DETERMINANTS OF COFFEE EXPORT PERFORMANCE IN KENYA

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DEDICATION

I dedicate this research project report to my lovely wife Joan Kebenei and my daughter Liana

Chemutai for their constant encouragement and support during the entire period.

ACKNOWLEDGEMENT

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ACRONYMS AND ABBREVIATIONS

CBoK: Coffee Board of Kenya

CBK: Central Bank of Kenya

CMB: Coffee Marketing Board

ECS: Export Compensation Scheme

GDP: Gross Domestic Product

WGDP: World Gross Domestic Product

ICO: International Coffee Organization

KETA: Kenya External Trade Authority

KNBS: Kenya Bureau of Statistics

USA: United States of America

WB: World Bank

ECT: Error Correction Term

ADF: Augmented Dicky Fuller

ECM: Error Correction Model

OLS: Ordinary Least Square

FDI: Foreign Direct Investment

REER: Real Effective Exchange Rate

ABSTRACT

Coffee sector is a very important sector that contributes to Kenya's foreign exchange earnings, creates employment opportunities and overall economic growth. Understanding the factors that influence coffee export performance is Key towards realizing economic growth and development. This study investigated the determinants of coffee export performance in Kenya which include; world real gross domestic product, trade openness, institutional quality, export capacity, domestic production of coffee, world production of coffee, inflow of foreign direct investment and real effective exchange rate. The study utilized time-series secondary data for 38 years from 1980 to 2018. Error Correction Model (ECM) was employed in the analysis due to presence of cointegration among the variables. Pre-and post-diagnostic tests were used to ascertain the validity of the ECM results. Further ADF test was used to test for stationarity of variables as non-stationarity leads to spurious regression. The post-diagnostic tests conducted included heteroscedasticity and autocorrelation tests to ensure fitness and reliability of the model. The study established that there are both short run and long run factors influencing coffee exports earnings in Kenya. Institutional quality and the real effective exchange rates positively influence coffee exports earning in the short run and in the long run. On the other hand, domestic production of coffee positively influences coffee exports earnings in the long run factors whereas world real gross domestic product exhibited inverse relationship with coffee exports earnings. The findings of the study recommend adoption of government policies that promotes better institutional management, reduction of corruption and respect for the rule of law. The study further recommends that the government should support farmers by providing subsidies of farm inputs as well as investing in agricultural extension services and research and development towards enhancing coffee production. In an effort to improve the competitiveness of coffee exports, the government through the monetary institutions should consider competitive exchange rate regime, probably devaluation of Kenyan currency in favor of coffee exports.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Key to a country's development aspirations is its export capacity especially in the era of increasing globalization. As a result, countries and governments have placed emphasis on encouraging exports to foreign markets to enhance their countries development agenda. According to the economic literature, a number of linkages exist in which exporting enhances growth and development. Firstly, as a result of trade, economies are able to enhance productivity by learning from their peers i.e. the learning by exporting effect as is commonly referred to in the literature. Secondly, exporting enhances the efficiency in resource utilisation as they adopt frontier technologies. On the other hand, the largest market available to the exporting firms enables them to utilize economies of scale. Above all, the important role that exporting firms have is job creation in the different sectors of the economy through its forward and backward linkages with other sectors (Basu et al., 2000).

The global economy has enhanced competition as companies seek to take advantage of global supply chains to produce high quality at competitive prices. As a result, firms and countries are increasingly under pressure to take advantage of the often-large export market and reduce their trade deficits. More attention and studies have been focused on the underlying factors that have led to the internationalization process. Factors affecting export performance whether during the early stages of internationalization or among established exporting firms are critical for business leaders, governments, and policymakers considering the global economy.

However, supply-side constraints impede optimal exporting capacity of a country even if trade agreements exist. The supply-side constraints or factors that affect production costs and are

closely associated with institutional frameworks, and the domestic market. In addition to that, the country's macroeconomic environment is also part of the supply-side factors. Key among the supply side factors is the domestic transport infrastructure. The availability of infrastructure such as roads, railways, energy, ports, airports, and telecommunication affect the ability of a firm to supply. Firms in nations or regions with dilapidated infrastructures experience high transport costs, which adversely effects their export performance (Freckleton, 2009).

According to the literature, lowering tariffs and non-tariff barriers is a crucial step in enhancing market access and export performance. Whereas the literature has shown that reduction of non-tariff and tariff barriers could aid trade, on their own that is not enough to enhance market access and firms' export performance and hence the need to look at other demand and supply-side factors that influence trade. Similarly, countries with better physical infrastructure also seem to perform better in exports. As a result, African countries could do better to improve intra-regional trade by investing more in regional infrastructures. Gashi et.al (2014) attributed poor physical infrastructure to slow upward mobility in African trade.

Katsikeas, Piercy, & Ioannidis (2002) identified eight export problems such as; national export policy, information on export market, limitations on logistics, complexities in procedures, export pricing limitations, organization adaptation on marketing, and domestic currency devaluations. Operating in foreign markets require firms to constantly exchange currency by acquiring the host country's currency. In case of a fluctuating exchange rate regime, firms incur losses if country's currency appreciates thus limiting their operations.

1.2   Overview of Coffee Sector

Up until 1990's, coffee came second after tea as the most traded commodity globally. To date it remains the most valuable commodity often traded in the global market (Burritt, 2011). Despite it being top of the most traded goods, the experiences of different countries clearly show that it is highly competitive and some country's coffee exports end up being edged out. In addition, the frictions in the market often brought about by the existence of middle men have relatively led to price increase in the market while the prices growers receive remain stagnant. Nonetheless, the overall pattern of trade in this commodity reveals that it remains an important tropical commodity. Currently, more than half of the global exports of tropically produced commodities is coffee. On the downside, the coffee exports in different regions is marked by considerable heterogeneity. For instance, in developing countries, the export of coffee is faced by marketing hurdles and standard requirements and as a result they often export the commodity with little value addition hence fetching lower prices in the international markets.

Whereas this has been the trajectory path of coffee, it is also reflexive of the export sector generally. This has consistently been mirrored in the export of other agricultural commodities which have also faced more less the same challenges as the export of coffee and continues to be plagued by volatility in volumes and erratic price patterns. For instance, in 1970s, the policy structure was heavily biased against exports. It was characterized by protectionism, import licensing, price controls, and foreign exchange controls. Often this accentuated administrative bureaucracy, enhanced the bottlenecks in accessing imported inputs which resulted in the overvaluation of the local currency (Were et.al 2002). However, the relatively rapid real growth recorded in the mid-1970s was as a result of a spike in global coffee and tea prices. Favorable export market for coffee was realized in 1977 leading to coffee export boom.

The agricultural sector in Kenya, just as is the case in other Sub-Saharan Africa countries is the backbone of the economy. The sector significantly contributes to the growth of the Kenyan economy and is a major contributor to employment. From 2013-2017, agricultural sector on average contributed 21.9% to gross domestic product. The sector also contributed 56% of the total labor force and 65% of merchandise exports in 2017 (World Bank, 2019).

Coffee has over time since its production in 1893 by the missionaries been an important cash crop (Aksoy, 2012) with the country being among the countries recognized worldwide for being coffee producers. Unfortunately in Kenya most farmers are unable to draw profits from coffee farming. In 1992, coffee reforms were put in place in Kenya as part of the overall liberalization of the economy with the intention of reducing government involvement in the coffee sector. Although coffee is a cash crop in Kenya, the sector has not been reliable due to volatility in earnings caused by production uncertainty and rapidly rising global risks.

Understanding the trend of coffee production and coffee export performance is of great importance as it gives clear projection of the sector's future performance. From figure 1, it is quite evident that the value of coffee exports in Kenya is characterized by huge volatilities. Around mid-1980s, the value of exported coffee hit its peak of US$ 484 million which was the highest value ever realized and drifted significantly to a low US $162 million in 1993 before rising to US$ 308 million in 1996. In 2002, the value of coffee exports hit the lowest of US$ 85 million during the study period. From 2003, there was significant improvement in the earnings from the sector up until 2012 when export value rose to US$263 million.

