TRADE OPENNESS, EXPORT QUALITY, AND ECONOMIC GROWTH NEXUS IN KENYA

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DECLARATION

This research project is wholly my original work, with no prior submissions for a degree award from any university or any other award.

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This research project has been submitted for examination with my approval as the university supervisor.

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DEDICATION

I dedicate this work to my parents, Mr. and Mrs. Gacheru, for their support and encouragement throughout my education.

ACKNOWLEDGEMENT

I acknowledge my supervisor, Dr. Charles Gachoki, for his instrumental and invaluable recommendations and guidance in developing this research. Your humility, dedication, enthusiasm, and sacrifice have encouraged me to complete this research. I also thank the Master of Economics class of 2020 for their cooperation and teamwork during the coursework and final project. You are great people. God mightily bless you.

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ABBREVIATIONS AND ACRONYMS

AGOA	African Growth and Opportunity Act.
COMESA	Common Market for Eastern and Southern Africa
CBK	Central Bank of Kenya
EAC	East Africa Community
FAO	Food and Agriculture Organization
IGAD	The Intergovernmental Authority on Development
WTO	World Trade Organization

OPERATIONAL DEFINITION OF TERMS

Trade Openness: The sum of imports and exports measured against the country's gross domestic product.

Foreign Direct Investment: It is a situation where an individual forms lasting commercial interests and significantly influences a business in a foreign country.

Structural Adjustment Programs: These are economic policies promoted in Kenya from the 1980s to the early 1990s, where loans for economic recovery were provided on condition of adoption and implementation of specific economic policies to promote economic stability and growth.

Special Economic Zone: It is an area where business and trade regulations are more favorable than those in the nation to attract enterprise and increase regional investments.

Export Quality: It refers to the literal meaning of the quality of exported products by a country, and it is measured by the average unit value of each exported product.

ABSTRACT

Economic growth is a major concern for developing and underdeveloped countries. High economic growth creates opportunities for poverty eradication, employment creation, investment, and wealth creation. While measures to enhance cross-border trade are regarded as effective in enabling economic growth, studies have yielded mixed results on their impacts. Kenya's trade openness level has declined besides the country implementing various policies to strengthen cross-border trade. Trade openness declined from 57 percent to 27 percent between 1990 and 2020, underscoring the need to understand its effects on Kenya's economy. The general objective of this research was to analyze the impact of trade openness on Kenya's economic growth, and the specific objectives were to determine the impact of trade openness on the economic growth of Kenya and to establish the effects of the quality of exported products on economic growth in Kenya. Ordinary least squares estimation technique was used to determine the relationship among variables. The study established that trade openness does not lead to increased economic growth in Kenya. The research further found that an increase in the quality of exports increases economic growth in Kenya. The study concluded that Kenya should enhance the quality of its exports and diversify its exports to improve economic growth. Further, the paper observed that Kenya should lower the cost of doing business in the country to make her industries and products competitive, which can help ensure trade openness positively impacts the country's economy. It was observed that attempts to restrict trade openness are likely to lead to Kenya experiencing similar measures from its trading partners.

CHAPTER ONE

INTRODUCTION

1.1 Background

The term trade openness is typically used to indicate the extent that a nation is open to international trade. In practice, trade is voluntary since parties only engage in trade if it promotes their interests. International trade allows economic actors to access quality and affordable products from other nations. Trade enhances efficiency in the production and supply of goods and services because of competition. Besides, it enables broader access and exchange of information, which leads to more innovation (Organisation for Economic Co-operation and Development (OECD), 2020). While there are many clear benefits of countries trading with each other, there remains major concerns about the effectiveness of trade openness to a country due to the possibilities of trade and non-trade barriers and unfair competition. These barriers distort markets, undermining economic growth. Besides, unfair competition makes the trade not to lead to the desired economic growth and development.

Studies investigating how trade openness impacts economic growth have yielded inconsistent results. Some scholars assert the relationship is positive, while others opine it is negative. Frankel and Romer (1999) established a positive, albeit weak, relationship. However, Clemens and Williamson (2001) concluded there is a negative relationship. A potential cause of the variation in the findings from the scholars is endogeneity concerns and estimation misspecifications. The inconsistencies necessitate further evaluation of the topic.

