 2011 to 1.5 dollars per pound in 2017. Generally, Arabica coffee, for a long time, has been better priced than the Robusta or any other coffee type.²⁵ In the trading period 2014-2018, whereas Arabica traded for an average of 4 dollars per kilogram (kg), Robusta, on the other hand, was sold for about 2.9 dollars/kg over the same period. On the same consideration, Robusta seems to have been more affected by price fluctuations as compared to Arabica.²⁶

²⁴ “MPRA_paper_29427.Pdf,” accessed November 13, 2019, https://mpra.ub.uni-muenchen.de/29427/1/MPRA_paper_29427.pdf.

²⁵ “Average Prices for Arabica and Robusta Coffee Worldwide from 2014 to 2025,” Statista, accessed November 13, 2019, <https://www.statista.com/statistics/675807/average-prices-arabica-and-robusta-coffee-worldwide/>.

²⁶ “• Average Price of Coffee Worldwide by Coffee Type, 2017 | Statista,” accessed November 13, 2019, <https://www.statista.com/statistics/250186/average-price-of-coffee-worldwide-by-coffee-type/>.

Figure 8: Export prices of chosen coffee types, 2007 to 2017



Source: statista.com average price of Arabica and Robusta /Own elaboration

As shown in the above graph, in 2014, it was sold for 2.22 dollars per kg while in 2018, its price declined to about 1.9 dollars/kg. Apart from monetary factors that may destabilize commodity markets collectively, coffee pricing is extensively influenced by the imbalances between the supply and the demand.²⁷ Brazil is a country that is commonly hit by frost and as a result, its coffee supply may considerably decline at some points.²⁸ The projected drop in quantities of coffee to be supplied to the market may occasion speculative trading which may trigger an upward push of the prices.²⁹

²⁷ “BB 2013-06-26 WTO Trade Policy Review: Brazil,” accessed November 13, 2019, <http://www.intracen.org/BB-2013-06-26-WTO-Trade-Policy-Review-Brazil/>.

²⁸ “USDA (2018). Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service, USA. <https://Apps.Fas.Usda.Gov/Psdonline/Circulars/Coffee.Pdf> (Accessed on 23 October 2019)

²⁹ “FAOSTAT,” accessed November 13, 2019, <http://www.fao.org/faostat/en/#data/QC>.

1.3.5. Trade Policies of Selected Countries

The countries' economic history has been influenced remarkably by foreign trade trends and related policies. The focus of this chapter is to assess trade policies in Brazil, Indonesia, and Colombia.

Brazil

The foremost trade policy in Brazil is the consolidation of regional economic integration. For example, it is a founding member of the Southern Common Market (MERCOSUR). This enabled the country to have preferential trade agreements with the Pluractional State of Bolivia, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, and the Bolivarian Republic of Venezuela. Jointly with the above-mentioned countries, Brazil has also established trade agreements with Israel and India and on the same note, it has other pending trade agreements with many other countries.

A law enacted in 1995 forbids any form of discrimination that might be meted on foreign trades. Thus, in Brazil, foreign traders are equally treated as local investors. The Federal Government of Brazil has focused on supporting private investments particularly in transport infrastructure, energy, aeronautics, and other technology-intensive sectors with the main purpose of stimulating economic developments and doing away with trade impediments. Also, the Brazilian government offers incentives like tax exemptions to coffee investors. Brazilian law provides for the application of an export tax of 30%, which may be decreased or increased to up to 150% to address foreign exchange or trade policy objectives. Brazil has several programs to support coffee exports, especially by small scale producers and traders.³⁰

Indonesia

Nearly half of Indonesia's trade taxes are levied on exports, mainly commodities, the main policy objectives being price stabilization, promote the development of manufacturing as well as processing facilities, and protect depletion of resources. Indonesia's medium-term trade

³⁰ “BB 2013-06-26 WTO Trade Policy Review: Brazil,” accessed November 13, 2019, <http://www.intracen.org/BB-2013-06-26-WTO-Trade-Policy-Review-Brazil/>.

policy objectives include supporting the export of products other than the oil, boosting the internal market, and enhance the product distribution channels. Indonesia has earmarked ten various products to be focused on in trade negotiations one of them being coffee. Its economic priorities may also be understood within the context of various development plans aiming to promote the attractiveness of the country's internationally traded commodities and value addition of the produces. Central to this is the economic development of six regional economic corridors, each with industrial clusters focusing on priority sectors. The corridors are set to be interlinked with efficient transport as well as information, communication, and technology (ICT) networks.³¹

Colombia

Like Brazil, Colombia has trade policies that do not discriminate against foreign traders. However, it is only in a few sectors where the local traders are preferentially treated by the government. For example, it is common for the Colombian government to restrict the supply of certain services or commodities to a single supplier for a predetermined period. No prior authorization is required for foreign investment, subject to some exceptions (financing in the hydrocarbons and mining sectors, and portfolio investment).

In Colombia, traders are free to export their goods but with the observance of the existing laws and international agreements. However, the Government may issue standards to regulate trade with the main aim of removing trade barriers undermining Colombia's products. For instance, at some point, Colombia restricted the exportation of livestock purposely to improve the export of canned meat. Too, Colombia imposes certain special charges on some imports including the coffee to be used in financial developments in the country.³²

³¹ "BB WTO Trade Policy Review: Indonesia," accessed November 13, 2019, <http://www.intracen.org/BB-WTO-Trade-Policy-Review-Indonesia/>.

³² "BB 2012-07-05 WTO Trade Policy Review: Colombia," accessed November 13, 2019, <http://www.intracen.org/BB-2012-07-05-WTO-Trade-Policy-Review-Colombia/>.

1.3.6. International organizations in world coffee market

The International Coffee Organization (ICO)

Owing to the importance of coffee in the global economy, the United Nations (UN) sponsored the establishment of the International Coffee Organization (ICO) in 1963. The ICO was created in 1963 following the International Coffee Agreement first signed in New York in 1962 and subsequently renegotiated in the other years which followed. The International Coffee Council (ICC) is the highest decision-making organ of the ICO that is mandated to decide on delicate matters and policies touching on coffee. After the withdrawal of the U.S. from the International Coffee Agreement (ICA) in June 2018, ICO Member Governments represent 98% of world coffee production and 67% of world consumption. ICO has been instrumental in supporting the sustainable production of coffee and looking into the interests of all the stakeholders ranging from the primary producers to the consumers. The latest ICA was completed by the ICO in 2007 and the main resolution was that transparency in coffee trading should be promoted through information sharing.³³

World Trade Organization (WTO)

The World Trade Organization (WTO) is a global entity with the mandate to govern international trade between various countries.³⁴ The main aspects of the WTO are the trade agreements that are adopted by the member countries through parliamentary ratification. Thus, the organization has the main purpose of facilitating international trade through the establishment of rules to be followed and an international trading system. Through Trade Policy Reviews, the trading policies of the WTO countries are regularly examined to ensure that they conform to the

³³ “International Coffee Organization - Mission,” accessed November 13, 2019, http://www.ico.org/mission07_e.asp.

agreed standards. All WTO members are subject to review, with the frequency of review depending on the country's size.³⁵

2. Practical part

2.1. Trade balance of Ethiopia

Trade policy plays a vital role in determining the trade of a country. If we have import substitution policies, then there could be a decline in the level of imports. Conversely, if the trade is open, it could hinder the exports in the short-run but exports might increase in the long-run. In this concern, a country with low imports as a result of import substitution policies may also have levels of exports undermined.³⁶

Trade balance is the value difference between exported goods and services and the value of imported goods and services. A positive trade balance signifies a trade surplus, while a negative value signifies a trade deficit.

The agriculture sector has historically been the engine of the Ethiopian economy, however, the agriculture sector's share of GDP shrank by more than 25% between 2005 and 2018, while the service sector's share grew by 27% during the same period. The National Bank of Ethiopia (NBE) notes agriculture, industry, and services have contributed 36.3%, 26%, and 38.8%, to GDP in 2016/2017.

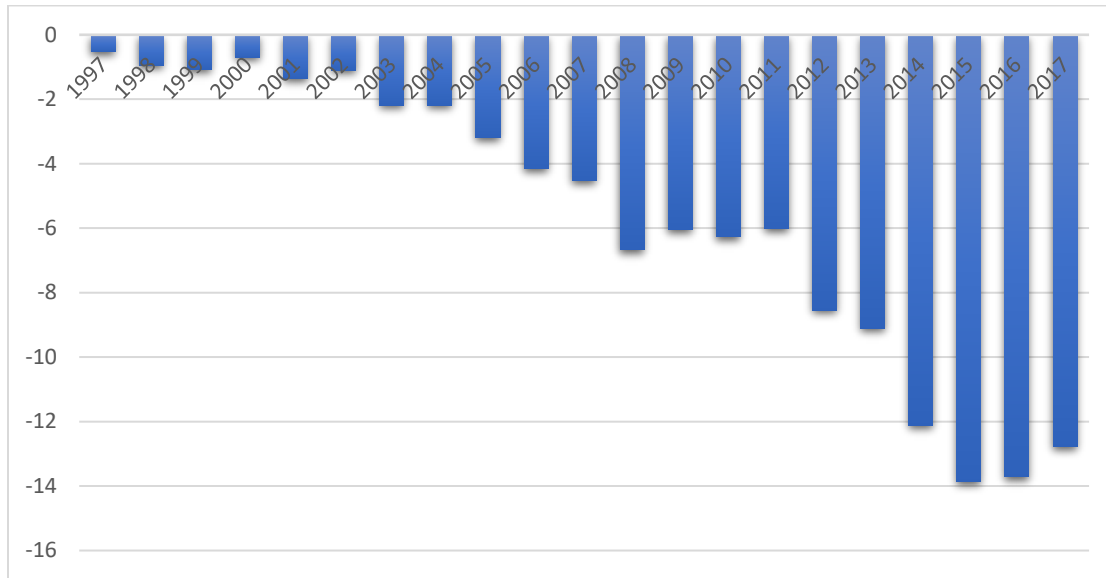
Ethiopia faces a growing trade deficit with total imports steadily increasing on average by 12.5% per year during the previous 10 years. The rise in imports has worsened the trade deficit, which ballooned from \$3.6 billion in 2010 to a \$14 billion deficit in 2016/2017.³⁷

³⁵ "WTO | What Is the WTO?," accessed November 13, 2019, https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm.

³⁶ Muhammad Kemal and Usman Qadir, "Real Exchange Rate, Exports, and Imports Movements: A Trivariate Analysis," *The Pakistan Development Review* 44 (June 1, 2005): 177–95, <https://doi.org/10.30541/v44i2pp.177-195>.

³⁷ "Export.Gov," accessed January 24, 2020, <https://www.export.gov/apex/article2?id=Ethiopia-Market-Overview>.

Figure 9: Trade balance of Ethiopia, 1997-2017



Source: The country economy trade balance of Ethiopia (2017)

As it can be seen from the figure above, during the year 1997 to 2017, Ethiopia is running a trade deficit and has a negative trade balance, rendering the country highly dependent upon foreign aid and loans to finance imports.

In 1997, Ethiopia's trade deficit amounted to around 12.78 billion U.S. dollars and it increasing in all consecutive years, in 2015 the trade deficit amounted around 13.86 billion dollars and in 2017 trade deficit amounted around 12.78 billion dollars and decline as compared with 2015 and 2016.³⁸ In 2015, Ethiopia recorded the largest trade deficit during chosen period. There was a sharp increase in imports of railway and tram locomotives and related rolling stock supporting the construction of the new railway that connects Addis Ababa to the Port of Djibouti, around 750km away. According to Equant Analytics data, total imports in 2015 stood at US\$27.86 billion.³⁹

³⁸ "Ethiopia - Trade Balance 2017," [countryeconomy.com](https://countryeconomy.com/trade/balance/ethiopia), accessed January 24, 2020, <https://countryeconomy.com/trade/balance/ethiopia>.

³⁹ "Ethiopia's Pivotal Year | Global Trade Review (GTR)," accessed January 26, 2020, <https://www.gtreview.com/supplements/gtr-africa-2017/ethiopias-pivotal-year/>.