Figure 1: Kenya's Trend of Value of Coffee exports in Millions of US Dollars (1980-2018)
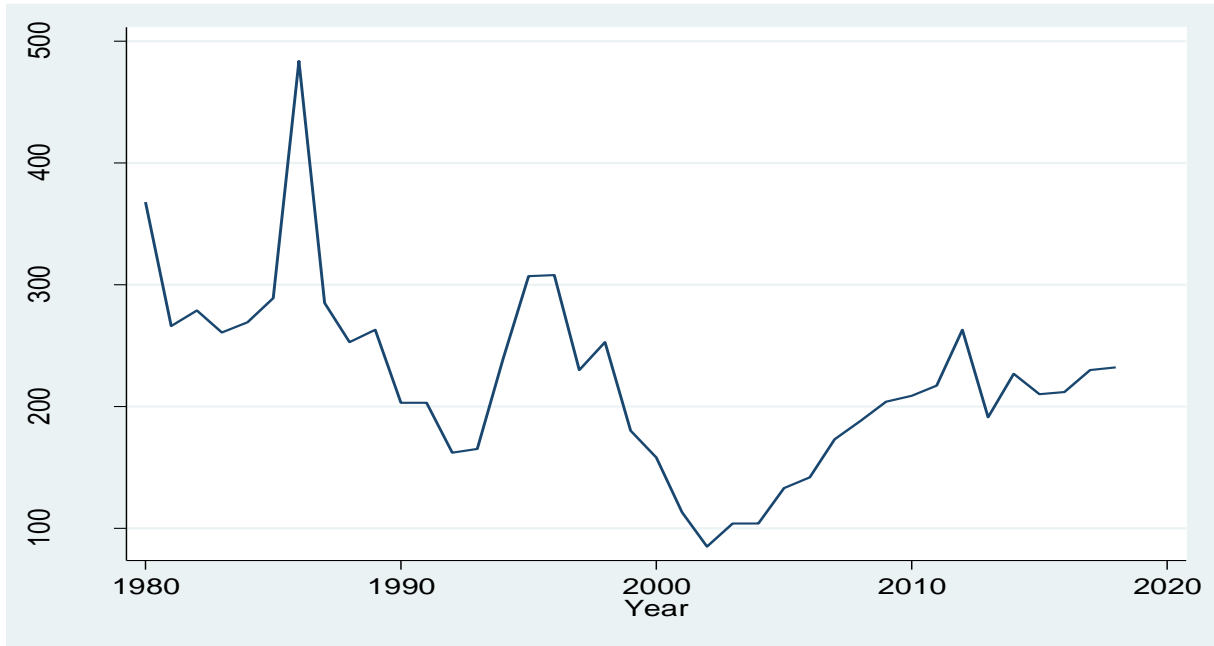
Source: International Coffee Organization (ICO)

From table 1, it is clear that the value of coffee produced in Kenya has not been stable. In 2012, coffee valued at US$190.78 million was produced and this significantly dropped to a low value of   US$ 105.67 million in 2013. The value of coffee produced further increased to US$ 215.97 million in 2017 before falling slightly to US$ 188.51 million in 2018.

Table 1: Trend of Coffee Production and Coffee Exports Value in Kenya (1980- 2018)

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Value of Coffee Exports US$ Millions	368	266	279	261	269	289	484	285	253	263	203
Value of Domestic Coffee Production US$ Millions	352.11	296.36	202.55	184.01	316.98	247.67	309.92	388.27	283.42	306.05	188.72
Year	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Value of Coffee Exports US$ Millions	203	162	165	239	307	308	230	253	180	158	113
Value of Domestic Coffee Production US$ Millions	111.70	121.31	65.36	202.65	309.49	194.36	135.03	280.85	362.82	111.43	89.14
Year	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Value of Coffee Exports US$ Millions	85	104	104	133	142	173	188	204	209	217	263
Value of Domestic Coffee Production US$ Millions	77.15	96.42	65.43	85.43	129.25	158.42	114.73	123.69	82.01	96.98	190.78
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**				
Value of Coffee Exports US$ Millions	263	191	227	210	212	230	232				
Value of Domestic Coffee Production US$ Millions	190.78	105.67	195.10	175.13	190.41	215.97	188.51				

Source: International Coffee Organization (ICO)

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Figure 2 shows Coffee Exports as a World Share of Exports. In 2018, the top export of coffee globally was Brazil with a share of 18.3% of the global coffee exports followed by Columbia at 9%. Overall, the share of Africa's coffee exports is marginal compared to those of non-African countries. In the African region, Ethiopia, Uganda and Kenya are the main coffee exporters but their export share is marginal and stood at 4.8% though Kenya's exports lag those of Uganda and Ethiopia despite being among the main foreign exchange earner in the country after tea exports. Previously, the coffee sub-sector recorded high levels of exports for example in the year 2007, it recorded an export volume of 817 in thousand 60kg bags as compared to a low volume of 613 In thousand 60kg bags in the year 2016 (ICO, 2016). Coffee export earnings fluctuations affect coffee farmers' earnings and the overall profitability of firms in the agricultural sector.

Figure 2: Coffee Exports as a Share of World Exports, 2018
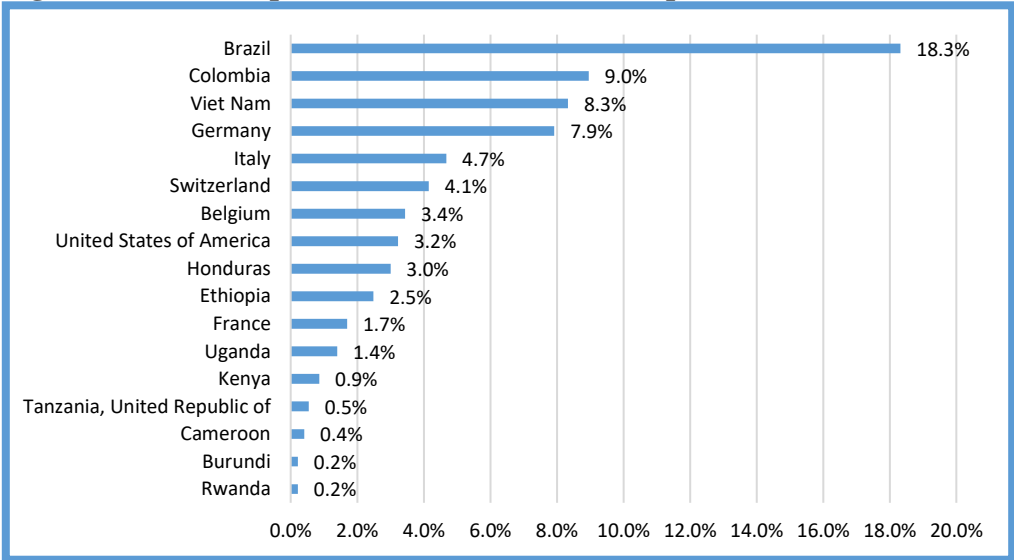
Source: Trademap, 2019

There is need to grasp the factors that influence coffee exports at the macro level. Although coffee prices at the macro level have had a role to play, the weakening of Kenya's coffee export

sector may have been buttressed further by institutional factors. At the micro-level, there has been a shift in theory and empirics from the country and industrial level to firm-level studies that use individual heterogeneous firms as the units of analysis in trade literature (Melitz, 2003; Cieślik et.al, 2015; Gajewski and Tchorek, 2017). Micro-level implications on how firm features affect export performance have been illuminated besides the previous focus on countries and industries. In a similar vein, this study will take into account exporting firm characteristics along with export market demand and supply factors as potential determinants of performance of exports.