Crucial to trade being a driver of economic transformation, is the nature and type of goods and services traded. Studies assert that the quality of exports determines economic growth.

International trade theories posit that differences in technology, factor endowments, and economies of scale among countries are sources of comparative advantages that determine trade patterns (Gries et al., 2011). The endogenous growth theory asserts that higher economic activity can lead to more innovation through technology transfer and enable individuals to access newer skills-resulting in human capital accumulation (HCA) (Sachs & Warner, 1995; Romer, 1986). Furthermore, international trade is also viewed to allow for knowledge spillover by facilitating technology transfer (Coe & Helpman, 1995). Further, Henn et al. (2013) assert that institutional quality and human capital impact determine the pace of quality upgrading of the traded goods and services. In this regard, comparative advantages such as access to technology, HCA, and institutional quality allow a country to enhance the quality of its exports, making them more competitive, which can lead to economic growth.

Recent global competition, overdependence on foreign suppliers, and trade conflicts between major powers and increased geopolitical tension has exposed the difficulties and importance of international trade. For example, economic-related geopolitical tension between China and the United States risks undermining global trade (Fajgelbaum et al., 2022; Itakura, 2019). Overdependence on global trade for the direct allocation of resources is an issue of concern identified during the 2019 and 2020 COVID-19 pandemic. In particular, international trade can make countries vulnerable to a shortage of supply of vital products (Sarkis, 2021). Furthermore, Kenya has to abide by its constitution and the East African Community (EAC) laws on trade, where it is a member. However, EAC member states, including Kenya, continue to impose trade and non-trade barriers against each other. A 2023 EAC Sectoral Council of Ministers noted that the member states were close to resolving ten non-tariff barriers. However, they acknowledged that new ones were still emerging (East Africa Community [EAC], 2023). These issues highlight

the difficulties in implementing international trade and the need to understand the significance of trade openness and export quality in the modern economic setting.

1.1.1 Trade Openness

Trade openness enhances economic growth by enabling firms to access large foreign markets, cheaper and quality inputs, and also providing them with an opportunity to learn from other firms. However, trade openness can also adversely impact an economy, mainly when local companies cannot compete with foreign firms due to many factors, including the slow speed of integrating technologies and uncompetitiveness. Studies on the topic have produced mixed results (Coe & Helpman, 1995). Besides, trade openness has short-run and long-run asymmetric effects on economic growth (Udeagha and Ngepah, 2021). Further, Oloyede et al. (2021) established that impact of trade openness on economies in ECOWAS and SADC countries is positive but insignificant. The countries in ECOWAS and SADC are developing economies, like Kenya. Therefore, there is a need to understand whether efforts on trade openness have yielded the desired economic growth for Kenya.

1.1.1.1 Trade Openness in Kenya

At independence, Kenya's government had inward-oriented trade policies. The main objective of the Kenya government's protective economic policies from 1963 to 1979 was to safeguard small industries so that they would grow and manage to compete in international markets (Omolo, 2011). However, this economic strategy was hampered by economic shocks that hit the country in the 1970s, resulting in macroeconomic instability (Omolo, 2011). Therefore, Kenya implemented structural adjustment programs (SAPs) to enhance trade openness (Omolo, 2011). SAPs were implemented in three phases: 1980-1984, 1985-1991, and 1992-1995. SAP conditions included trade liberalization, shifting from quotas to tariffs, and tariff cuts and rationalization (Omolo,

2011). Key policy measures under SAP included loosening foreign exchange restrictions in the 1980s and early 1990s (Gertz, 2010). Operationalizing free trade in foreign exchange in 1994, following the introduction of Foreign Exchange Bearer Certificates (Forex Cs) in 1991 (Gertz, 2010). Liberalization of the domestic market began in the 1980s, and Kenya eliminated price controls in the early 1990s. The government also began privatizing parastatals during this period (Mensah, 2007).