Ethiopia’s exports are still currently dwarfed by import volumes.⁴⁰ The country’s total export volumes reached approximately US\$5.66bn in 2015, resulting in a negative trade balance of \$-22.2 billion. Much of the investment came from Ethiopia’s largest import partner, China. The railway was partly funded by China Export-Import Bank and built by Chinese firms. Figure 10 below illustrates the distribution of Ethiopia exports in 2016.⁴¹

Figure 10: Distribution of Ethiopia's exports & share of selected major commodities in 2016

Fig 10a

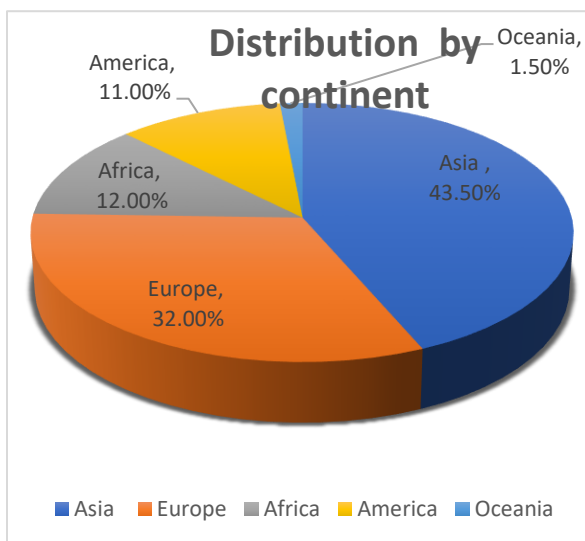
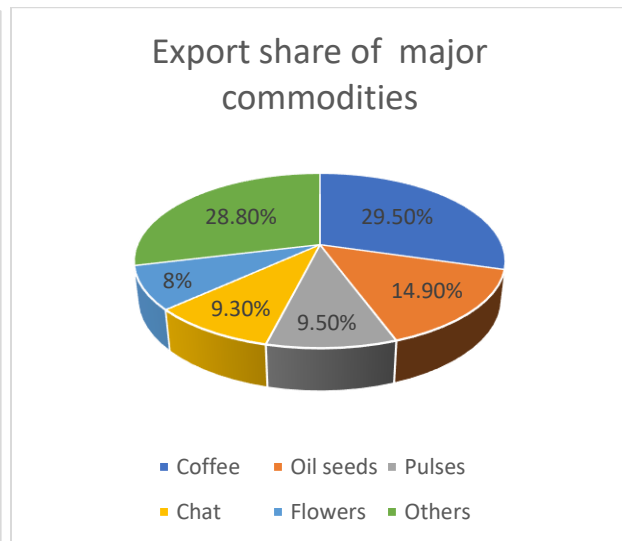


Fig 10b



Source: The UN COMTRADE Database on international trade (2017)/ Own elaboration

Ethiopia’s five main export destinations were United States (9.9%), Saudi Arabia (9.8%) and Germany (8.7%), Switzerland (7.6%), china (5.2%). A vital product to Ethiopia’s economy is coffee, representing 29.5% of Ethiopia’s exports, followed by oilseeds, pulses and chats, as seen in Figure 10b (NBE, 2019). Ethiopia mainly exports agricultural products like coffee oilseeds,

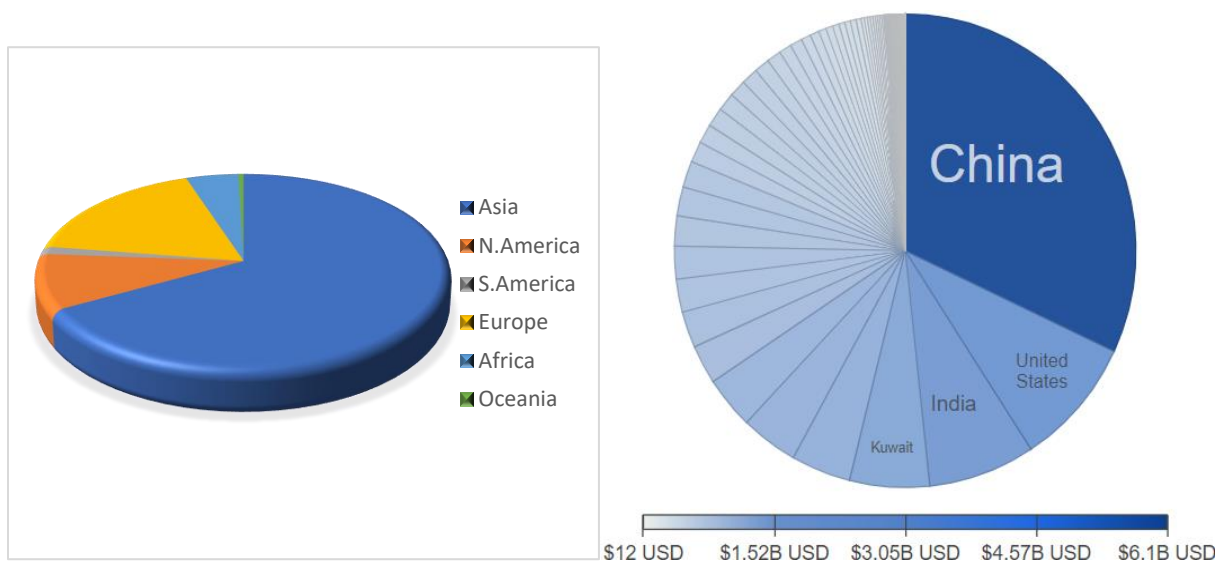
⁴⁰ “Ethiopia to Triple Coffee Production – New Business Ethiopia,” accessed November 24, 2019, <https://newbusinessethiopia.com/agribusiness/ethiopia-to-triple-coffee-production/>.

⁴¹ “Ethiopia’s Pivotal Year | Global Trade Review (GTR),” accessed January 26, 2020, <https://www.gtreview.com/supplements/gtr-africa-2017/ethiopias-pivotal-year/>.

pulses chat, flowers and also Edible vegetables and certain roots and tubers, meat and edible meat offal as well. On the other hand, pearls, precious stones, metals, coins, Raw hides and skins (other than fur skins and leather, lives animals and electrical equipment and others.⁴²

As we can see from the first graph below, Ethiopia imports the majority goods and services are from Asia, it took more than 66% of total and followed by Europe it is 17%, the third continent is North America took 9%, the rest are taken by Africa, South America and Oceania respectively 5%, 1% and less than one percent (0.46%).

Figure 11: Distribution of Ethiopia's imports in 2016



Source: The UN COMTRADE Database on international trade (2017)/ Own elaboration

The above graph on the right-side shows, the main trading partners and top import origins of Ethiopia are China (32% of total imports), United States (8.8%), India (7.5%), Kuwait (5.6%), and mainly imports foodstuffs, textile, machinery and fuel. Particularly Ethiopia imports from china are the following goods: machineries, electrical equipment and textiles, spent \$6.1 B USD, Mineral fuels, oils, distillation products imports from USA and spent \$1.68 B USD, from India, electrical, electronic equipment and spent \$1.43 B USD, vehicles other than railway imports from

⁴² “Ethiopia Imports By Country,” accessed January 26, 2020, <https://tradingeconomics.com/ethiopia/imports-by-country>.

Kuwait and spent \$1.06 B USD and Iron and steel imported from Japan and spent \$797 Mil. USD in the year 2016.⁴³

2.2. The History Overview of Ethiopia Coffee Production

As mentioned in the preceding part, Ethiopia is thought to be the place where Arabica coffee originated many years ago. As per the historical evidence, the origin of Arabica coffee has been traced to the Ethiopian plateau in the southwestern part wherefrom it spread to the Middle East and other parts of the world (Mesfin Tadesse, 2017). In Ethiopia, it is estimated that slightly less than 0.5 million hectares of land are used in coffee farming especially in the forested South Western part. In that respect, it is estimated that Ethiopia produces about 200, 0000 metric tons of coffee annually. As a result of Ethiopia's topographical, climatic, and soil conditions, its coffee has a good flavor and is mostly considered organic.

Ethiopia is the geographic home of Arabica coffee and produces mostly Arabica coffee. For that reason, Arabica variety of coffee has positioned Ethiopia as an outstanding coffee producer across the world. Moreover, Ethiopia is recognized for producing organic coffee which is preferred all over the world. Ethiopian coffee is rich in acidity and it possesses an aromatic and sweet flavor. Coffee is grown in two regions of the country namely Oromia and Southern Nations, Nationalities and People Regions. In Ethiopia, coffee is important as far as economic, social, and environmental aspects are concerned. Coffee production is crucial to the Ethiopian economy considering that it is a major Ethiopian export commodity generating about one fourth of Ethiopia's total export earnings. Ethiopia is the largest and leading producer of coffee in Sub-Saharan Africa and is the fifth-largest coffee producer close to 5% in the world following Brazil, Vietnam, Colombia, and Indonesia, contributing about 7 to 10% of total world coffee production.⁴⁴

Ethiopia produces large volumes of coffee beans every year, with 384,000 metric tons in 2016 alone. Specifically, it is approximated that about 30% of Ethiopia's annual exports are

⁴³ "Ethiopia Imports By Country," accessed January 26, 2020, <https://tradingeconomics.com/ethiopia/imports-by-country>.

⁴⁴ "Top Coffee Producing Countries," WorldAtlas, accessed November 20, 2019, <https://www.worldatlas.com/articles/top-coffee-producing-countries.html>.

contributed by the coffee while on the other hand, more than 15 million Ethiopians are directly and indirectly employed in the coffee sector. Ninety-five percent of Ethiopia's coffee is produced by smallholder farmers on less than two hectares of land while the remaining five percent is grown on modern commercial farms (Tefera and Tefera, 2013). Currently, Ethiopia is capable of increasing its coffee production by a big margin as a result of its suitable elevation, temperature, and fertile soil. Other favorable conditions include the indigenous quality planting materials and sufficient rainfall in the coffee-growing belts of the country.

2.2.1. The Characteristics of Ethiopia Coffee

In Ethiopia, most of the Oromia regions grow coffee. Basically, Ethiopian coffee is organically produced and it is low yielding with the highest cup quality. In Ethiopia, the Yirgacheffe area is famous for producing quality and various varieties of coffee across the world. Ethiopia coffee produces hard-type coffee beans, with intense flavors and aromatics. Fruit flavors are common in all regions, though the specific fruit character varies from region to region. Berry aromatics are relatively common, as are citrus and chocolate. The four major and key cultivation regions of coffee in Ethiopia discussed as follow:

2.2.2. Cultivation Regions of Coffee in Ethiopia

Ethiopia is an eastern African country whose climate is favorable for agriculture. The country is endowed with tropical rain forest, highlands, and an elevated altitude which suits coffee farming. Nonetheless, varying production systems are applied in coffee farming in Ethiopia. As noted by Workafes and Kassu (2000), coffee farming is undertaken under small-scale farms that use intensive management systems in farms as small as 0.2 hectares. Hararge is one of the Ethiopian regions famous for small scale coffee farming by the households. In West Wollega area coffee is grown in the lower side of the topo sequences on gentle slopes and steep slope areas. In these forested areas, the farmers usually tend their coffee trees by pruning the forest trees which provide good shades. In essence, it should be noted that apart from protecting the coffee plants, forest trees create an ecosystem conducive to better yields. Nonetheless, over-shading the coffee

trees may be counterproductive since an environment conducive for diseases may be created.⁴⁵ In Bale and some parts of Jima and Illubabor, coffee trees are naturally grown in the forested areas but their yields are lower as compared to the planted ones. Coffee crops are grown in the four main regions throughout the country as (Aaron Davis et al.2017) outlined in the following section:

. **Sidamo (Yirgacheffe):** Sidamo is famous for producing some of Ethiopia’s most complex, aromatic coffees, with notes of spices, fruit, and floral qualities. Coffee produced here boasts a complex array of fragrances, with dark chocolate notes and hints of fruit, pepper, citrus, and flowers as well. Coffee from Sidamo is deemed to be the best all over the world.

. **Harrar:** Harrar is the leading coffee-producing region of Ethiopia where coffee beans are dry-processed as opposed to the popular notion that all Ethiopian coffee is wet-processed. The variations include Mocha, short berry, long berry, and pea-berry. This coffee is recognized for its rich mocha flavor with chocolate overtones.