1.3 Statement of the Problem

Sub-Sahara Africa's exports has over the decade been dominated by agricultural products and for Kenya it has mainly been coffee and tea exports. The promotion of exports is key to improving the economic growth profile of an economy. However, the export of agricultural products and more specifically coffee from Kenya has been marked by huge volatilities. Despite economic reforms aimed at enhancing exports, Kenya's coffee exports have remained stagnant and faces stiff competition from coffee exports from Uganda and Ethiopia as their exports are growing faster than that of Kenya. Understanding why this is the case requires empirical research efforts to determine the root cause of poor export performance.

There exists a vast empirical literature on the estimating export supply function and determining export performance in general (Yusuf et.al, 2018; Abidin and Haseeb, 2017; Heinze, 2018; Alibania, Braha et.al., 2017; Karamuriro and Karukuza, 2015; Mahana, 2014; Kitetu and Ko, 2015; Anagaw and Demissie, 2013; Matama and Byarugaba, 2007). These studies have put focus on investigating the factors that generally affect exports performance which include, GDP

per capita, real exchange rates, trade openness, domestic production, world production and Foreign Direct investment. The models adopted in these studies have not taken into consideration the other factors such as export capacity and institutional quality which could also affect export performance. In addition, there is little focus on trying to estimate the extent these factors influence exports earnings. This study will therefore try to not only incorporate other variables in the models adopted by various scholars in previous studies on export performance, but also focus on investigating the extent to which these variables affect coffee export earnings over a given period.

In addition, the previous studies done by various scholars in different countries are context specific, dependent of the methodology as well as the time span, but the evidence is limited in the Kenyan context in so far as the estimation of the coffee export supply function. Despite the vast existing literature, there is no study that specifically focuses on the factors affecting coffee exports earnings in Kenya. Therefore, this study will seek to investigate the determinants of coffee export performance in Kenya.

1.4 Research Questions
i. What are the short run factors affecting coffee export earnings in Kenya?
ii. What are the long run factors affecting coffee export earnings in Kenya?
iii. What conclusions and policy recommendations can be made to improve coffee exports performance in Kenya?

1.5 Research Objectives
The general objective of this study is to establish the determinants of coffee export performance in Kenya.

1.5.1 Specific Objectives

i. To investigate the short run factors affecting coffee export earnings in Kenya.

ii. To investigate the long run factors affecting coffee export earnings in Kenya.

iii. To draw conclusions and policy recommendations on how to improve coffee exports performance.

1.6 Significance of the Study

Export is a crucial sector of an economy because of its contribution to the Gross Domestic Product, in addition to that, creating jobs to stakeholders in this sector including farmers. The study findings will significantly add new knowledge on the understanding of the factors influencing coffee export performance in Kenya. It will therefore add to the existing empirical literature and more importantly by shedding light on how these factors interplay to influence the export performance of coffee. This will significantly benefit scholars as well as academicians as it will serve to enrich existing literature on export performance. Apart from getting current research findings, the study also provides the room for comparison with the previous research findings for further studies.

The research findings will also provide an impetus to policymakers and practitioners in providing empirical support the macro and institutional-level factors that need to be investigated with a view to improving performance of the country's exports and thus position herself with the region's competitors. By understanding the drivers of coffee export performance, they will then be able to adopt suitable reforms that would ensure the revitalization of a sector whose performance has dampened and as a result led to a reduction in the country's ability to generate foreign exchange earnings.

1.7   Organization of the study

This study is organized into five chapters. The preceding section introduces the study in terms of the background, problem statement besides the study's objectives together with the significance of the study. Chapters two and three present a review of both theoretical and empirical literature, and the research methodology respectively. Chapter four discusses data analysis and results whereas chapter five discusses summary, conclusion, policy recommendation, the limitation of the study and areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This section is comprised of the theoretical literature, empirical literature and the overview of the literature.

2.2   Theoretical Literature Review

2.2.1   Classical Theories

In accordance with the theory of absolute advantage (Adam Smith, 1776), nations should specialize and export the good that is produced more cheaply and efficiently and import that which is produced expensively and efficiently. As opposed to this theory, (Ricardo, 1817) argued that countries needed to merely have a lower opportunity cost (comparative advantage) in the production of a commodity in order to specialize and export while importing that which necessitate a higher opportunity cost (comparative disadvantage).

The concept of comparative advantage provided a pedestal for the reformulation to a more standard international trade theory, (Heckscher, 1919; Ohlin, 1924) that centred trade on factor endowments and factor prices. The proposition is that countries should specialize and export a commodity that utilizes the relatively abundant and cheaper factor of production (labour, capital) and import the commodity that it is expensive and less abundant in. This relative differences in factor prices and endowments determine trade among nations.

2.2.2 Heckscher-Ohlin (H-O) trade theory

Heckscher and Ohlin opines that a country is more likely to export those goods and services that require relatively large amounts of the factors of production that the country has comparative advantage or abundance and only imports those goods which characterized by scarcity. The relative differences in factor endowment among countries result in variations in international costs and thus provide a basis for trade between areas (Salvatore, 1993). According to Wakelin (1998) neo-endowment' models, competitive advantage determines the export performance of the firms. It is based on factor endowments and, 'technology-based' models whereby competitive advantage is derived from the firm's quality of products or services. Existing literature on the neo-endowment tradition argues that factor-based advantages may be crucial if the firm has either a natural monopoly of a particular factor or is, for example, located in a particular region where a factor is in plentiful.

2.2.3 Institutional Based View

At the country level, institutional factors also influence not only the firms' strategic decisions but also export performance. The emphasis on the importance of institutions on export performance is sometimes referred to as the institutional-based view (IBV). Exporting companies usually experience institutional factors in both the host and export markets. LiPuma, Newbert, & Doh (2013) stipulate that the common consensus is that high-quality institutions create stable environments that attract businesses and spur economic growth.

These institutions play a critical role by facilitating efficient transactions between individuals and businesses. Among firms seeking to operate in export markets, the difference in the quality of institutions across the countries of operations might affect their activities and export performance. Some of the institutional factors of importance include a reliable rule of law, a

well-functioning government bureaucracy, strong regulations, and the enforcement of property rights. Institutional deficiencies such as the lack of enforcement of the rule of law and property rights as well as pervasive corruption in government create instability that adversely affects firm's export performance.

The quality of institutions such as financial markets contributes in the growth of the private sector by providing credit and other financial services such as the trading of financial instruments like shares and bonds. Business leaders consider well developed financial markets as insurance against any risks of expanding their activities through exports. LiPuma, Newbert, & Doh (2013) opine that the propensity to export increases with the improvement in institutional frameworks. Moreover, institutional transition, for instance, the choice between protected economic systems to a market-based economy affects the strategic decisions of businesses such as the countries to operate in and to export its goods. Institutional frameworks like strong corporate governance act as a moderating effect of the importance of institutional environments on firms' performance.

Institutional quality contributes more to the performance and growth of small firms than the well-established firms since the small firms are more likely to interact with the local institutions (LiPuma, Newbert, & Doh, 2013). Due to tax, licenses, financial services, and other purposes, the small firms that seek to grow by expanding their customer base outside their domestic markets must engage with institutions. Firms choose to internationalize for growth by taking advantage of opportunities outside their domestic countries and leveraging on scale and scope economies available in the host countries.

2.3   Empirical Literature Review

Several empirical investigations both globally and in the regional front has examined the factors influencing export performance at the macro-level. Yusuf et.al, (2018) adopted a gravity model approach along with Poisson-Maximum likelihood estimations to examine the influences of Malaysian exports to the Organization of Islamic Cooperation (OIC) in Africa using data from 1985-2015. It was clear that distance, GDP per capita, real exchange rate depreciation, similarities in the colonial legacy and GDP had a direct and significant relationship with export flows between Malaysia and OIC countries in Africa. On the contrary, there was no relationship between the degree of openness and export flows. Additionally, bilateral distances lowered the volume of exports.