From the early 2000s, the Kenya government implemented further efforts on trade liberalization to make the country competitive. Between 2003 and 2007, the country implemented the Economic Recovery Strategy for Wealth and Employment Creation (ERS) (2003-2007) (Republic of Kenya, 2003). ERS was implemented to restore Kenya's economic prospects, which had seriously fallen. In 2002, the country's GDP grew by 0.5 percent, which was smaller than the desired target (The World Bank Database, 2022a).

Vision 2030 was launched in 2008 following the successful execution of the ERS. So far, Vision 2030 has been implemented through three phases: 2008-2012, 2013-2017, and 2018-2022, and it is currently in phase 4 [MTP4] (Republic of Kenya, 2018a). Between 2008 and 2012, Kenya implemented the First Medium-Term Plan (MTP1), which aimed at realizing higher sustainable economic growth in a more equitable environment. MTP1 purposed to enhance trade contribution to Kenya's GDP from 5 percent to 12 percent by 2012 (Republic of Kenya, 2008). In MTP1, Kenya promoted trade through the development of infrastructure, special economic zones (SEZs), and increased efforts in regional integration and preferential trade agreements such as EAC, COMESA, WTO, and AGOA (Republic of Kenya, 2013).

The Second Medium-Term Plan (MTPII) was from 2013 to 2017, and various programs were implemented to create and enabling environment for trade and investment. The contribution of

trade to GDP declined from 8.0 percent to 6.7 percent between 2013 and 2017 (Republic of Kenya, 2018b). The Third Medium-Term Plan (MTPIII) was from 2018 to 2022. The trade to GDP ratio decreased from 8.2 to 7.8 percent in 2018 and 2022 respectively, which was against a target of 8.1 percent in 2018 and 10 percent in 2022 (Republic of Kenya, 2023).

A major goal of Vision 2030 is enhancing trade through measures such as improved infrastructure, better financial services, and governance. Vision 2030 aims to enhance trade and export, and its efforts to achieve this goal can be observed through the Development of Phase 3 of Export Business Acceleration (EBA) in Athi River EPZ (Republic of Kenya, 2022). An essential element of Vision 2030 is the third phase with the "Big Four" agenda, whose primary focus was in agriculture, healthcare, housing, and manufacturing sectors. Noteworthy, the agenda enhances human capital accumulation and the country's production capacity, which can help make it competitive in trade.

Data from the World Bank indicates that Kenya's trade openness levels have been declining since 1980. In 1980, Kenya's exports contributed 30 percent to the GDP. As of 2020, the levels had fallen to about 10 percent (see Figure 1.1). There was a noticeable spike in exports in 1993. However, this rise was mainly due to a series of currency devaluations that Kenya had implemented since the 1990s. Kenya's shilling significantly depreciated in the 1980s; by 1992, it had lost about 70 percent of its value (Ndungu, 1997).