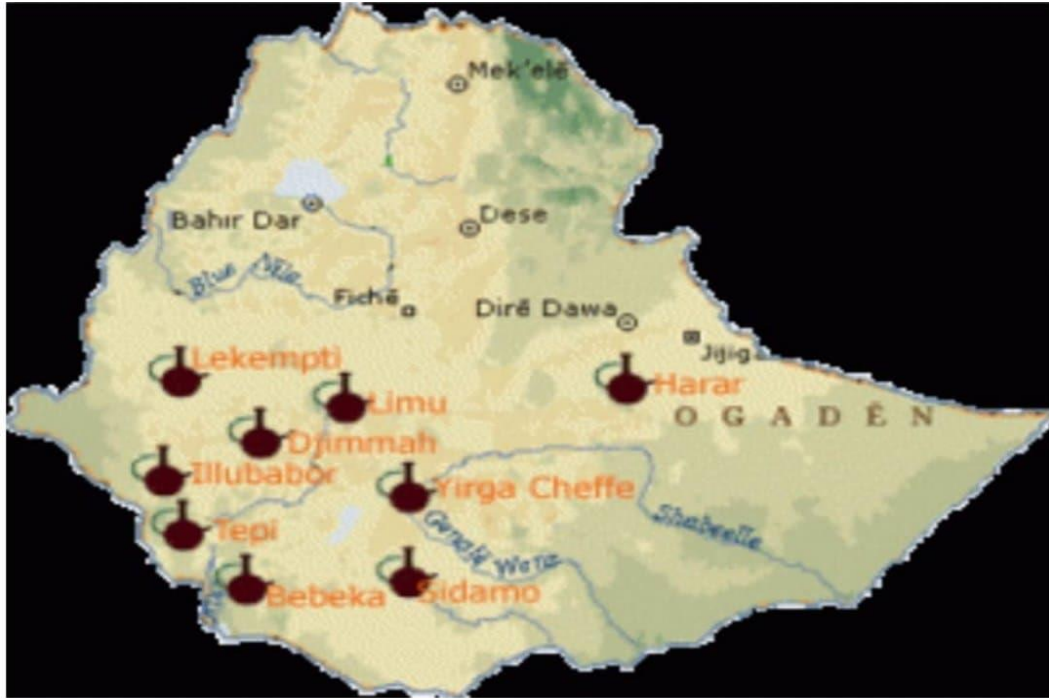
. **Ghimbi:** This region is in the western part of Ethiopia and is common for wet-processed coffee. Varieties grown here have a heavier, longer-lasting body than those of Harrar, and are more acidic with a nuanced flavor profile.

. **Limu:** This is a region with altitude ranging from 3,600-6,200 feet above the sea level and is situated in the southwestern part of the country. Varieties here have a well-balanced body and are low in acidity, sweet, and sharp-tasting with mellow traces of spice. Coffee from Limu is similar in quality to those from Sidamo.⁴⁶

⁴⁵ “Coffee Farming and Climate Change in Ethiopia.Pdf,” accessed December 2, 2019, <https://www.kew.org/sites/default/files/2019-01/Coffee%20Farming%20and%20Climate%20Change%20in%20Ethiopia.pdf>.

⁴⁶ “Ethiopia’s Coffee Farm Region,” Nomad Coffee Club, accessed November 24, 2019, <https://www.nomadcoffeeclub.com/pages/ethiopia>.

Figure 12: Coffee cultivation regions in Ethiopia



Source: Perfect daily grind, the Ethiopian coffee story behind Misty Valley

Areas of coffee production in Ethiopia

In Ethiopia, areas of coffee cultivation can be categorized into four which are forest coffee, semi forest coffee, garden coffee, and plantation coffee.⁴⁷

Firstly, forest or wild coffee trees naturally grow in the forest. They are not definitively owned by any person. While forest coffee may be harvested for consumption, their yield is low since they may not be growing in a good environment and they are also not nurtured by farmers. Secondly, semi forest coffee trees are natural but they are nurtured by the farmers. In Ethiopia, it is a common practice for some farmers to prune the surrounding of the coffee trees and create an environment favorable for coffee growth within the natural forest. Though the coffee trees in the semi forest system are natural, they are claimed by farmers who look after them.

⁴⁷ “David - COMPETITIVENESS AND DETERMINANTS OF COFFEE EXPORTS.Pdf,” accessed November 13, 2019, https://mpr.a.ub.uni-muenchen.de/48869/1/MPRA_paper_48869.pdf.

Thirdly, the garden coffee is planted by small scale farmers in their farms and develop them through fertilization and application of pesticides. Garden coffee trees are usually intercropped with other plants especially those with short maturity periods.

Fourthly, coffee in Ethiopia is cultivated in plantations. In this regard, coffee farming is undertaken on a large-scale basis especially by private investors, groups of individuals, or the government. Since coffee plantations, follow farming standards and rules, they usually produce higher and quality yields as compared to small scale or semi forested farming systems.⁴⁸

2.2.3. Coffee Cultivation Seasons in Ethiopia

According to the environment & coffee forest forum (ECFF) report, Ethiopia's climate is generally categorized as cool tropical. Nonetheless, since some parts have altitudes above 1,000 meters, Ethiopia may also be regarded as a cool tropic. The seasons are largely defined by rainfall. The three main seasons in the country are summer, autumn, and winter.

In Ethiopia, summer is a long dry season which occurs yearly from October to January or February. In that consideration, this season is the suitable time for harvesting and processing of the coffee beans. The severity of the main dry season depends largely on location but also on other physical characteristics, including altitude, slope, and aspect. On the other and, Ethiopian autumn takes place between February and May. In this season, short rains are experienced followed by a brief dry period which precedes the long rains of the next season. This is the main period for coffee flowering, fruit initiation, and early development.

Following the autumn as mentioned above is the winter which begins in June and ends in September. The winter in Ethiopia is a wet season suitable for coffee cherry development and maturing. Towards the end of September, the rains decline and subsequently, the dry season set in. Throughout the coffee lands, temperatures are generally higher during the dry season and lower in the wet season(s).⁴⁹

⁴⁸ “USDA (2018). Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service,

⁴⁹ “Coffee Harvests and Seasons,” accessed November 24, 2019, <https://www.fairmountaincoffee.com/category-s/102.htm>.

2.2.4. Challenges of the Ethiopian Coffee Production

Coffee farming across the world is undermined by various challenges which include cost and quality of labor, land, water, inputs, access to reasonable production credit, and proper technical advice in response to diseases and pests.

Ethiopia is known for its high-quality coffee. But then most of the small-scale farmers do not have the capability to plant and produce quality coffee seeds. On the same note, they are usually not in a position to seek for better markets for the products. Regardless of the huge potential for the collective production of coffee in Ethiopia, coffee productivity per acre of 0.72 metric tons is still low as compared to the acreage productivity of other coffee-producing countries (Abu and Tedy, 2013).

Abu and Tedy (2013) identified three major reasons for low coffee production in Ethiopia. First, Khat is a narcotic plant that is increasingly competing with coffee for production. In Ethiopia, particularly the Hararge area, farmers prefer the cultivation of khat since it has better and predictable income as compared to coffee. Second, the farm management system of coffee and the agronomic practices in Ethiopia are traditional. Similarly, coffee farmers in the country seem not to be receiving adequate extension and support services from the government. Thirdly, there is no specialized institution that offers extensive support for the production of coffee in the country. Additionally, the Ethiopian government operates a closed economy which may discourage export activities. In Africa, Ethiopia is one of the countries which seem to be less open to international trade owing to its stringent trade policies and rules.

On the other hand, some studies show that there are several factors for the low level of production of coffee. As shown by Taye (2010), the low production of coffee in Ethiopia can be attributed to some factors. For example, the farmers are not able to access credit facilities necessary for funding the coffee production. Also, the farmers are lacking essential farm inputs particularly fertilizers, chemicals, and seedlings for planting. Moreover, coffee is produced in Ethiopia at a higher cost as compared to other countries. Whereas this makes the profit margins earned by the farmers to be minimal, it makes the Ethiopian coffee to be relatively expensive. In Ethiopia, there are several poor practices of land use which hampers coffee farming. According to the Ministry of

Agriculture (2013), the Ethiopian coffee sector faces persistent challenges. Some of them are very low-quality control, the deficiency of a strong coffee seed supply system, inadequate consideration to the input credit provision for efficiency and quality enhancement, and lack of strong vision and path to support the coffee sector.

2.3. Overview of Ethiopia Coffee Exports

Growing, exporting, and trading of coffee in Ethiopia dates back to the 15 century. However, for many years, external attacks, as well as internal feuds, have been undermining coffee trading in the country. Coffee export from Harar and Gerri goes back earlier than 1810. In 1838, the export of 100 quintals of Enarea-coffee (now Limu-Seka, Jimma) was recorded.

At present, the major export products of Ethiopia include coffee, livestock products like leather, live animals and meat, oilseeds and pulses, fruits, vegetables and flowers, textiles, natural gum, spices, and mineral products. Even though coffee is a major export commodity in Ethiopia, it is notable that the country's share in global coffee export is very insignificant as seen against the share of other nations like Colombia and Indonesia. Coffee export reached a high around 199,446 metric ton and the country share of trade to the world market was 0.01 in the year 2009 (Gezahegn, 2012). The Ethiopian economy that is based on agriculture is highly dependent on coffee. Specifically, it is approximated that 60% of the Ethiopian foreign exchange is earned from coffee exports. On the same note, about 30% of the country's revenues are earned from exporting of the Arabica coffee. No other product item in Ethiopia has earned as much.⁵⁰

Over time, the proportion of coffee sales in the entire country's exports has been declining as a result of the improving exports of other commodities. Even so, coffee is still the leading export commodity earning for Ethiopia almost half of the export revenues. In the year 2012/13, Ethiopia exported an increased volume of coffee to the international market. However, the revenue generated from this large volume of coffee exports did not increase significantly as a result of reduced prices of coffee in the international markets. The major reason for the increased volume of coffee exports in this marketing year is that coffee traders like to ship coffee in bulk containers

⁵⁰ "Structure and Performance of Ethiopia's Coffee Export Sector Bart Minten, Seneshaw Tamru, Tadesse Kuma, and Yaw Nyarko - Google Search," accessed February 1, 2020,

rather than using the traditional 60 kg jute bags because of, the removal of the new Ethiopian government directive launched in November 2011. In Ethiopia, shipping of the coffee in 60 kg bags has been preferred by the traders for a long time since it creates a unique identity for the Ethiopian exports. Additionally, small scale traders in the country have been lacking the capability and resources to undertake bulk exporting of coffee in containers as directed by the government. The directive had therefore negatively affected export volumes in 2011/12 as many coffee traders refrained from exporting coffee and held large stocks in their warehouses.⁵¹

2.3.1. Types of Ethiopian Coffee Export

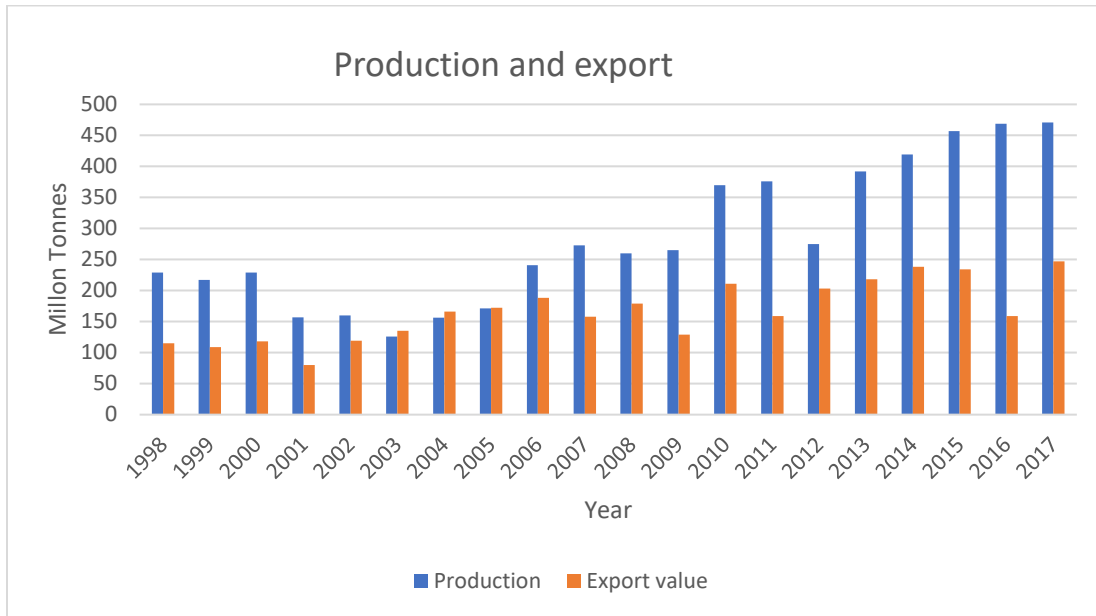
The leading form of coffee exported by Ethiopia is the green coffee from the unroasted beans. The country also exports the processed coffee, these are listed as follows: coffee husks and skins; coffee not roasted or decaffeinated; decaffeinated coffee, not roasted; roasted coffee, not decaffeinated; and roasted, decaffeinated coffee. The country also imported all the different types of coffee is exporting including, extracts, essences, and concentrates of coffee as well.