Abidin, and Haseeb (2017) opine that the exchange rates, bilateral distances, and GDP per capita have significantly impacted trade performance between the Gulf Cooperation Council (GCC) countries and Malaysia. Similar results on the impact of openness (foreign affiliations) increased export performance in two Indian states (Pradhan, and Zohair, 2015). Heinze (2018) estimated the link between the real exchange rate, exports and foreign activities on Germany intra and extra European Monetary Union (EMU) trade between 1995, and 2014 using the error correction models. There was a high correlation between German exports and foreign activity due to an insatiate demand for its exports outside her borders. There was no significant relationship between intra-EMU exports and the real exchange rate. On the other hand, there was a stable relationship, 12% - 25% between the real exchange rate and export growth.

In the Baltic, Caucasus and Visegrad countries, Cieślik et.al (2014) using a pooled dataset and probit regressions identified that internationalization of firms, in this case trade openness had a positive relationship with increased export activity. In Alibania, Braha et.al (2017) used Poisson Pseudo-Maximum Likelihood (PPML) regression in an augmented gravity model for export flows spanning from 1996-2013 to investigate the determinants of agricultural export performance. Their findings show that exports increased with the Gross Domestic Product (GDP) in the destination market. Agricultural export flows to neighboring countries, Italy and Greece were propelled by geographical proximity, low transaction and transport costs. Moreover, cultural and linguistic similarities especially in Kosovo and Macedonia increased the volume of exports in Albania. Currency devaluations were found to increase agricultural exports in Albania. However, there were varied results from trade agreements that Albania was a signatory to. For instance, Regional Trade Agreement (RTA) and the Central Europe Free Trade Agreement (CEFTA 2006) accelerated trade while European Free Trade Agreement Association (EFTA) diminished trade.

Karamuriro and Karukuza, (2015) in their study adopted a panel data study for the period 1980-2012 used the gravity model, fixed effects, random effects and Generalized Method of Moment (GMM) to establish the factors that drive exports in Uganda. Real exchange rates, common language, the GDP of the importer and Uganda's GDP had a direct and significant relationship on export performance.

Babatunde (2009) in his study on the implication of real exchange rate-based liberalization of trade on export performance in Sub-Saharan Africa, using a panel data from 1980-2005 found that trade liberalization avails cheap imported inputs thus accelerating export. Stable and

competitive exchange rates were found to improve export performance. The study further noted that there were different trade liberalization and exchange rates export performance implications in the four sub-regions (Central, East, Southern and West Africa).

Mahana (2014) study on drivers of export performance between Tanzania and Kenya using a gravity model approach revealed that the GDP (economic size) of the importer, exchange rates, income per capita and regional integration had a positive relationship with export performance with the cost of doing business (distance) diminished export growth.

A comparative study on export determinants by Kitetu and Ko (2015) using a similar gravity model approach exposed the fact that a common border had a positive impact on export performance. Conversely, there was an inverse relationship between export performance, Kenya's GDP per capita and the trading partner's GDP per capita. Furthermore, Kenya's export basket of raw commodities resulted in a negative relationship between export growth and the exchange rate.

Anagaw and Demissie, (2013) studied long and short-run export performance determinants in Ethiopia by employing Johansen co-integration test, and Vector error correction models on data from National Bank of Ethiopia statistical database, and World Bank Databank. In the long-run infrastructure development, financial development, real exchange rate, trade openness, real GDP development home country boosted export performance in the long run. Trade openness of the previous year was found to have a positive effect on export growth in the current year.

Studies on the impacts of exchange rates have presented varied results (Kitetu and Ko, 2015). According to Babafemi & Olufayo (2014) there exists an inverse relationship between the exports in oil and non-oil sectors in Nigeria and exchange rate volatility.

Investigating the determinants of exports in Turkey using a dynamic panel data methodology, Faruk and Yavuz (2007) established there exists a positive relationship between Turkey's gross domestic product (GDP) and exports. They found the elasticity of GDP to exports to be 0.644.

On the other hand, it has been, evidenced by Babatunde (2009) also established that the relationship between exports was positive with GDP's elasticity to GDP ranging between 0.013 and 0.052 however they found the relationship significant and therefore concluded that business cycles fluctuations as contained in GDP fluctuations had a positive effect though small in magnitude.

Morrissey and Andrew (2006) analyzed Africa's export performance using UNCTAD's estimates of the volume of exports, to explain African trade performance. Using a dynamic panel data analysis for 48 African countries over the period 1987-2002 established that an increase in the price of exports with the elasticity of 0.93 and increases gross fixed capital formation with the elasticity of 0.15. Furthermore, FDI increases volumes of exports with the elasticity of 0.10 and the real effective exchange rate with the elasticity of 0.02. These factors were found to be positive and significantly affecting exports.

Using pooled data for 100 countries from the developing world over the period 1981 and 2001, Cline (2004) estimated an ordinary least squares model to establish the determinants of export performance. The empirical results found that a decline in a country's real exchange rate was

associated with an increment in exports. This supports the theoretical observation that a depreciation makes a country's good cheaper in comparison with those of competing countries. The negative relationship between exchange rate and GDP was also established to hold in the context of Kenya in a study conducted by Njuguna, *et al.* (2002).

Katsikeas, Piercy, & Ioannidis (2002) investigated the determinants of export performance among indigenous Greek firms. The study analyzed the effects of firm size, exporting experience, export stimuli, export problems, and competitive advantage. The study found out that of all the export market stimuli, the national export policy had a significant effect on export performance. Among the export problem dimensions, the study found out that export information was the only factor that adversely affects export performance. Consequently, the export market information might be the most crucial barrier that firms need to overcome in the attempt of establishing business operations in foreign markets. However, export problems are still a major hindrance to the entry and performance of enterprises in the export market. Exporting problems are usually associated with inadequate information about the export markets.

In Kenya, Were et al (2002) using a time series framework estimated using the ordinary least squares approach examined the performance of coffee, tea and services and how their export structure was affected by macroeconomic related factors during the period 1972-1999. They documented that real effective exchange rate affected export volumes for coffee, tea and services though insignificant in the case of tea exports. In a similar study conducted in Kenya, Miano (2009) looked at the performance of tea exports in the period 1970-2007 using an

ordinary least squares estimator and established that real effective exchange rate, the price of substitutes significantly affected tea exports during the reference period.

According to UNCTAD 2002(a), foreign direct investment (FDI) has a positive impact on export performance. Current evidence from various countries shows that FDI strongly contributes to export performance of a country. For instance, the FDI inflows into South-East Asian countries during the 1980s and 1990s significantly contributed to the amounts and the technological contents of their exports, which led to the industrialization and development of these countries. Developed nations have increased the export performance of foreign countries by supporting and investing in the export supply capacity of these countries particularly, the knowledge-based industries. Moreover, FDI also positively contributes to gross capital formation, which enhances the export capacity of countries.

2.4   Overview of the Literature

In the preceding sections, both the theoretical and empirical literature investigates the determinants of export performance of various products and firms. From the literature review, it is evident that the analysis level has focused on the different factors depending on the unit of analysis following two strands; micro and macro-level analysis. Second, the review reveals that the results are context specific, dependent of the methodology and well as the time span. The literature indicates that the studies have focused on investigating the factors that generally affect exports performance which include, GDP per capita, real exchange rates, trade openness, domestic production, world production and foreign direct investment. The models adopted in these studies have not taken into consideration the other variables such as export capacity and institutional quality which could also influence export performance.   Given that the

determinants are country-specific and that previous studies in the Kenyan context have focused on the performance of coffee cooperatives while others focused on the other crops such as tea, timber, maize among others. Others focused on general distortions in the agricultural sector. There is no study specifically focusing on the factors that affect earnings from coffee exports in Kenya.