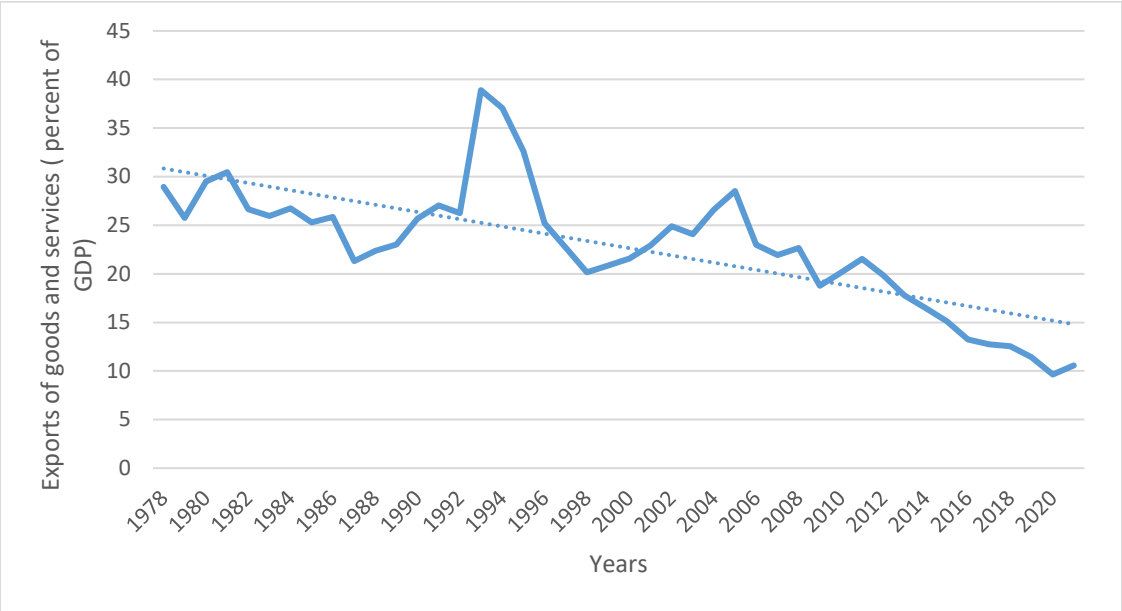

Figure 1.1: Export as Percentage of GDP

Source: (The World Bank Database, 2022a)

Figure 1.1 shows the proportion of exports to Kenya's GDP from 1978 to 2020. The proportion of exports was above 25 percent from 1978 to 1990, and from 2014 to 2020, it was between 15 percent and 10 percent, indicating declining demand for Kenya's exports and a loss of competitiveness. In 2024, the proportion of exports to GDP for countries in East Africa was similar to that of Kenya. For example, the proportion of exports to GDP for Tanzania, Uganda, and Burundi was 16.4 percent, 15.5 percent, and 12.2 percent. However, Rwanda's proportion of exports to GDP was 22.2 percent. However, other Sub-Saharan Africa nations have a high proportion of exports to GDP. For example, the proportion of exports to GDP for South Africa, Namibia, Botswana, Mozambique, Zambia, Angola, Democratic Republic of Congo, South Sudan, and Gabon were 37.5 percent, 41.9 percent, 40.9 percent, 40.2 percent, 47.1 percent, 38 percent, 39.3 percent, 65.5 percent, and 44.9 percent respectively (International Monetary Fund, 2024). Accordingly, exports from Kenya and some of its neighboring countries are significantly uncompetitive compared to

other countries in Sub-Sahara Africa. There was also a considerable increase in the proportion of exports to GDP for Kenya between 1991 and 1993 because of the significant depreciation of the Kenyan shilling (Ndungu, 1997). Therefore, Figure 1.1 shows that Kenya's exports relative to its GDP have been falling from 1978 to date. Overall, the decreased share of exports from 1978 to 2020 is concerning because it demonstrates falling demand for Kenya's exports. Furthermore, it implies that the country will increasingly be unable to experience export-led growth.