The graph below shows production and export of coffee between the year 1998-2017. Since the year 2001 to 2005 the yield of coffee in Ethiopia has been generally unsatisfactory compared to the preceding years. The lowest value of harvested (126,188 ton) observed in the year 2003 and the highest output (370,569 tones) was observed in the year 2010. After 2010 the production yield is increasing except in the year 2012. According to Alemayehu, in 2012 due to coffee disease named wilt, seasonal fluctuation, inadequate systems of harvesting and processing leads to the wide spread failure to maintain the inherent quality of coffee produced as well as export in Ethiopia.⁵² Although the trend in yields of coffee in Ethiopia has been generally positive, there still exists room for further improvement.

⁵¹ Quintin Gray, Abu Tefera, and Teddy Tefera, "Ethiopia Coffee Annual Coffee Annual Report," n.d., 9.

⁵² Alemayehu Geda, "Macroeconomic Performance in Post-Derg Ethiopia," *Northeast African Studies* 8 (January 1, 2001): 159–204, <https://doi.org/10.1353/nas.2005.0016>.

Figure 13: Ethiopia's production and export of coffee, 1998-2017



Source: Own elaboration based on Food and Agriculture Organization of the United Nations, FAOSTAT (2017)

As we can see, exports of coffee from Ethiopian have been fluctuating, over the past decade increased from 115,000tonnes in 1998 to 247,109tonnes in the year 2017. After the year 2003, the improvements in both volume and value of exports were observed.⁵³ The data indicated that between the years of 1998 – 2017, the total quantities of coffees produced and exported in different years’ time periods on average Ethiopia exported 157877.4 tons of coffee/year and also in a similar period of time, on average imported about 69.9 tons of coffee/year. During the year 2017/18 alone Ethiopia registered a record almost 917 million U.S. dollars from coffee exports.

Apart from being the leading producer of Arabica coffee, Ethiopia is the prime consumer of coffee in Africa (Hailemichael, 2014). The Coffee consumption is increasing year to year. In Ethiopia, roughly 50% of the coffee production is locally consumed making the country to be also the leading consumer of coffee beverages in Africa. Coffee has both social and cultural value. It is

⁵³ David, “COMPETITIVENESS AND DETERMINANTS OF COFFEE EXPORTS, PRODUCER PRICE AND PRODUCTION FOR ETHIOPIA.”

not only part of everyday life, mainly consumed during social events such as family gatherings, religious celebrations, married, birth and at times of mourning.⁵⁴

Figure 14:Ethiopian coffee ceremony



Source: Owen elaboration

In addition to this, Ethiopia’s coffee ceremony is an integral part of their social and cultural life. As shown in the above figure, the coffee ceremony is usually conducted by one young woman, dressed in the traditional Ethiopian costume. An invitation to attend a ceremony is considered a mark of giving love, friendship or respect and is an excellent example of Ethiopian hospitality.⁵⁵

2.3.2. Exchange Rate Volatility and Ethiopian Coffee Export

According to Manzur et al. (1992), real exchange rate volatility influences profitability, rents and the purchasing power to a large extent. Nonetheless, in Ethiopia, the exported volumes of coffee have remained constant for a long time. On the other hand, exchange rate volatility has

⁵⁴ Quintin Gray, Abu Tefera, and Teddy Tefera, “Coffee Annual Coffee Annual Report,” n.d., 11.

⁵⁵ “Ethiopian Coffee Ceremony,” accessed March 25, 2020, <http://www.epicurean.com/articles/ethiopian-coffee-ceremony.html>.

been high. However, uncertainty on the revenue depends on the future exchange rate will make the level of trade-sensitive to exchange rate volatility and will reduce the level of trade and increase the terms of the trade-off of expected profit for a reduction in risk.

In that reflection, the levels of coffee exports have been largely determined by the prevailing exchange rates. As shown by research studies, the volumes of coffee exported by Ethiopia have been rising when its export prices are relatively low. In this consideration, when the Ethiopian currency loses value against the dollar, its exports become cheap in the international market and hence, the demand for Ethiopian coffee increases (Nega, 2013).

Similarly, the report by Zelalem (2011) indicated that the exchange rate volatility is one of many factors that influence the coffee supply in Ethiopia. Over the last two decades, the Ethiopian Birr has been devalued against the American dollar. In 1992, whereas the Birr was exchanged for around 2 dollars, the rate had increased to 16.75 Birrs for a dollar in 2011. As a consequence, Ethiopian exports, especially coffee, have become inexpensive in the international market. On the other hand, this has made foreign goods costlier in terms of domestic currency and this is supposed to discourage imports.

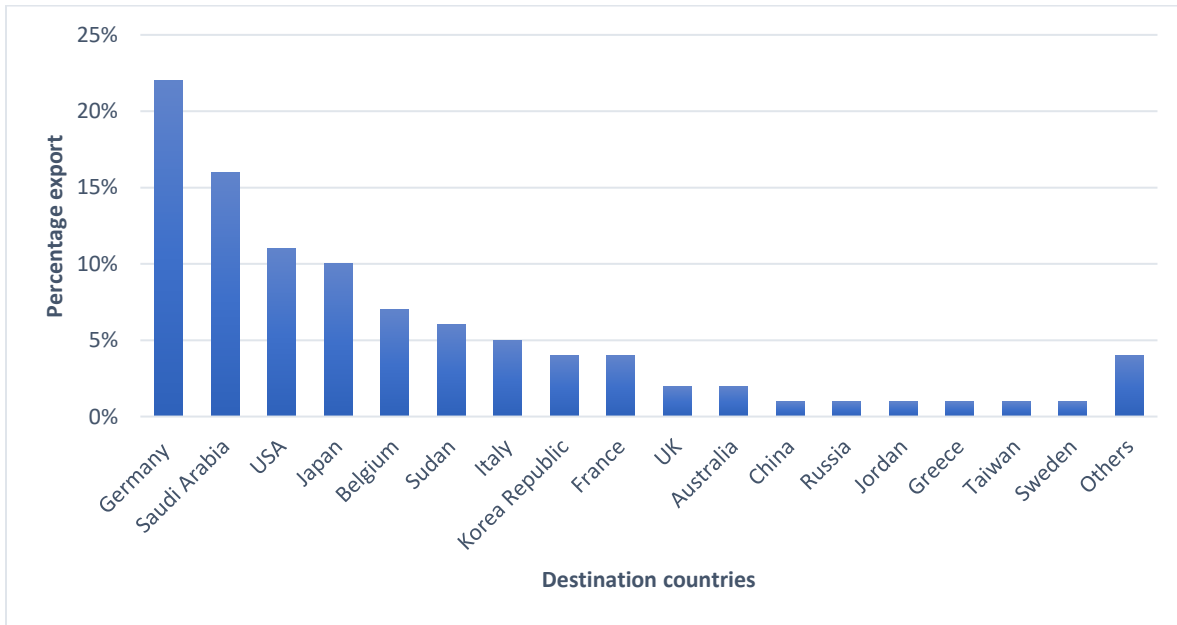
According to Haile and Asmerom (1994), the Ethiopian currency exchange rate with the dollar was fixed prior to 1993. This resulted in an overvaluation of the Birr making the locally produced goods to be expensive in the foreign markets. Similarly, overvaluation of the Ethiopian currency made the country to become less competitive in international trade and it also promoted the development of illegal currency exchange markets. However, the country has been using the flexible exchange system which is determined by the market forces and as a consequence, the country has regained its international competitiveness by making its exports less costly.

As discussed by Abule (2012), exchange rate volatility was found to be negatively and significantly affecting coffee export. The competitiveness index, Real Effective Exchange Rate was found to be positive and significant for coffee. This implied that devaluing the Ethiopian Birr was the main reason why Ethiopian coffee has become cheap in the international market.

2.3.3. Ethiopia coffee export destination countries

Ethiopian coffee was exported on average to about 60 countries⁵⁶ and about 45%, 35%, 11%, 7%, 2% and 0.1% of Ethiopia’s coffee were exported to Europe, Asia, North America, Sub-Saharan Africa, Oceania, respectively. Ethiopia accounts for 29% of the African coffee trade. Arabica coffee is a high-quality coffee in the world and the developed countries are regular importers of Ethiopian Arabica coffee. The largest share of coffee exports went to Germany. It accounts for one-fourth of Ethiopia’s coffee exports. The second most important importing country of Ethiopian coffee is Saudi Arabia, accounting for 16 percent of coffee exports.

Figure 15: Major destination countries of Ethiopia's coffee in 2017



Source: Ethiopia Revenue Custom Authority (2017)/Own elaboration

As we can see from the above graph, Based on the coffee export data in 2017/18, the principal export markets for Ethiopian coffee were: about 22, 16, 11, 10, 7, 6, 5, 4, 4, 2, and 2 per cent of the coffee were exported to Germany, Saudi Arabia, United States, Japan, Belgium, Sudan, Italy, Korea Republic, France, United Kingdom and Australia, respectively.

⁵⁶ Gray, Tefera, and Tefera, “Ethiopia Coffee Annual Coffee Annual Report.”

The vast majority of coffee exported from Ethiopia is in green bean form and the value addition is created in importing countries. This could be associated with a lack of skills, expansiveness of available technologies for coffee processing and, etc Musebe et al. (2007), ICO (2017). Different destination markets import coffees from different quality, specific regions and types and has the significant differences in prices between destination markets. For instance, the Middle East is much more likely to import coffee that originates from Harar and Nekempt areas, at the same time, generally prefer unwashed coffee for an assumed better and richer natural taste. Coffee with Fair Trade certificates are more likely to be exported to Europe than to other destinations. Organic and unwashed coffee on the other hand is in greatest demand by North American and Japan markets and they import relatively more coffee from Yirgacheffe. These markets also import relatively more coffee from cooperatives than the other destination markets. African importers focus mostly on the lower priced coffees from Wollega and Jimma and also Sudan is more likely to import ungraded coffee, both washed and unwashed.⁵⁷ Minten et al. (2014) stated that the quality of coffee can be increased by washing, i.e. washed coffee preserves the intrinsic quality of the bean better than unwashed beans, and including certification, and traceability, as these characteristics are to be related to significant quality premiums in international markets.

2.4. Ethiopian's coffee policies and regulations

As Ethiopian coffee continues to dominate world markets and this industry has been increasingly liberalized starting from 1991. Attracted by the liberalization and other reform measures such as the removal of taxes on coffee and ending of the floor price of the National Bank of Ethiopia, an unprecedented number of market participants from the private sector started to actively engage in the industry in different capacities in the production, processing, supplying, exporting, wholesaling, retailing and roasting of coffee.

The new Coffee Quality Control and Marketing Proclamation were enacted in 2008. In order to implement this proclamation, regulation and directive were issued by the Council of Ministers

⁵⁷ “Structure and Performance of Ethiopia’s Coffee Export Sector Bart Minten, Seneshaw Tamru, Tadesse Kuma, and Yaw Nyarko

and the Ministry of Agriculture and Rural Development (“MoARD” or “the Ministry”) respectively. The “MoARD” also issued a manual called “Manual on Coffee Production, Quality Control, and Marketing Activities.”⁵⁸

According to the CNBC Africa report, the reasons forced to develop the new proclamation were the challenges that are an obstacle to keeping Ethiopia from being the top coffee producer in the world. One is the extended value chain system which does not add any significant value neither to the market nor the product. Another reason is the fact that since most coffee trees are old, production quality and quantity per unit of land are lower, compared to other coffee-producing countries.⁵⁹

The proclamation is provided three main reasons for introducing the present coffee trade regime. The first one is the need to establish a better system of coffee quality and marketing which enables the country to supply better quality and competitive coffee to the international coffee market. The second reason relates to improving the marketing system in a way that enables coffee producers of the country to get a better share of the retail price. The third one has to do with the newly instituted market institution the Ethiopia Commodity Exchange (“ECX”). It is to harmonize coffee marketing with the ECX market system and the reorganization of the executive organs of the government.

These legislations provide for the different activities in coffee trade which include coffee collection, processing, supplying, exporting, roasting, storing and transporting. In the previous policy, the farmers were allowed only to sell coffee to the primary buyers. Not to the exporters, not to the suppliers, they did not get the chance to directly export. This newly developed proclamation brought alternative coffee transaction systems allowing different options for the small scale farmers, if they have the capacity, the farmers themselves can now be directly involved in exporting the coffee they produced and it will ensure a higher share of benefits for the farmers, coffee suppliers, vertical integration, boost coffee producers, actors and country’s benefit, ensures

⁵⁸ “Ministry of Agriculture and Rural Development, Coffee Quality Control and Marketing Directive, Directive No. 1, (December 2008), - Google Search,” accessed January 26, 2020,

⁵⁹ “Ethiopia Reforms Policy to Improve Coffee Production,” accessed January 24, 2020, <https://www.2merkato.com/news/alerts/5611-ethiopia-reforms-policy-to-improve-coffee-production>.

traceability and sustainability of coffee marketing, to improve coffee production and quality, allows value-added coffee transaction and encourage out-grower scheme.⁶⁰

The Government of Ethiopia also took control of the coffee marketing system to try and keep exporters from hoarding exportable coffee and to give the growers direct access to international markets. The government has banned certain exporters from the coffee market because of hoarding coffee. The Ethiopian Coffee and Tea Development and Marketing Authority revoked their licenses, closed their warehouses, seized their coffee stocks, and sold them on their behalf.