In addition, there is little focus on trying to estimate to the extent to which these factors influence exports earnings. This study will therefore try to not only incorporate institutional quality and export capacity in the models adopted by various scholars in previous studies on export performance, but also focus on investigating the extent to which these variables affect coffee export earnings in both short run and long run. This, therefore, leaves an unclear cut on the factors that affect coffee earnings. Therefore, this study will seek to establish factors that determine the performance of coffee exports in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Introduction

In this chapter, the theoretical model is presented in Section 3.2. Section 3.3 deals with econometric model to be estimated is presented. Section 3.4 presents the data sources and types.

3.2   Theoretical Model

The theoretical framework adopted in this paper is in the spirit of the export and import demand functions of Goldstein and Khan (1985) in which exports are imperfect substitutes for goods that are produced by other foreign countries which are meant for consumption outside their countries. For instance, the coffee produced say in Kenya is an imperfect to that which is produced in say Brazil or any other competitor country of Kenya's coffee exports.

According to Goldstein and Khan (1985) theoretical framework of export demand function, the export demand function is consequent from a consumer's utility function. Under this framework, consumers maximize their utility, subject to a budget constraint. In that case the exports, which are imports in the destination country are therefore a function of income and is positively related to demand. Similarly, the demand for exports which are imports in the destination country is a function of the import good's relative price vis-à-vis those of domestic goods. This analogy however looks at the consumer side of the trade but there is equally the producer side where it is assumed that the producer seeks to maximize exports/profits subject to an exporting cost constraint and the process therefore yields an export supply function. The export supply function can therefore be specified as;

$$EX = g\left(Y, \frac{P_x}{P_d}\right) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where EX is the value of coffee exports as reported by the exporting country. Y represents the real domestic income $\frac{P_x}{P_d}$ is the relative price ratio where P_d is the domestic price, P_x is the export price. (Assuming exports are homogeneous of degree zero in prices)

3.3 Model specification

To examine Kenya's coffee export behavior, the theoretical model presented in Section 3.2 above is augmented into an estimable empirical model by taking into consideration the demand variables affecting coffee exports value;

$$EX_t = \alpha_0 + \alpha_0 WGDP_t + \beta_1 REER_t + \beta_i X_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where EX_t is Kenya's export value of coffee in period t, $WGDP_t$ is the world's real gross domestic product of importing countries in period t and in this case we use the GDP of the top importing country of Kenya's coffee. $REER_t$ is the real effective exchange rate in period t.

The study augments the model by including a vector of control variables of the domestic production of coffee, World production of coffee, FDI net inflows, trade openness, institutional quality and more importantly the rule of law. All the variables except $REER_t$, TO_t and IQ_t will be transformed and will enter the regression model in their natural logarithmic form. This transformation is to mitigate the possible existence of the problem of heteroscedasticity in the estimation of the model (2).

In the explicit form the model to be estimated therefore takes the following functional form;

$$EX_t = \alpha_0 + \alpha_0 WGDP_t + \beta_1 REER_t + \beta_2 DP_t + \beta_3 WP_t + \beta_4 FDI_t + \beta_5 TO_t + \beta_6 IQ_t + \beta_7 CE_t + \varepsilon_t \ldots$$

(3)

Where

EX_t - Value of coffee exports in the period t,

$WGDP_t$ -World income and is proxied by the world's real gross domestic product in period t and is measured to capture the goods demand dynamics,

$REER_t$ - Real effective exchange rate. This is proxied by the ratio of Kenya and USA's consumer price index (CPI) multiplied nominal exchange rate.

DP_t -Domestic production of coffee,

WP_t - World production of coffee,

FDI_t - Net inflows of foreign direct investment,

TO_t - Trade openness,

IQ_t - Institutional quality,

CE_t - Export Capacity

ε_t - Stochastic error term (i.e. iid).

Table 2: Variable Definition and Measurement

Variable	Symbol	Variable definition and Measurement	Expected Sign
Dependent variable			
Value of Coffee Exports	EX_t	This is the dependent variable and is measured as the value of exports of coffee	
Independent variables			
World Gross Domestic Product	$WGDP_t$	A measure of world demand for coffee and is proxied by the world gross domestic product	+ve
Real Effective Exchange rate	$REER_t$	Measured as the nominal effective exchange rate multiplied by the ratio of the US CPI and Kenya's CPI.	-ve
Domestic Production of Coffee	DP_t	Measures the country's ability to meet the world coffee demand and is the value of coffee production in the country	+ve
World Production of coffee	WP_t	A measure substitution of Kenya's coffee demand by other coffee producing countries and is measured as the value of coffee produced by the rest of the world.	Indeterminate
Net inflows of foreign direct investment	FDI_t	net inflows of foreign direct investment in USD	Indeterminate
Trade Openness	TO_t	Measured as the ratio of the sum of imports and exports to gross domestic product	+ve
Institutional quality	IQ_t	A measure of the institutional quality and is proxied by the rule of law	+ve
Exporting capacity	CE_t	A measure of exporting capacity proxied by the gross fixed capital formation	+ve

3.4   Data Sources and Types

The data used in this study covered the annual time series of 1980 to 2018 and was obtained

from various sources. The data on the value of coffee exports was obtained from multiple

sources given that no one source contains information for the entire period and was consolidated

from the International Coffee Organization, Trademap, Coffee Directorate and Central Bank of

Kenya.

Data on all other variables especially net inflows of FDI, gross fixed capital formation, trade openness, and world's gross domestic product was obtained from the World Bank's World Development Indicators online database. Information the domestic and world coffee production was obtained from the International Coffee Organization while information on institutional quality was obtained from the International Country Risk Guide database.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1   Summary statistics

This section contains a representation of measures of central tendency i.e. mean, median and standard deviation. It also checks the distribution of data using Kurtosis and Skewness. The average value of coffee exports earnings in Kenya is US$ 222.1 million with Standard deviation of US$ 75.97 million and a minimum and maximum of US$ 85 million and US$ 484millions respectively. The skewness and kurtosis are 0.90 and 2.64 respectively suggesting that the data is normally distributed.

World real GDP has a mean of US$ 1,109,936,348.99 million with a standard deviation of US$ 1,169,989,700.14 million, minimum and maximum of US$ 92,142,338.82 million and US$ 4,115,039,472.63 million respectively. The Kurtosis is 1.06 and skewness of 1.49.

On the other hand, the average value of Foreign Direct Investment is US$ 26, 601, 1457.85 with standard deviation of US$ 443,645,649.88, minimum of US$ 394,430.6 and maximum values of and US$ 1,625,921,493.62. It is evident that the distribution is normal, and the data is well-behaved since the kurtosis and skewness is 2.89 and 1.98 respectively.

Further, the trade openness has a mean of 0.42 and standard deviation of 0.10 with the minimum and maximum of 0.26 and 0.58 respectively. This variable has Kurtosis of -1.27 and Skewness of -0.02 exhibiting Cauchy distribution. This is a symmetric distribution with heavy tail and single peak. In addition, the value of domestic coffee production is US$ 188.49 million with standard deviation of US$92.11, minimum of US$ 65.36 million and maximum of US$ 388.27

million with the Kurtosis of -0.80 and Skewness of 0.54 suggesting that the data is characterized by Cauchy distribution.

The value of World Production of Coffee production has a mean of US$ 21,640 million with standard deviation of US$ 19,743.79 million, minimum value of US$ 7,192.57 million and maximum of US$ 133102.99 million. Kurtosis is 28.13 and skewness of 4.96 suggesting the data of this variable is characterized by double exponential distribution since the Kurtosis and skewness is higher than 3.