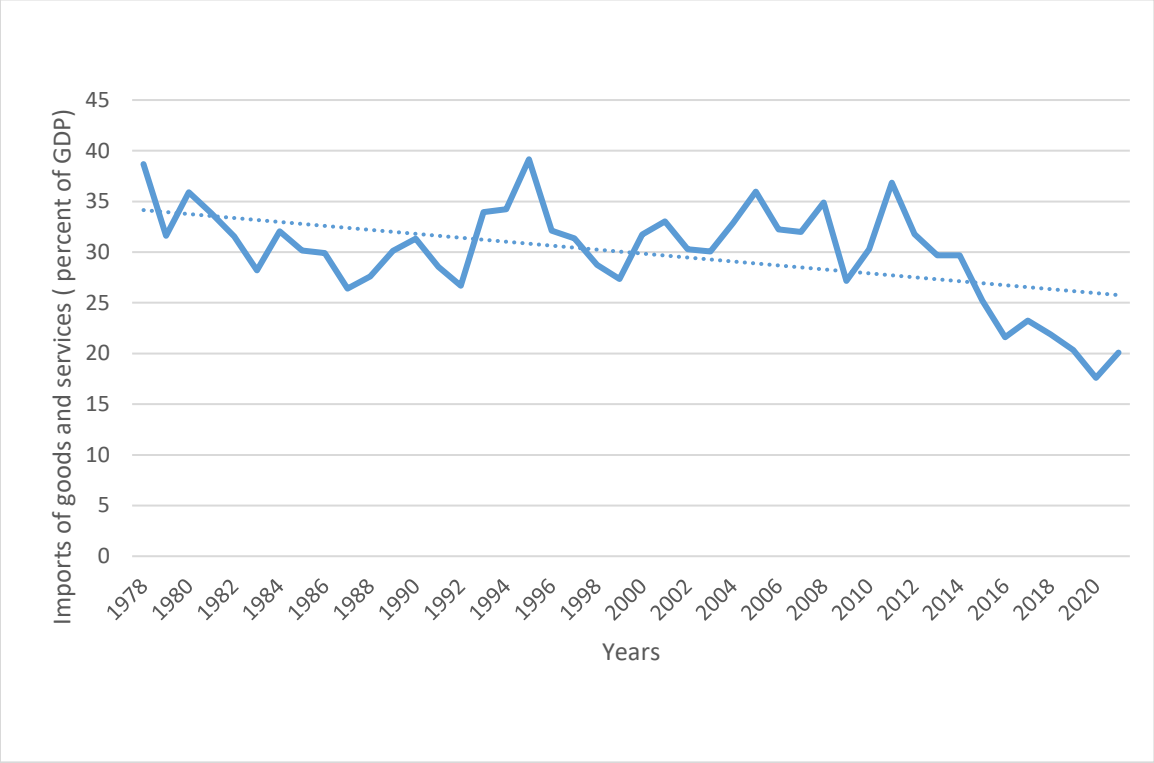

Figure 1.2: Imports as a Percentage of GDP

Source: (The World Bank Database, 2022b)

Figure 1.2 shows the imports as a share of Kenya's GDP. The share of imports fell by 18 percent between 1980 and 2022, from 38 percent to 20.5 percent (see Figure 1.2). However, the decline was smaller than that of exports. Figure 1.1 and Figure 1.2 indicate a case of decreasing trade openness in the country from 1980 to 2020, marked by a decline in import and export contributions

to the economy. The results are interesting, considering that Kenya has been implementing policies on trade liberalization during this period. Noteworthy, the share of imports to GDP (Figure 1.2) is larger than that of exports to GDP (Figure 1.1) in almost all the years. Accordingly, there is a risk of Kenya having a significantly negative balance of payment position if the trend continues.