A policy was put in place to limit the amount of coffee an exporter can store. An exporter, for example, selling and buying coffee on the ECX will have his or her right to trade revoked if found to be storing more than 500 metric tons of coffee without a signed contract.

Currently, the reform being addressed by the Coffee and Tea Authority (CTA) through cupping (coffee tasting) before the auction, and with auction price closely related to quality. The quality of coffee is affected by the production system used, hence the need to throw some light on the coffee production systems in Ethiopia.⁶¹

2.5. Analysis of chosen variables

To conduct an econometric analysis of Ethiopia coffee export, there were included following variables:

- Ethiopia coffee export value
- Export price of Ethiopia coffee
- Exchange rate (ETB/USD)
- Total production of coffee green in Ethiopia
- GDP based on PPP in German

⁶⁰ “Ethiopia Reforms Policy to Improve Coffee Production,” accessed January 24, 2020, <https://www.2merkato.com/news/alerts/5611-ethiopia-reforms-policy-to-improve-coffee-production>.

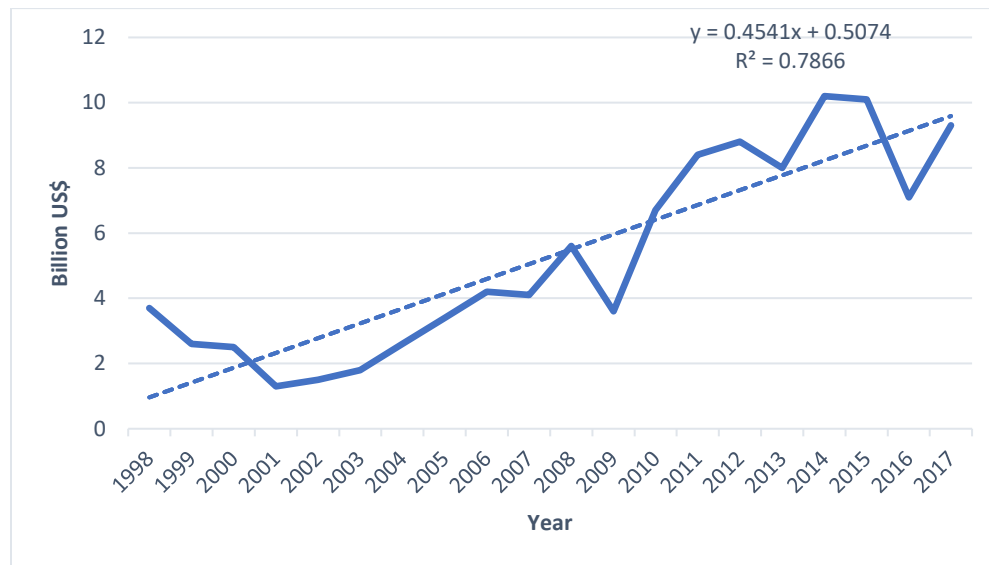
⁶¹ ““Confusion and Chaos "with New Coffee Auction System in Ethiopia,” - Google Search,” accessed January 26, 2020,

All variables are analyzed through time series from the year 1997 to 2017.

2.5.1. Ethiopia coffee export value

The Figure 14 illustrates the development of Ethiopia coffee export value during the period of 1997 – 2017.

Figure 16: Ethiopia coffee export value, 1998-2017



Source: Ethiopia Revenue and Custom Authority (2017)

During the selected period, the value of Ethiopia coffee export indicates an increasing trend. The average annual value of Ethiopian coffee is \$5.2 billion. The trend in percent, on the relative quantities of coffee exported on different years' time is presented in Figure 14. It showed that in the years of 1998 – 2017, the coffee exported from Ethiopia increased yearly on average by 6.2% while the income from the exported coffee increased yearly on average by 9.5 percent. In the year 2014, the export of coffee reached the highest value.

The incomes generated from the export of coffee in different years' time period, the country earned yearly an average of US\$ 490754353.6. Out of this total yearly average income, about 99.7% were generated from the export of coffee green (coffee not roasted or decaffeinated).

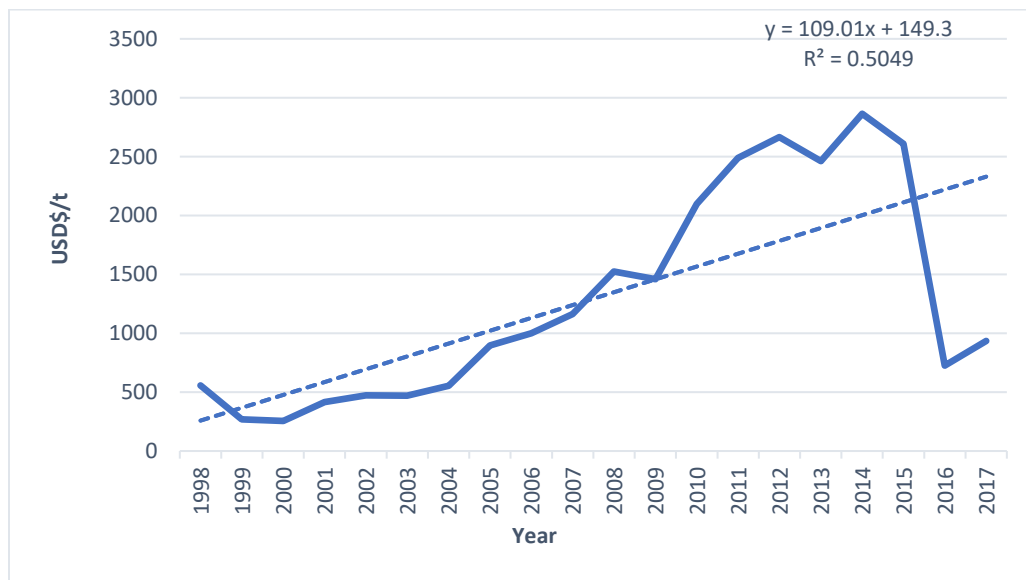
In market year 2013, Ethiopia exported an increased volume of coffee to the international market. However, the revenue generated from this large volume of coffee exports hasn't increased significantly as a result of reduced international market coffee prices. On the other hand, as it was already mentioned, in 2014, there was a sharp increase in coffee export volume cause of there was a gradual increase in the export price of coffee which result in improved export earnings.

Based on the linear trend function it can be expected that in following years the value of Ethiopia coffee export will increase with reliability of 78.6%.

2.5.2. Export price of Ethiopia coffee

Another variable included in the model is export price of Ethiopia coffee. Export price represents a significant factor influencing the export. The Figure 15 below shows the development of Ethiopia export price of coffee from 1997 to 2017.

Figure 17: Export price of Ethiopia coffee, 1998-2017



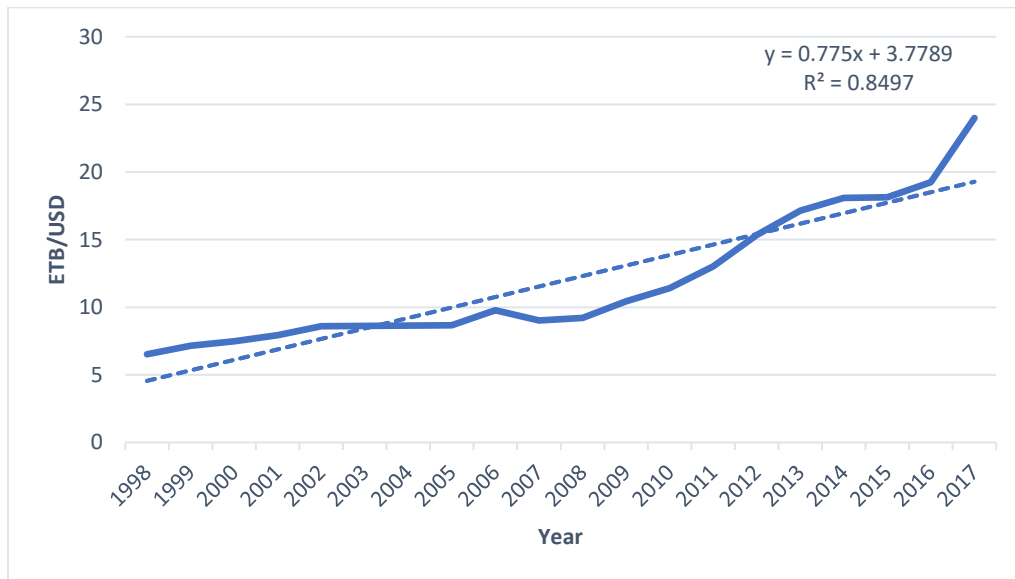
Source: Ethiopia Revenue Custom Authority (2017)

In the Figure 15 there can be observed the sharp increase in the export price of Ethiopia coffee in 2014, when the price reached at the value of \$286.4 per ton and extremely decrease at the price of \$72.5 per ton in 2016. The average annual export price of rice during selected period is 125.1 US\$ per ton. The trend function determines the increasing trend of Ethiopia export price of coffee in following years with the 50% of reliability.

2.5.3. Exchange rate (ETB/USD)

Exchange rate is one of the determinants of export. The development of exchange rate during the years 1997-2017 expresses in Figure 16.

Figure 18: Exchange rate (ETB/USD), 1998-2017



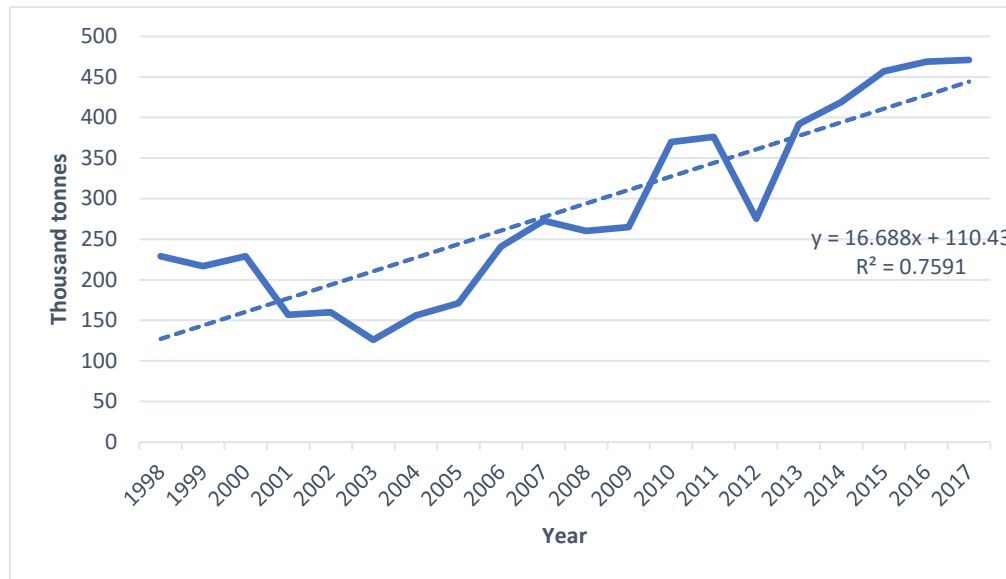
Source: Own elaboration based on Food and Agriculture Organization of the United Nations, FAOSTAT (2017)

The Figure 16 shows the increasing trend of the ETB/USD exchange rate. it can be expected with reliability only of 84% that there will be increase of Ethiopian birr in next years.

2.5.4. Production of coffee green in Ethiopia

The development of production of coffee in Ethiopia from the period 1998 – 2017 reflects Figure 17.