The average value of real effective exchange rate is 45.46 with standard deviation of 48.35, minimum and maximum values of 0.54 and 158.80 respectively. The Kurtosis and Skewness is 0.16 and 1.10 respectively.

On average, institutional capacity which is proxied by the rule of law has an index of 2.64 with standard deviation index of 0.85, minimum index of 1.58 and maximum index of 4 with Kurtosis of -1.12 which falls within the normal range of -3 to 3. The skewness is 0.77 suggesting that the data is slightly skewed to the left. This falls within the acceptable range of -2 to 2 for a normally distributed series.

Lastly, the export capacity proxied by the gross capital formation has a mean of US$ 4,588,101,989 with standard deviation of US$ 4,531,269,241, minimum of US$ 974,216,095.2 and maximum of US$ 15,236,313,236. The skewness is 1.25 suggesting that the data is normally distributed but skewed slightly to the right side and Kurtosis is 0.13.

Table 3: Summary statistics

	N	Mean	Standard Deviation	Kurtosis	Skewness	Minimum	Maximum
Value of Coffee Exports US$ Millions	39	222.10	75.97	2.64	0.90	85.00	484.00
World Real GDP US$ Millions	39	1109936348.99	1169989700.14	1.06	1.49	92142338.82	4115039472.63
Foreign Direct Investment US$	39	266011457.85	443645649.88	2.89	1.98	394430.64	1625921493.62
Trade Openness	39	0.42	0.10	-1.27	-0.02	0.26	0.58
Value of Domestic Coffee Production US$ Millions	39	188.49	92.11	-0.80	0.54	65.36	388.27
Value of World Production of Coffee US$ Millions	39	21640.57	19743.79	28.13	4.96	7192.57	133102.99
Real Effective Exchange Rate	39	45.46	48.35	0.16	1.10	0.54	158.80
Institutional Quality	35	2.64	0.85	-1.12	0.77	1.58	4.00
Export Capacity (GFCF) US$	39	4588101989	4531269241	0.117062467	1.248588557	974216095.2	15236313236

Source: Computation from research data

4.2   Diagnostic Data Tests

4.2.1   Test for multicollinearity

Multicollinearity is often a problem in regression analysis and is encountered when a variable is either a linear combination of the other variables in the model such that they are highly correlated (Gujarati, 2004). In order to detect the likely presence of multicollinearity among the independent variables adopted in the respective models, the Pearson correlation coefficients was adopted and if any variables have a correlation coefficient more than 0.7 it will be dropped from the model. From Table 4 below, the linear relationship between world real gross domestic product and real effective exchange rate has a correlation coefficient of 0.917 which is more than 0.7. It is therefore evident that multicollinearity is a problem. The table summarizes the correlation between variables i.e. the strength and direction of the linear relationship between coffee exports and other factors such as; world real gross domestic product, net inflow of foreign direct investment, trade openness, domestic production of coffee, world production of coffee, real effective exchange rate, institutional capacity and export capacity.

Table 4: Pearson pairwise correlations matrix

	Coffee Exports US$ Millions	World Real GDP US$ Millions	FDI US$	Trade Openness	Domestic Coffee Production US$ Millions	World Production of Coffee US$ Millions	REER	Institutional Quality	Export Capacity US$
Coffee Exports US$ Millions	1								
World Real GDP US$ Millions	-0.190	1							
FDI US$	-0.012	0.662*	1						
Trade Openness	-0.388	0.719*	0.611*	1					
Domestic Coffee Production US$ Millions	0.716*	-0.251	-0.168	-0.505*	1				
World Production of Coffee US$ Millions	-0.006	0.448*	0.653*	0.201	0.006	1			
REER	-0.241	0.917*	0.758*	0.799*	-0.316*	0.548*	1		
Institutional Quality	0.619*	-0.555*	-0.405*	-0.670*	0.488*	-0.274	-0.631*	1	
Export Capacity US$	-0.113	0.925*	0.801*	0.755*	-0.217	0.563*	0.967*	-0.544*	1

* shows significance at the 5 % level of significance
***Source:** Computation from research data*

4.2.2 Unit Root Test

Stationarity can be detected using unit root test. Unit root is a fundamental test performed to ensure that time series data has a constant mean and variance to enhance meaningful results. Unit roots test is carried out to avoid the problem of the non-stationarity variable that leads to spurious results due to trend in the data series.

To test for the unit roots, Augmented Dicky Fuller (ADF) test on each variable and the order of integration was used to determine the presence of a unit root for each variable. From Table 5 below, unit root test at level, the test statistic is less than the critical values at 5% level of significance, thus the null hypothesis of the presence of a unit root cannot be rejected thus all the variables used in the model are non-stationary and hence should be differenced. The order of integration is known after differencing the variables.

Table 5: Unit root testing at level

Variable	Optimal lag length	Unit Root Testing				Conclusion
		Without Trend		With Trend		
		$Z(t)$	$p-value$ $Z(t)$	$Z(t)$	$p-value$ $Z(t)$	
Coffee Exports US$ Millions	1	-1.886	0.3388	-1.791	0.7089	Non-stationary
World Real GDP US$ Millions	3	-0.690	0.8494	-2.652	0.2567	Non-stationary
FDI US$	4	-0.332	0.9208	-1.907	0.6509	Non-stationary
Trade Openness	1	-1.096	0.7167	-1.785	0.7121	Non-stationary
Domestic Coffee Production US$ Millions	1	-2.849	0.0516	-2.959	0.1439	Non-stationary
World Production of Coffee US$ Millions	1	-0.570	0.8776	-1.222	0.9060	Non-stationary
REER	1	2.787	1.0000	0.015	0.9944	Non-stationary
Institutional Quality	1	-1.976	0.2970	-2.642	0.2610	Non-stationary
Export Capacity US$	1	0.219	0.9733	-2.214	0.4818	Non-stationary

5 % critical value is -2.966

Source: Computation from research data

The results of the Dicky Fuller Unit Root test for the first differenced variables are shown in table 6. From the results on Table 6, the absolute values of the test statistic are greater than the absolute critical values at 5% level of significance for all variables. This implies that all variables have one order of integration and since they are stationary at their first difference.

Table 6: Unit root testing at first difference

| Variable	Optimal lag length	Unit Root Testing				Conclusion
		Without Trend		With Trend		
		$Z(t)$	$p-value$ $Z(t)$	$Z(t)$	$p-value$ $Z(t)$	
Coffee Exports US$ Millions	0	-6.502	0.0000	-6.450	0.0000	Stationary
World Real GDP US$ Millions	2	-4.477	0.0002	-4.413	0.0021	Stationary
FDI US$	3	-4.093	0.0010	-4.077	0.0068	Stationary
Trade Openness	0	-5.695	0.0000	-5.586	0.0000	Stationary
Domestic Coffee Production US$ Millions	0	-7.098	0.0000	-7.053	0.0000	Stationary
World Production of Coffee US$ Millions	0	-5.179	0.0000	-5.284	0.0001	Stationary
REER	1	-2.607	0.0916	-3.945	0.0105	Stationary
Institutional Quality	0	-6.772	0.0000	-6.580	0.0000	Stationary
Export Capacity US$	0	-4.699	0.0001	-4.826	0.0004	Stationary

Source: Computation from research data

4.2.3   Cointegration Analysis

On establishing that the variables have a unit root (non-stationary) and are of the same order of integration, Cointegration test is conducted. This is vital as it corrects the problem of information loss due to non-stationarity. If a dependent variable *y* and an independent variable *x* have one order of integration i.e. I(1), but the error term in the linear relationship between them is stationary, the two variables are said to be cointegrated. The theoretical basis for representing, testing, and modeling of non-stationary variables that are cointegrated has been explained in detail by Engel and Granger (1987). Cointegration is important in analysis of the long run equilibrium relationship between the dependent and the independent variables.