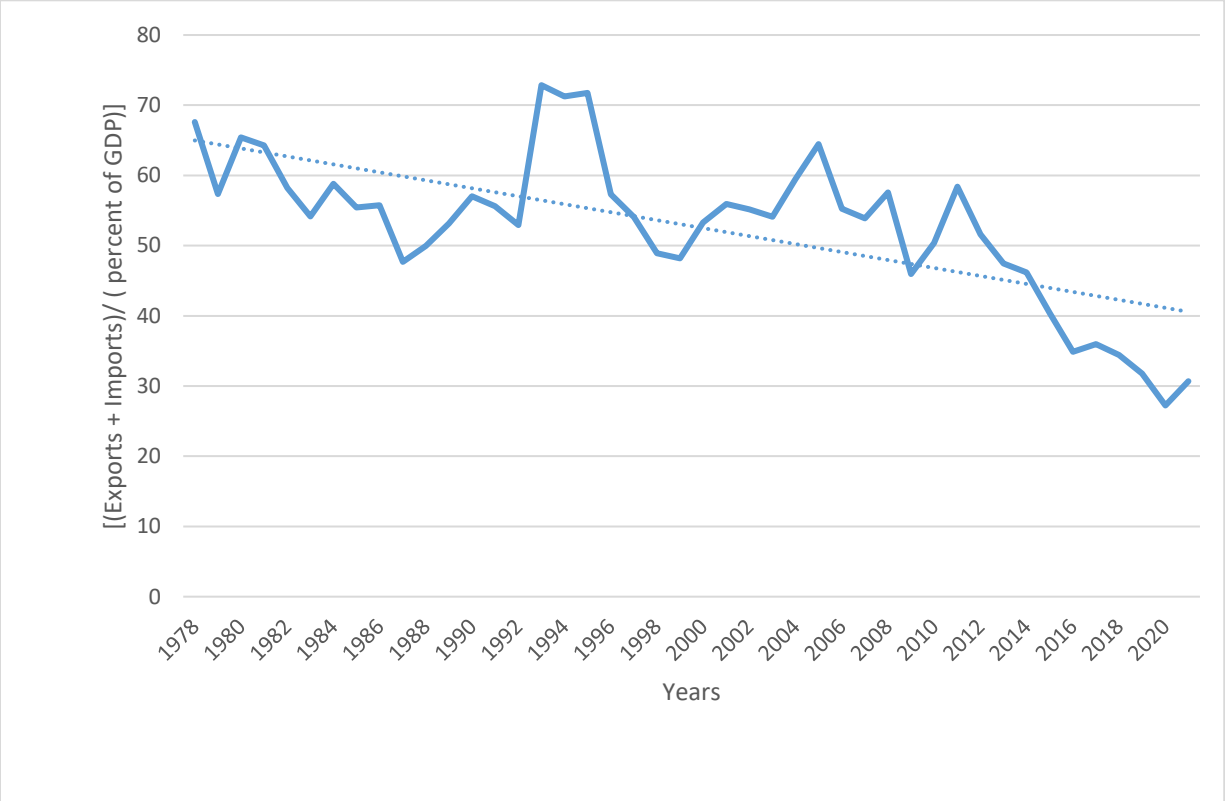

Figure 1.3: Trade Openness in Kenya

Source: (Extracted from Figure 1.1 and Figure 1.2 data).

Figure 1.3 is extracted by summing up Figures 1.1 and 1.2. Figure 1.3 shows Kenya's level of trade openness. Figure 1.3 shows that trade openness progressively contributes less to Kenya's GDP. Between 1978 and 1990, the trade openness levels in Kenya were above 50 percent, ranging between 65 percent and 47.7 percent. However, the trade openness levels have been falling during this period. From 2014 to 2020, the trade openness averaged between 45 percent in 2014 and 27.3

percent in 2020. The decline is concerning because it indicates that Kenya is not benefiting from its policies on trade liberalization.

1.1.2 Export Quality

Research by Barro and Lee (1994) and Huchet-Bourdon et al. (2017) established that the quality and variety of exported products (export basket) determines if trade openness will lead to economic growth. Hausmann et al. (2007) study, which covered the period 1962-2000 and linked the type of goods traded in terms of export quality and variety, established that countries exporting goods of higher quality have a high growth performance compared to those exporting low-quality goods and services. Henn et al. (2013) asserted that export quality can lead to high GDP per capita growth. The scholars also noted that underdeveloped nations tend to export low-quality goods and usually serve markets that import lower-quality products. They also observed that the poorer the exporting country is, the greater the gap between its average quality of exports and imports. In slow-converging nations, the export quality is significantly lower than the average imports quality. The studies highlight the importance of export quality in enabling economic growth.

1.1.2.1 Export Quality in Kenya

Economic growth and development require countries to diversify to new sectors and allocate resources to more productive industries. The production of a higher quality variety of existing goods (primary goods) builds on existing comparative advantages, which leads to increased productivity and more export earnings (Henn et al., 2013). However, the potential for quality improvement varies depending on the industries that a country specializes in. Khandelwal (2010) asserts that firms focusing on manufactured goods have more opportunities for quality upgrading than those majoring in natural resources (minerals and oil and gas) and agriculture products. Kenya has implemented efforts to enhance the quality of its exports. For example, in the Big Four Agenda,

manufacturing is presented as a means for value addition to Kenya's products (Republic of Kenya, 2022). Although low-income countries (LICs) have started exporting advanced products that were predominantly manufactured by advanced economies, they still produce low-end products within these industries, which means the diversification does not result in a significant boost in the country's GDP per capita (Hausmann et al., 2007). Hwang (2007) affirms this view by noting that countries can achieve rapid income convergence by focusing on producing high-quality products. Diversification and quality upgrading are complementary (Henn et al., 2013). In this regard, diversification to sectors such as manufacturing and quality upgrading of Kenya's primary exports, such as horticulture and tourism, can enhance economic growth.