Figure 19: Production of green coffee bean in Ethiopia, 1998-2017



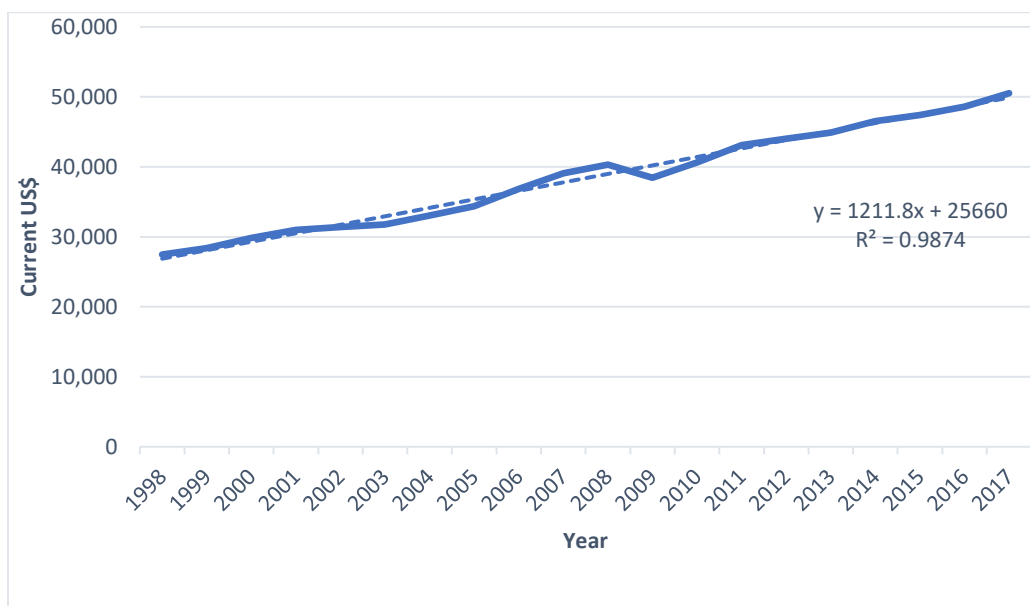
Source: Own elaboration based on Food and Agriculture Organization of the United Nations, FAOSTAT (2017)

The Figure 17 indicates the increasing trend of coffee production in Ethiopia. The average annual production of coffee in Ethiopia is over 28.29 thousand tones. In addition, there can be seen a significant decrease of the production from the year 2011, which was caused by the inadequate use of pesticides on coffee farms in Ethiopia. On a basis of linear trend function, the green coffee production in Ethiopia will tend to grow in following years with the 75% of reliability.

2.5.5. GDP per capital based on PPP in German

Since German is one of the main markets for Ethiopia coffee, its GDP/capital based on PPP is included into the model as a representative of importing country. The figure below shows the development of GDP based on PPP in German from 1998 to 2017.

Figure 20: GDP/capital based on PPP in German, 1998 – 2017



Source: Own elaboration based on World Atlas /Germany economy. (2019)

The figure 17 shows that GDP based on PPP in German has from the long-term point of view increasing trend. Germany’s GDP based on PPP reached 50,522 USD in Dec 2017, compared with 48,577 USD in Dec2016. The data reached an all-time high in Dec 2017, and record low of 38,444 in Dec 2009.⁶² There can be observed a linearity during the selected periods. With reliability of 98% trend function determines the increasing trend of the GDP/capital based on PPP in German in the following years.

⁶² “GDP Based on PPP by Country, 2019 - Knoema.Com,” Knoema, <https://knoema.com//atlas/ranks/GDP-based-on-PPP>.

2.6. Linear regression model

2.6.1. Construction of economic model

An economic model of Ethiopia coffee export was constructed on a basis of economic theories and it has following formula:

$$y_{1t} = f(x_1, x_2, x_3, x_4, x_5)$$

Where:

y_{1t} ... Ethiopia coffee export value (billion US\$)

x_{1t} ... unit vector (constant)

x_{2t} ... Ethiopia export price of coffee (US\$/t)

x_{3t} ... Exchange rate (ETB/USD)

x_{4t} ... Total production of green coffee in Ethiopia (million tonnes)

x_{5t} ... GDP per capital based on PPP in German (current US\$)

The main assumption of the economic model is the dependency of Ethiopia coffee export as an endogenous variable on Ethiopia export price of coffee, exchange rate, total production of green coffee in Ethiopia and GDP based on PPP in German. According to economic theory, there are assumed following relationships among variables:

- If the Ethiopia export price of coffee increases, the value of Ethiopia coffee export increases.
- If the exchange rate (ETB/USD) increases, the value of Ethiopia coffee export increases.
- If the total production of green coffee in Ethiopia increases, the value of Ethiopia coffee export increases.
- If the GDP based on PPP in German increases, the value of Ethiopia coffee export increases.

2.6.2. Formulation of econometric model

One-equation econometric model includes 1 endogenous variable y_t at time t , 4 exogenous variables x_{1t-5t} and 1 random component u_t . The functional form of the one-equation econometric model is linear.

The final one equation econometric model is following

$$y_{1t} = \gamma_1 x_{1t} + \gamma_2 x_{2t} + \gamma_3 x_{3t} + \gamma_4 x_{4t} + \gamma_5 x_{5t} + u_t$$

2.6.3. Data set

Table 2: Data set

Variable	Ethiopia coffee export (billion US\$)	Unit Vector	Export price of Ethiopia coffee (US\$/t)	Exchange rate (ETB/USD)	Total production of green coffee in Ethiopia (thousand tonnes)	GDP per capita based on PPP in German (current US\$)
Year	y1	x1	x2	x3	x4	x5
1998	0.37	1.00	557.32	6.52	229	27,466
1999	0.26	1.00	268.43	7.14	217	28396
2000	0.25	1.00	255.33	7.47	225	29861
2001	0.13	1.00	414.92	7.92	157	31008
2002	0.15	1.00	473.41	8.59	160	31412
2003	0.18	1.00	468.69	8.61	126	31780
2004	0.26	1.00	553.36	8.64	156	33061
2005	0.34	1.00	896.63	8.67	171	34389
2006	0.42	1.00	999.38	9.77	241	36,855
2007	0.41	1.00	1163.13	9.01	273	39,059
2008	0.56	1.00	1523.97	9.21	260	40,316
2009	0.36	1.00	1460.00	10.43	265	38,444
2010	0.67	1.00	2096.71	11.41	370	40,620
2011	0.84	1.00	2490.00	13.01	376	43,096
2012	0.88	1.00	2664.73	15.34	275	44,028
2013	0.8	1.00	2461.59	17.13	392	44,870
2014	1.02	1.00	2863.96	18.09	398	46,520
2015	1.02	1.00	2607.66	18.14	397	47,411
2016	0.71	1.00	725.38	19.23	410	48,577
2017	0.93	1.00	934.41	23.99	420	50,522

Source: Own elaboration based on Food and Agriculture Organization of the United Nations, FAOSTAT, the U.S.

Department of Agriculture (USDA) and World Bank, (2017), Ethiopia Revenue and Custom Authority (ERCA).

Correlation matrix is computed to determine the existence of a high multicollinearity in the model. The computed matrix illustrates Table 3.

Table 3: Correlation Matrix

PEX	ER	PRO	GDP	
1.0000	0.6644	0.2386	-0.1546	PEX
	1.0000	0.1644	-0.1688	ER
		1.0000	0.1109	PRO
			1.0000	GDP

Source: Gretl software

Based on Gretl output, in the model there is no multicollinearity, none of the paired correlation coefficients is higher than 0.8.

2.6.4. Estimation of parameters using Ordinary Least Square method

Estimation of parameters using the Ordinary Least Square method was elaborated through Gretl software. Table 4 shows computed values of parameters. The complete Gretl output is in Appendix 1.

Table 4: Estimated parameters using OLS

Parameters	Value of parameter
γ_1 – Unit vector	-0.106005
γ_2 - Export price of Ethiopia coffee	0.000138422
γ_3 - Exchange rate	0.0348059
γ_4 - Total production of green coffee in Ethiopia	7.67103e-05
γ_5 – GDP based on PPP in German	2.21660e-06

Source: Own elaboration based on output from the Gretl software

Based on computed parameters, the final one-equation econometric model is following:

$$Y_{1t} = -0.106005 + 0.000138422x_{2t} + 0.0348059x_{3t} + 0.00007671x_{4t} + 0.000002216x_{5t} + u_t$$

2.7. Economic verification

Within the frame of economic verification, there is evaluated the direction and intensity of influence of exogenous variables on endogenous variable. With a ceteris paribus conditions, it can be assumed:

- If all the exogenous variables equal to 0, the value of Ethiopia export is -0.106005billion US\$ per year.
- If the Ethiopia export price of coffee increases by 1 US\$/t, the value of Ethiopia coffee export increases by 0.000138422 billion US\$ per year.
- If the exchange rate ETB/USD increases by one unit, the value of Ethiopia coffee export increases by 0.0348059 billion US\$ per year.
- If the total production of green coffee in Ethiopia increases by 1 million tonne, the value of Ethiopia coffee export increases by 0.00007671 billion US\$ per year.
- If the GDP based on PPP in German increases by 1 US\$, the value of Ethiopia coffee export increases by 0.000002216 billion US\$ per year.

All the above-mentioned assumptions are consistent with the set assumptions.

2.8. Statistical verification

In terms of statistical verification, the statistical significance of estimated parameters is analyzed. The value of coefficient of determination R^2 is equal to 0.927575, which means that the model or the exogenous variables can explain 92% of the variability in Ethiopian coffee export value. The value of adjusted R^2 is 0.908261, which means that from 90% the changes in dependent variable are caused by changes in independent variables.

Statistical significance of estimated parameters

Statistical significance of estimated parameters is determined by t-test. The Gretl output shows p-values of individual parameters, which inform about the significance level, at which a null hypothesis is rejected. The null hypothesis states that the parameter is not statistically significant at a given level of significance. If the p-value is lower than chosen significance level, the null

hypothesis is rejected. Calculated p-values from Gretl output are shown in the following Table 5. The complete Gretl output can be found in Appendix 1.

Table 5: P-values of parameters

Parameters	P-Value
γ_2 - Export price of Ethiopia coffee	0.0006
γ_3 - Exchange rate	<0.00001
γ_4 - Total production of green coffee in Ethiopia	0.8629
γ_5 - GDP based on PPP in German	0.7489

Source: Own elaboration based on output from the Gretl software

Based on Table 5, on the significance level $P = 0.01$, parameters export price of Ethiopia coffee and exchange rate are statistically significant, while the rest of the parameters are not statistically significant.

2.9. Econometric verification

Within the scope of econometric verification autocorrelation, heteroskedasticity and normality were tested to verify conditions of the econometric model application.

2.9.1. Autocorrelation

To test autocorrelation in the model, the Durbin-Watson (DW) test is applied. The p value of DW statistic is equal to 0.7489. If P value is higher than the significance level $p > 0.05$, and then the calculated test statistic is in the interval $<du;2>$ which means 0.74890 is greater than 0.05, it is statistically significant and there is no autocorrelation.

2.9.2. Heteroskedasticity

The White test is used to determine heteroskedasticity. The null hypothesis states that residuals have a constant variance, thus there is homoskedasticity. Based on White test, calculated p-value is 0.440222. P-value is higher than the significance level $p = 0.01$ and thus the null

hypothesis is accepted on the given significance level. Therefore, there is no homoskedasticity problem in the model.

2.9.3. Normality

To verify normality of residuals, there was used Jarque-Bera (JB) test. The null hypothesis states that residuals have normal distribution. P-value of JB test is 0.90251. Therefore, the null hypothesis is accepted significance level 0.01. The residual has a normal distribution. The summarization of the econometric verification is displayed in Table 6.

Table 6: Results of econometric verification

		A	Decision	
<u>Autocorrelation, the Durbin-Watson test</u> H ₀ : there is no autocorrelation in the model H ₁ : there is autocorrelation in the model				
Result	0.440222	>	0.01	The H ₀ is accepted, there is no autocorrelation in the model.
<u>Heteroskedasticity, the White test</u> H ₀ : there is no heteroskedasticity in the model H ₁ : there is heteroskedasticity in the model				
Result	0.646069	>	0.01	The H ₀ is accepted, there is no heteroskedasticity in the model, but homoskedasticity.
<u>Normality</u> H ₀ : there is normal distribution of residuals H ₁ : there is not normal distribution of residuals				
Result	0.90251	>	0.01	The H ₀ is accepted, the residuals are normally distributed.

Source: Own elaboration

2.10. Application of the model

In the framework of application of the one equation econometric model, there are computed elasticities of individual exogenous variables. In addition, there are derived prognoses of the endogenous variables and all variables for the year 2018, 2019 and 2020.

Elasticities

The following Table 7 shows data set for the computation of elasticities.

Table 7: Data set for calculation of elasticities

Variable	Mean value	Theoretical value	Value of parameter
PEX (x2)	1313.076	0.648046	0.000138422
ER (x3)	13.322	0.648046	0.0348059
PRO (x4)	297.05	0.648046	0.0000767
GDP (x5)	38728.3	0.648046	0.000002216

Source: Own computation in MS Excel

Calculated elasticities reflect in the Table 8.