The existence of long-run relationship equilibrium implies that in the short-run, variables may wander away from each other but converge in the long-run, showing a long-run relationship. Economic theory presupposes that time series economic variables should move together. Cointegration can be tested by using Engel-Granger (1987) two step approach. Firstly, this involves applying OLS to the non-stationary variables and secondly testing for the presence of the unit root in the residuals. The residuals are obtained from the long-run regression. ADF test can be used to test for the unit root in the residuals. The null hypothesis is tested against the alternative hypothesis of absence of co-integration.

Figure 3: Engle-Granger test of Cointegration
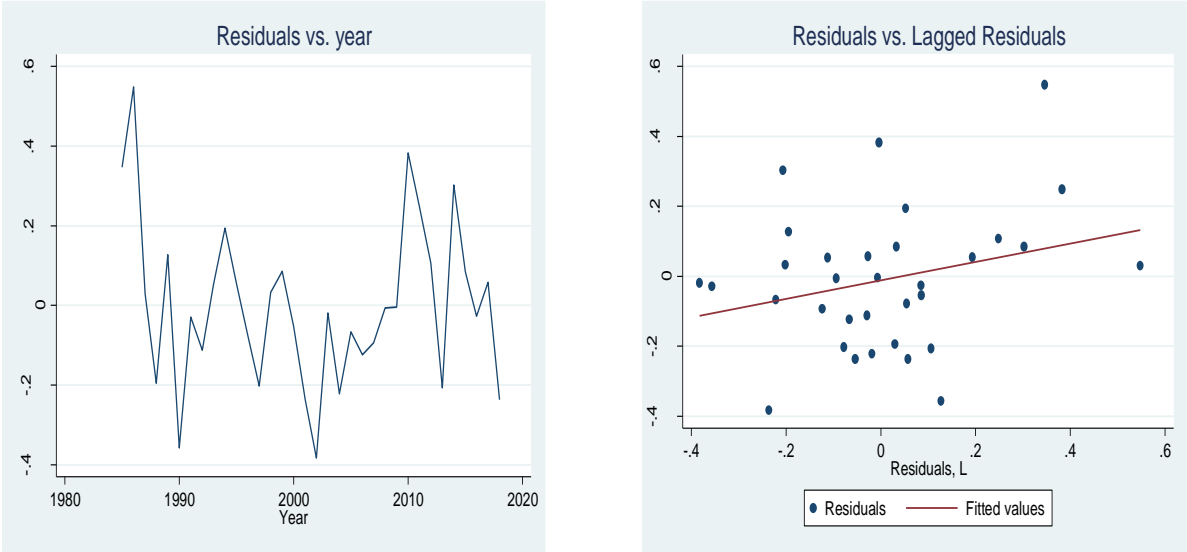
4.2.4　Testing for Heteroscedasticity

In regressions, the assumption of homoscedastic error terms needs to be ascertained. To test whether the residuals fulfil the sphericity assumption, the Breusch-Pagan LM test of independence was adopted under the null hypothesis that the residuals are homoscedastic. The results of Breusch – Pagan test show that there is no heteroscedasticity. Since the Prob > chi2 of 0.6759 is greater than 0.05 (5% level of significance) and the null hypothesis of this constant variance is accepted. Use of robust standard errors is more appropriate than the usual standard errors in detecting the presence of heteroscedasticity.

Table 7: Breusch-Pagan for heteroscedasticity

Ho: Constant variance
Variables: Fitted values of D.lnEx
Chi2(1)　　　=　　0.17
Prob > chi2 =　0.6759

Source: Computation from research data

4.2.5   Testing for Autocorrelation

The data was tested for autocorrelation using the Breusch-Godfrey LM test method. The value

ranges from zero to four. The results for Breuch-Godfrey LM test show that there is no serial

correlation. Since the Prob > Chi2 of 0.2401 is greater than 0.05 (5 % significance level), the

null hypothesis of no serial correlation is therefore accepted.

Table 8: Breusch-Godfrey LM test for autocorrelation

H0: No serial correlation Variables: Fitted values of DlnEx
chi2 (l) = 1.380 Prob > Chi2 = 0.2401

Source: Computation from research data

4.3   Regression Analysis

4.3.1   Long-run Relationship (Cointegrating Relationship)

From the regression results in table 9, world gross domestic product is statistically significant

at 5% level of significance, institutional quality is statistically significant at 5% level of

significance, real effective exchange rate and domestic production of coffee and are statistically

significant at 1% and 10% level of significance respectively. The R-squared of 0.659 indicates

that 65.9% of the variation of coffee export earnings is explained in the model. i.e 65.9% of the

dependent variables is explained by the explanatory variables in the model. The trade openness,

net inflows of foreign direct investment, export capacity and world production of coffee are not

statistically significant. However, the regression below are not stationary and therefore the

regression results may be spurious. This cannot provide reliable results for hypothesis testing.

In addition, the diagnostic tests such as autocorrelation and heteroscedasticity are not reliable.

The only reliable thing from the results in the above model is to test for cointegration which is done by testing for stationarity of the residuals.

Table 9: Long-run estimates of the factors affecting coffee export earnings in Kenya

Variable name	Symbol	Long-run coefficients
Constant	Con	9.992[**]
		(4.005)
World Gross Domestic Product	$WGDP_t(ln)$	-0.398[**]
		(0.153)
Trade Openness	TO_t	1.341
		(1.337)
Net inflows of foreign direct investment	$FDI_t(ln)$	0.033
		(0.036)
Exporting capacity	$CE_t(ln)$	0.001
		(0.199)
Institutional quality	IQ_t	0.273[***]
		(0.085)
Real Effective Exchange rate	$REER_t$	0.007[**]
		(0.003)
Domestic Production of Coffee	$DP_t(ln)$	0.195[*]
		(0.109)
World Production of coffee	$WP_t(ln)$	0.021
		(0.146)
N		34
R^2		0.659
$Adj - R^2$		0.550
Breusch-Pagan for heteroscedasticity		0.05 (0.8151)
Breusch-Godfrey LM test for autocorrelation		3.234 (0.0721)

Standard errors in parentheses. [*] $p < 0.1$, [**] $p < 0.05$, [***] $p < 0.01$

Source: *Computation from research data*

The ADF unit root results of the residuals from the long-run model are shown in the Table 10. The critical values at 5% level of significance are greater than the test statistic, both with trend and without trend. This implies that the regression in Table 8 are cointegrated because the

residuals are stationary as shown in the ADF unit root test results. When the time series variables are cointegrated, an error correction model (ECT) can be adopted.

Table 10: Stationarity Test for the residuals of the Cointegrating Regression

Variable	Optimal lag length	Unit Root Testing				Conclusion
		Without Trend		With Trend		
		$Z(t)$	$p-value$ $Z(t)$	$Z(t)$	$p-value$ $Z(t)$	
Error correction Term (Lagged Residual)	0	-4.349	0.0004	-4.272	0.0035	Stationary

Source: Computation from research data

4.3.2 Error Correction Model Estimation (Short-run relationship)

Variables that are cointegrated can be modeled using Error Correction Model (ECM). This is running the regression with the first difference of the dependent variable on the independent variables that have been differenced once as well as one-period lagged equilibrium residuals that have been generated from the long-run cointegrating equation. All variables in the ECM are stationary. The ECM describes how dependent variables and independent variables interact in the short run consistent with a cointegrating long-run relationship. The results of ECM are given in the table 11.

From the regression results of Table 9, institutional quality, real effective exchange rate and the error correction term are statistically significant in explaining coffee export performance. This is in line with the findings of Yusuf et.al, (2018) in Malaysia and OIC countries in Africa, Abidin, and Haseeb (2017) in Gulf Cooperation Council (GCC) countries and Malaysia, Alibania, Braha et.al (2017) and Anagaw and Demissie, (2013) in Ethiopia who also documented the existence of a positive effect of GDP on exports.