Table 8: Calculated elasticities of exogenous variables

Variable	Result
PEX (x2)	0.280471
ER (x3)	0.715511
PRO (x4)	0.035162
GDP (x5)	0.132432

Source: Own computation in MS Excel

Interpretation of the individual elasticities is as follows:

- If the Ethiopia export price of coffee increases by 1%, the value of Ethiopia coffee export increases by 0.28% per year.
- If the exchange rate (ETB/USD) increases by 1%, the value of Ethiopia coffee export increases by 0.71% per year.
- If the total production of green coffee in Ethiopia increases by 1%, the value of Ethiopia coffee export increases by 0.03% per year.
- If the GDP/capita based on PPP in German increases by 1%, the value of Ethiopia coffee export increases by 0.13% per year.

Based on computed elasticities, the value of Ethiopia coffee export is the most influenced by the exchange rate of ETB/USD.

Prognoses

To derive prognoses of the Ethiopia coffee export value for the year 2018, 2019 and 2020, the estimated equation of the linear regression model is used. Firstly, there are processed prognoses for all exogenous variables for chosen years in Excel.

The Gretl output is summarized in the Table 9 below.

Table 9: Calculated prognoses of exogenous variables

Year/ Variable	PEX (x2)	ER (x3)	PRO (x4)	GDP (x5)
2018	2416.393	21.94805	449.6762	50360.88
2019	2543.387	23.05725	475.4288	51850.38
2020	2684.661	24.20494	503.0294	53322.84

Source: Own elaboration based on output from the Excel software

After the computation of prognoses of individual exogenous variables, the prognoses for the endogenous variable is obtained through the substitution of calculated prognoses in the following model:

$$Y_{1t} = -0.106005 + 0.000138422x_{2t} + 0.0348059x_{3t} + 0.00007671x_{4t} + 0.000002216x_{5t} + u_t$$

The prognoses of Ethiopia coffee export value for the year 2018, 2019 and 2020 are shown in the Table 10.

Table 10: Calculated prognoses of the endogenous variable

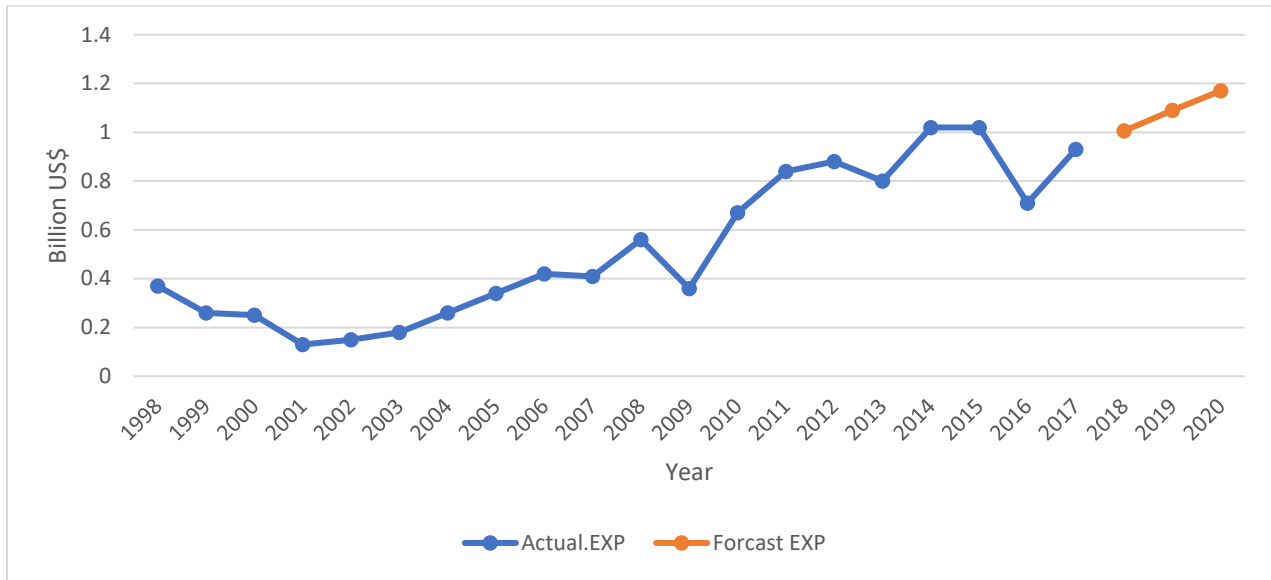
Year	EXP(y1)
2018	1.138493
2019	1.199954
2020	1.264837

Source: Own elaboration based on output from the Excel software

From the table above can be concluded that in the following three years, the value of Ethiopia coffee export will have an increasing trend.

In 2018, the Ethiopia coffee export value is estimated to be \$1.138 billion. In 2019, the value of Ethiopia coffee export is predicted to be \$1.199 billion. In 2020, the Ethiopia coffee export value is estimated to be \$1.2648 billion. The actual values of Ethiopia coffee export and calculated prognoses of the Ethiopia coffee export value are illustrated in the Figure 19.

Figure 21: Prognoses of Ethiopia coffee export value



Source: Own elaboration

Result and discussion

In the practical part, there was firstly analyzed the trade balance from the year 1998 to 2017. Based on the comparison of exports with imports, the trade balance of Ethiopia indicated a trade deficit. From 1998 to 2017, Ethiopia was running a trade deficit, When the economic growth was slow down primarily due to drought. Also, the increased import of iron and steel, oil and non-monetary gold resulted in a negative balance from 3.6 billion in 2010 to 14 billion in 2016.

In 1997, Ethiopia's trade deficit amounted to around 12.78 billion U.S. dollars and is increasing in all consecutive years, in 2015 the trade deficit amounted to around 13.86 billion dollars and in 2017 decline as compared with 2015 and 2016. In 2015, Ethiopia recorded the largest trade deficit during the chosen period. There was a sharp increase in imports of railway and tram locomotives and related rolling stock supporting the construction of the new railway that connects Addis Ababa to the Port of Djibouti, around 750 km away.

In 2017, Asia accounted for more than 66% of Ethiopia's import of the majority goods and services including fuel, textile, computers, vehicle and its parts, rubbers and agricultural products. The main trading partner and top importing origin of Ethiopia's in China accounted for 32% of total imports. The largest imported commodity from china was textile, machinery and electrical

equipment. In the same year, approximately 43% of Ethiopia's export were to Asian countries. The largest exported commodity was the green coffee bean, followed by oilseeds, pulses, and chats(edulis). Major export destinations of Ethiopia were the United States, Saudi Arabia, German, Switzerland, and China.

Coffee production is crucial to the Ethiopian economy considering that it is a major export commodity generating about 25% of total export earnings. Ethiopia's topographical, climatic, and soil conditions, its coffee has a good flavor and recognized for producing organic coffee (known for its high-quality coffee) which is preferred all over the world. However, the country is contributing about 7 to 10% of total world coffee production. The reason behind this, 95% of Ethiopia's coffee is produced by smallholder farmers while the remaining 5% is grown on modern commercial farms. Most of the small-scale farmers cannot plant and produce quality coffee seeds, lacking essential farm inputs particularly fertilizers and, seedlings for planting, very low-quality control, the deficiency of a strong coffee seed supply system. Particularly, in the Hararge area, farmers prefer the cultivation of khat since it has better and predictable income as compared to coffee, and there is no specialized institution that offers extensive support for the production of coffee in the country. Additionally, the Ethiopian government operates a closed economy which may discourage export activities (Abu and Tedy (2013)).

Between the years of 1998 – 2017, Ethiopia exported an average of 157877.4 tons of coffee/year. The results revealed that from the export of coffee, the country earned yearly an average of US\$ 490754353.6. Out of this total yearly average income, about 99.7% were generated from the export of green coffee beans, while the trend on incomes generated from the export of value-added coffees is very low in Ethiopia which is about 0.3%. The vast majority of coffee exported from Ethiopia is in green coffee bean form and the value addition is created in importing countries. Musebe et al. (2007) stated that the major limitation to add values on coffee in Ethiopia are lack of coffee processing facilities, expansiveness of available technologies for coffee processing and, etc. Minten et al. (2014) stated that to be competitive in the international markets, further improve export performance, the quantities produced and improved quality is needed.

The result further indicated that there was a strong and positive relationship between the Ethiopia coffee export value and the export price of Ethiopia coffee. Similarly, the average yearly prices/tonne of the exported coffees' in the years between 1998 - 2017; were US\$ 2.59.

More than 40% of the coffees were exported to Europe while about 35% of the coffee was exported to Asia. This could indicate that European and Asian countries are the major destinations of coffee produced from Ethiopia. In 2017, about 45, 35, 11, 7, and 2 percent of Ethiopia's coffee were exported to Europe, Asia, North America, Sub-Saharan Africa, and Oceania respectively. This indicated that in the study period, the country exported coffee to a total of 114 countries and about, 22, 16, 11, 10, 7, 6, 5, 4, 4, 2, and 2 percent of the coffee were exported to Germany, Saudi Arabia, United States, Japan, Belgium, Sudan, Italy, Korea Republic, United Kingdom, and Australia, respectively. Minten et al. (2014) who indicated that about, 51 percent of the coffees exported from Ethiopia were destined for Europe. The relative percent of coffee exported from Ethiopia to sub-Saharan African countries was 3.7 percent, which is very low. This may indicate that the country has to make an effort to improve the quantities of coffee exported to sub-Saharan African countries. The second part initially analyzed development trends of Ethiopia coffee export and chosen export determinants and subsequently, there was constructed a one-equation econometric model.

The value of Ethiopia coffee export indicated increasing trend with the average value of \$5.2billion. This trend is estimated to continue in following years with the 73.7% of reliability. All exogenous variables, namely the export price of coffee, exchange rate (ETB/USD), production of green coffee in Ethiopia and GDP/capita based on PPP in German indicated increasing trend as well. However, in case of export price, there is only 52% probability that the export price of Ethiopia coffee will increase in next years.

The one-equation model consisted of Ethiopia coffee export value as the endogenous variable and the export price of Ethiopia coffee, exchange rate, production of green coffee in Ethiopia and GDP/ capital based on PPP in German as exogenous variables. Firstly, there was computed the correlation matrix to detect a multicollinearity in the model. The multicollinearity was not present in the model. Subsequent step was the estimation of individual parameters, after which there was constructed the final one-equation econometric model.

In economic verification, there was assessed the intensity and direction of exogenous variables on the endogenous variable. According to assumptions formulated in the part of the construction of the economic model, all calculated values from the final model were in conformity with economic theory. Results showed that an increase in Ethiopia export price of coffee positively

contributes to the value of Ethiopia coffee export Kumar et al. (2008) noted a direct relationship between the export quantities and the prices of commodities being exported. The empirical estimate is consistent with empirical evidence found in the study performed by Sisay Menji1 (2010). The effect of the exchange rate on the value of Ethiopia coffee export is positively significant. And the total production of green coffee in Ethiopia was found to be positively correlated with the value of Ethiopia coffee export. The GDP/capital based on PPP in German is positively associated with the value of Ethiopia coffee export as well. The result is in conformity with the outcomes of Kumar et al. (2008).

In the statistical verification of the model, there was interpreted the result, that the value of Ethiopia coffee export is from 92.75% explained by the changes of exogenous variables in the model. The model as a whole was considered as statistically significant

Individual parameters were put into a table and computed p-values were compared with significance levels and the results were interpreted. The parameter export price of Ethiopia coffee, the total production of green coffee beans in Ethiopia and the GDP/capital based on PPP were found to be statistically significant at the significance level $\alpha=0.01$. The parameter exchange rate was statistically significant at the significance level $\alpha=0.1$.

Within the frame of econometric verification of the model, there was tested the presence of autocorrelation, heteroskedasticity, and normality of residuals. Results from Gretl were compared with set hypotheses. In the model the autocorrelation was not present, there was no heteroskedasticity and the residuals had a normal distribution.

In the application of the model, there were calculated elasticities to detect which of the exogenous variables influences the endogenous variable the most. Results showed that the variable exchange rate of ETB/USD has the largest impact on the value of Ethiopia coffee export. If the exchange rate of ETB/USD increases by 1%, the value of Ethiopia coffee export increases by 0.71% per year. In this section, there were also performed prognoses of variables for the year 2018, 2019 and 2020. Based on the results, it is estimated that the value of Ethiopia coffee export will tend to increase in the next 3 years. In 2018, the value of Ethiopia coffee export was estimated to be \$1.138493 billion, in 2019 it will be \$1.199954 billion and \$1.264837 billion in 2020.