From the regression results, an increase in institutional quality by 1% leads to an increase in coffee export earnings by 0.241%. When the rule of law is well observed, it is expected that those involved in international trade have confidence to trade. An increase in effective exchange rate by 1% leads to an increase in coffee export earnings by 0.012%. This is theoretically consistent. R-squared of 0.505 indicates that the model explains 50.5% of variation of the coffee exports earnings meaning that there are other significant variables that explains changes in coffee exports earnings. Finally, the Error Correction Term (ECT) had the expected sign which is negative and is statistically significant at 5% level of significance. The adjustment to the equilibrium is explained by the coefficient of the error correction term.

Table 11: Short-run estimates of the determinants of coffee export performance in Kenya

Variable name	Symbol	Short-run coefficients
Constant	Con	-0.039
		(0.057)
World Gross Domestic Product	$\Delta WGDP_t$	-0.136
		(0.117)
Trade Openness	ΔTO_t	0.978
		(1.332)
Net inflows of foreign direct investment	ΔFDI_t	0.013
		(0.019)
Exporting capacity	ΔCE_t	-0.158
		(0.270)
Institutional quality	ΔIQ_t	0.241***
		(0.082)
Real Effective Exchange rate	$\Delta REER_t$	0.012*
		(0.006)
Domestic Production of Coffee	ΔDP_t	0.121
		(0.090)
World Production of coffee	ΔWP_t	-0.153
		(0.129)
ECT_t (Error Correction Term)	ECT_t	-0.520**
		(0.213)
N		33
R^2		0.505
$Adj - R^2$		0.312
Breusch-Pagan for heteroscedasticity		0.17 (0.6759)
Breusch-Godfrey LM test for autocorrelation		1.380 (0.2401)

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
All the variables enter the export function in their first difference

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATION

5.1   Introduction

The summary, conclusion, policy recommendations and limitation of this study have been discussed in this Chapter. Section 5.2 is the summary of this study, 5.3 is the conclusion, 5.4 and 5.5 consist of policy recommendations and limitation of this study respectively. Section 5.6 captures areas recommended for further research.

5.2   Summary

This study investigated the determinants of coffee exports performance in Kenya. The context of export performance in this study is the coffee exports earnings. The study therefore sought to examine the short run factors affecting coffee export earnings in Kenya, the long run factors affecting coffee export earnings as well as draw conclusions and make policy recommendations on various interventions that can boost coffee exports earnings in Kenya. Eight independent variables were considered for the purposes of this study namely; world real gross domestic product, the net-inflows of foreign direct investment, trade openness, the real effective exchange rate, world production of coffee, the domestic production of coffee, export capacity and the institutional quality.

The dependent variable for this study is the value of coffee exports in Kenya. All variables entered the regression model in their natural logarithm form except trade openness, real effective exchange rate, and the institutional quality. Unit root test was carried out using the Augmented Dicky Fuller test and was established that the variables had one-unit root i.e. integrated of order one, I (1). Cointegration test was done using Angel and Granger (1987) and

it was established that the variables were cointegrated implying presence of long-run relationship between variables and thus the study adopted error correction model in the analysis

The test results indicated that institutional quality, real effective exchange rate and the error correction term are statistically significant. Institutional quality was statistically significant 1% level of significance, real effective exchange rate was statistically significant at 10% level of significance whereas the error correction term was statistically significant at 5% level of significance. World real gross domestic product, world production of coffee, the trade openness, export capacity, net inflows of foreign direct investment and domestic production of coffee were not statistically significant. The Error Correction Term (ECT) had the expected sign which is negative and was statistically significant at 5% level of significance. This coefficient of the error correction term explains the adjustment to the equilibrium.

5.3   Conclusion

From the regression results world gross domestic product, institutional quality, real effective exchange rate and domestic production of coffee significantly influence coffee exports earnings in the long run. Institutional quality, real effective exchange rate and domestic coffee production positively influence coffee export earnings. World real gross domestic product negatively influence the coffee exports earnings. A 1 % increase in world real gross domestic product leads to 0.398 decrease in coffee export earnings. This is an inverse relationship.

It was also established that trade openness, net inflows of foreign direct investment, export capacity and world production of coffee do not have significant influence on the coffee export earnings in the long run. In addition, the regression results show that institutional quality, real effective exchange rate significantly influence coffee export performance in the short run. An

increase in institutional quality by 1% leads to an increase in coffee export earnings by 0.241%. It means that when the rule of is well observed, it is expected that those involved in international trade have confidence to trade because of honoring the contractual agreements thus encouraging trade and mutual trust hence increase in export earnings. An increase in effective exchange rate by 1 % leads to an increase in coffee export earnings by 0.012%. World real gross domestic product, world production of coffee, the trade openness, export capacity, net inflows of foreign direct investment and domestic production of coffee do not significantly influence coffee export earnings in the short run.

In conclusion, the study established that there are both short run and long run factors influence coffee exports earnings in Kenya. The factors influencing coffee exports earnings in the short run include; institutional quality and the real effective exchange rate. These factors positively influence coffee exports earning. On the other hand, the long run factors influencing coffee exports earnings include; world real gross domestic product, institutional quality, real effective exchange rate and domestic production of coffee. These factors positively influence coffee exports earnings except world real gross domestic product which exhibited inverse relationship with coffee exports earnings.

5.4   Policy Recommendation

In order to realize Kenya's economic growth and development understanding the determinants of coffee export performance is of great importance. It is imperative to analyze and investigate factors that influence coffee exports earnings. This enables the government to make policies and implement with a view to improving the coffee sub-sector by focusing on the actionable measures in order to boost economic growth. Among the factors that influence coffee exports earnings in Kenya are; world real gross domestic product, institutional quality, the real effective

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exchange rate, domestic production of coffee. These factors significantly influence coffee exports earning in both long run and short run.

Institutional quality is of great importance and government should focus on improving institutions that directly handle coffee value- chains. Exporting companies experience institutional factors in both host and export markets. Sound management of institutions that handle coffee such as coffee cooperative societies, coffee mills and marketing agencies must be put in place and government should invest resources that ensure quality institutional management is achieved. It is evident that institutional quality significantly influences coffee export earnings. An increase in institutional quality by 1% increases coffee exports by 0.241%. The government should therefore minimize the deficiencies such as the lack of enforcement of the rule of law and property rights as well as pervasive corruption that create instability and adversely affects firm's coffee export performance. Corruption cases that have become endemic in Kenya should be minimized by ensuring that institutional reforms are put in place.

It is further evident that enhancing domestic coffee production is of great importance. In order to increase the quantity and quality of coffee produced, there is need for government to promote coffee production by subsidizing farm inputs such as fertilizers, invest in research and development geared towards production of quality coffee for export market. In order to achieve production of quality coffee, the government should also invest in extension services for coffee farmers. One of the factors that positively influence coffee exports earnings is real effective exchange rates. Depreciation of Kenya's currency boosts the quantity of coffee exports. The government through the monetary institutions should put in place exchange rate regime that

enhances competitiveness of coffee exports. In so doing, there should be a balance so that other sectors of the economy are not affected.

5.5   Limitation of the Study

There were limitations in this study. The data that was utilized in analysis were obtained from various sources because there was no single source for the data. The extreme values of coffee production from international coffee organization, economic survey, Coffee Directorate, Central Bank of Kenya and UN-Comtrade database were utilized in this study. This could possibly affect the analysis results.

5.6   Recommendation for Further Research

This study only took into consideration some factors that influence coffee export performance that include; institutional quality, real effective exchange rate, domestic coffee production of coffee, world production of coffee, net inflow of foreign direct investment, trade openness, world; real gross domestic product and export capacity. This study recommends further research on other factors that could affect coffee export earnings such as transport, access to credit for internationalization, quality of coffee and access to markets.

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