Conclusion

Trade plays a significant part in the economy of Ethiopia. Coffee represents one of the most important commodities in the trade of Ethiopia. Ethiopia accounts for 29% of the African coffee trade. Arabica coffee is a high-quality coffee in the world and the developed countries are regular importers of Ethiopian Arabica coffee. Coffee has both social and cultural value for population and the consumption of coffee accounts for over half of annual production.

As coffee is the most important Ethiopia's export commodity, this thesis is mainly aimed at performing the trade balance of coffee for Ethiopia and identifying the factors, which has a significant impact on Ethiopia coffee export. The analysis of Ethiopia's exports and imports revealed a negative trade balance in the last decade. During the years 1998-2017, Ethiopia was running an increase of a deficit trade balance. In 2015, Ethiopia recorded the largest trade deficit, where the value of imports significantly exceeded exports. There was a sharp increase in imports of railway and tram locomotives. In 2015, the value of Ethiopia's total imports reached US\$27.86 billion, and the country's total export volumes of goods were approximately US\$5.66 billion, resulting in a negative trade balance of US\$-22.2 billion.

Based on the results, the exchange rate, Ethiopia export price of coffee, the production of green coffee in Ethiopia and the GDP based on PPP of Germany were found to be statistically significant. Even though the exchange rate of ETB/USD was found statistically significant, it still has an impact on the value of Ethiopia coffee export.

The results indicated that the export price of Ethiopia coffee and export value are directly related, which shows the need of increasing Ethiopian coffee to fetch higher incomes from the export of coffee. The percentage of exporting unprocessed coffee was much higher than that of the export of processed coffee, which could indicate that the country has to give more attention in exporting processed coffee that has higher quality and is competitive in market.

References

- [1] Abule and Abdi (2012). *Evaluation of Effect of Exchange Rate Variability on Export of Ethiopia's agricultural product: Case of coffee, flower and oilseeds*, MSc thesis, University of Malawi.
- [2] Aaron Davis, Justin Moat, Tim Wilkinson (2017). *Coffee Atlas of Ethiopia* ISBN-13: 978-1842466209
- [3] Asmerom Kidane (1999). *Real exchange rate price and agricultural supply response in Ethiopia: The case of perennial crops*. Department of statistics and Demography, University of Asmara, Eritrea.
- [4] Countryeconomy.com (2017). *Ethiopia - Trade Balance 2017*. [online] Available at: <https://countryeconomy.com/trade/balance/ethiopia> [Accessed 24 Jan. 2020]
- [5] Coffeebi.com (2018) *The African Position in The Global Coffee Market*. [online] Available at: <https://coffeebi.com/2018/12/11/the-african-position-in-the-global-coffee-market/> [Accessed 11 Dec. 2018]
- [6] CSA (2013). *Agricultural sample survey 2012/2013 (2005 E.C); report on area and production of major crops*. Central Statistical Agency, Addis Ababa
- [7] Doi.org (2008) *Real Exchange Rate, Exports, and Imports Movements: A Trivariate Analysis.* " *The Pakistan Development Review* 44 (June 1, 2005): 177–95. [online] Available at: <https://doi.org/10.30541/v44i2pp.177-195>. [Accessed 8 oct. 2 019]
- [8] Doi.org (2015). *Sustainable Coffee Production*. *Oxford Research Encyclopedia, June 1, 2017, 1–34*. [online] Available at: <https://doi.org/10.1093/acrefore/9780199389414.013.224>. [Accessed 10 oct. 2019]
- [9] Epicurean.com (2004). *Ethiopian Coffee Ceremony*. [online] Available at: <http://www.epicurean.com/articles/ethiopian-coffee-ceremony.html>. [Accessed 10 Feb. 2020]
- [10] Essp.ifpri.info (2014) "*Structure and Performance of Ethiopia's Coffee Export Sector*. [online] Available at: <https://www.Structure and Performance of Ethiopian Coffee Export Sector>. [Accessed 1 Feb. 2020]
- [11] Export.gov (2017). *Ethiopia-Market-Overview*. [online] Available at: <https://www.export.gov/apex/article2?id=Ethiopia-Market-Overview> [Accessed 24 Jan. 2020]

- [12] Fao.org (2017). *Crops*. [online] Available at: <http://www.fao.org/faostat/en/#data/QC>. [Accessed 12 Nov. 2019]
- [13] Geda, Alemayehu. “*Macroeconomic Performance in Post-Derg Ethiopia*.” *Northeast African Studies* 8 (January 1, 2001): 159–204.
- [14] Gezahegn G. (2012). *Long-run effect of Export volatility on GDP: Case of Ethiopia*, Södertörn University Department of Social Sciences, MSc thesis
- [15] Gtreview.com (2017). *Ethiopia’s Pivotal Year | Global Trade Review (GTR)* [online] Available at: <https://www.gtreview.com/supplements/gtr-africa-2017/ethiopias-pivotal-year/>. [Accessed 26 Jan. 2020]
- [16] Gujarati N. Damodar (2004), *Basic Econometrics, 4th Edition*, Tata McGraw-Hill Publishing Company Limited, New Delhi, ISBN-13: 978-0072478525.
- [17] Hailemichael Mulie. 2014. *The Determinants of Profit Efficiency of Coffee Producing and Marketing Cooperatives, the Case Study of Sidama Coffee Farmers’ Union*. Department of Management, School of Business and Economics, MadaWalabu University, Addis Ababa, Ethiopia.
- [18] Ico.org (2019) *International Coffee Organization - Mission*. [online] Available at: http://www.ico.org/mission07_e.asp. [Accessed 13 Nov. 2019]
- [19] Ico.org (2017). *Value addition in the African coffee sector: International Coffee Council 120th Session 28 - 29 September 2017*. [online] Available at: <http://www.ico.org/documents/cy2016-17/icc-120-7e-african-coffee-sector.pdf>. [Accessed 8 Apr. 2019]
- [20] Ideas.repec.org (2014). *Competitiveness and Determinants of Coffee Export*. [online] Available at: https://mpira.ub.uni-muenchen.de/48869/1/MPRA_paper_48869.pdf. [Accessed 13 Nov. 2019]
- [21] Iisd.org (2019). *State of Sustainability Initiatives. “Coffee Market*. [online] Available at: <https://www.iisd.org/ssi/coffee-market/>. [Accessed 12 Nov. 2019]
- [22] Intracen.org (2012). *WTO Trade Policy Review: Colombia, Brazil, and Indonesia*. [online] Available at: <http://www.intracen.org/BB-2012-07-05-WTO-Trade-Policy-Review/>. [Accessed 13 Nov. 2019]

- [23] Jeff Koehler, *Where the Wild Coffee Grows: The Untold Story of Coffee from the Cloud Forests of Ethiopia to Your Cup Hardcover (2017)* ISBN:978-1-63286-509-0
- [24] Katsikeas, Leonidou & Morgan, 2000. *Firm-Level Export Performance Assessment: Review, Evaluation, and Development* Journal of the Academy of Marketing Science 28(4):493-511
- [25] Kikkawa, R. (2018). *Ethiopia coffee business. Sub-saharan report*. Marubeni Research Institute. Marubeni
- [26] Kumar, N.R., Rai, A.B. and Rai, M. (2008). *Export of cucumber and gherkin from India: Performance, destinations, competitiveness and determinants*. Agricultural Economics Research Review
- [27] Manzur, M, Chen, D.L. and Clements, K.W. (1992), *Exchange rates, Prices and World Trade; New Methods, Evidence, and Implications*, Routledge, USA. National Bank of Ethiopia (2010). Annual Reports, 2008-2010
- [28] Menji, Sisay (2010). *Export Performance and Determinants in Ethiopia*, Munich Personal RePEc (MPRA)Archive Online at <https://mpa.ub.uni-muenchen.de/29427/> MPRA Paper No. 29427, posted 11 Mar 2011 07:52 UTC
- [29] Merkato.com (2019). *Ethiopia Reforms Policy to Improve Coffee Production*. [online] Available at: <https://www.2merkato.com/news/alerts/5611-ethiopia-reforms-policy-to-improve-coffee-production>. [Accessed 24 Jan. 2020]
- [30] Mesfin Tadesse (2017). *ETHIOPIA - Home of Arabica Coffee: Early Use, Folklore, Coffee Ceremony, Origin and Biology*. ISBN:9781542641005
- [31] Minten, B., Tamru, S., Kuma, T. and Nyarko, Y. (2014). *Structure and performance of Ethiopia's coffee export sector*; working paper 66. EDRI, EFPRI, Addis Abeba
- [32] Mpra.ub.uni-muenchen.de (2011). *Export performance and Determinants in Ethiopia*. [online] Available at: https://mpa.ub.unimuenchen.de/29427/1/MPRA_paper_29427.pdf. [Accessed 13 Nov. 2019]

- [33] Musebe R., Agwanda, C. and Mekonen, M. (2007). *Primary Coffee processing in Ethiopia: patterns, constraints and determinants.*, *African Crop Science Conference Proceedings*, 8, 1417-1421.
- [34] Nega Muhabaw (2013). *What determines the export performance of Ethiopia? A time series analysis*, MA thesis, Addis Ababa University, Ethiopia.
- [35] Nationalcoffee.blog (2018). *World Coffee Market and Trade: 2018/19 Forecast Overview*. [online] Available at: <https://nationalcoffee.blog/2018/06/19/world-coffee-market-and-trade-2018-19-forecast-overview/>. [Accessed 23 Dec. 2019]
- [36] Ncausa.org (2018) *The History of Coffee*. [online] Available at: <http://www.ncausa.org/About-Coffee/History-of-Coffee>. [Accessed 12 Nov. 2019]
- [37] Researchgate.net (2014) *Coffee Annual Coffee Annual Report*. [online] Available at: <https://dokumen.tips/documents/ethiopia-coffee-annual-coffee-annual-report-gainpublicationscoffee-annualcoffee.html> [Accessed 12 Nov. 2019]
- [38] Statista.com (2020). *Global Coffee Consumption, 2017/18* [online] Available at: <https://www.statista.com/statistics/292595/global-coffee-consumption/>. [Accessed 13 Nov. 2019]
- [39] Statista.com (2019). *Worldwide Coffee Production*. [online] Available at: <https://www.statista.com/statistics/263311/worldwide-production-of-coffee/>. [Accessed 12 Nov. 2019]
- [40] Statista.com (2019). *Average Prices for Arabica and Robusta Coffee Worldwide from 2014 to 2025*. [online] Available at: <https://www.statista.com/statistics/675807/average-prices-arabica-and-robusta-coffee-worldwide/>. [Accessed 13 Nov. 2019]
- [41] Tefera, A., and T. Tefera. 2013. *Ethiopia: Coffee Annual Report*, Gain report ET-1302, USDA
- [42] Tradingeconomy.org (2018). *Ethiopia Imports by Country*. [online] Available at: <https://tradingeconomics.com/ethiopia/imports-by-country> [Accessed 26 Jan. 2020]
- [43] USDA.gov (2018). *Coffee; Trade and Markets. United States Department of Agriculture Foreign Agricultural Service, USA*. [online] Available at: <https://apps.fas.usda.gov/psdonline/Circulars/Coffee.Pdf> [Accessed 23 Oct. 2019]
- [44] USDA 2014. *Coffee annual report; GAIN Report Number: ET 1402. USDA foreign agricultural service, USDA, USA*.

- [45] Weaverscoffee.com (2019). *The World's Top Coffee Consuming Nations*. [online] Available at: <https://weaverscoffee.com/blogs/blog/the-worlds-top-coffee-consuming-nations-and-how-they-take-their-cup>. [Accessed November 12 Nov. 2019]
- [46] Worldstopexports.com (2018). *Coffee Imports by Country*. [online] Available at: <http://www.worldstopexports.com/coffee-imports-by-country/>. [Accessed 25 Sept. 2019]
- [4] WorldAtlas.com (2019). *Top Coffee Producing Countries*. [online] Available at: <https://www.worldatlas.com/articles/top-coffee-producing-countries.html>. [Accessed 20 Nov. 2019]
- [48] Wto.org (2019). *What Is the WTO?* [online] Available at: https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm. [Accessed 13 Nov. 2019]
- [49] Wto.org, (2017). *Tariff escalation* [online] Available at: https://www.wto.org/english/thewto_e/glossary_e/tariff_escalation_e.htm [Accessed 29 Oct. 2019]
- [50] Workafes, W.T., Kassu K. (2000). *Coffee production systems in Ethiopia' proceedings of the workshop on the control of coffee berry disease (CBD) in Ethiopia*, Ethiopian Agricultural Research Organization, Addis Ababa
- [51] Zelalm Tesera (2011). *Response of coffee supply to change in export price for washed and unwashed coffee of Ethiopia*. Masters of Science thesis, Addis Ababa University, Ethiopia.