Research by Wamalwa and Were (2019), established that Kenya's export growth is low and mainly consists of primary agriculture products. Further, the researchers assert that Kenya enjoys minimal export-led growth despite the government's efforts on trade openness. The study notes that the value-addition of the primary goods can lead to Kenya experiencing export-led growth. Wamalwa and Were (2019) concluded that using new efficient technologies and integrating Kenya’s economy with global value chains can also enable export-led growth. A brief overview of quality of Kenya’s over the years can provide insight into the effectiveness of the country's efforts in enhancing the overall quality and value of its exported goods and services.

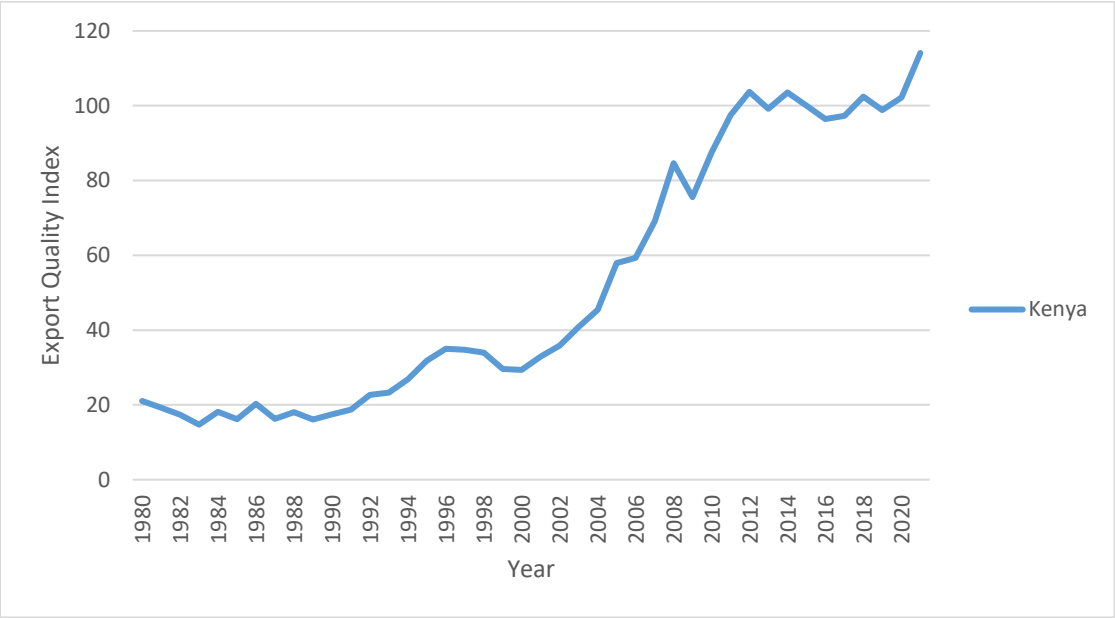

Figure 1.4:Export Quality of Kenya from 1960-2020

Figure 1.4 shows Kenya's export quality has substantially increased from 1960 to 2020. The quality of Kenya's export has significantly increased over the years. The export quality index has ranged at around the 100 points from 2011 to 2020, indicating a stagnation in the quality of exports from Kenya for a very long period, 10 years. Stagnation in quality of exports is bad since there is a risk of other competing economies catching up in the production of products of similar quality. Further, stagnation makes it difficult for Kenya's products to penetrate into markets that major in higher quality products.

1.1.3 GDP Growth- Kenya

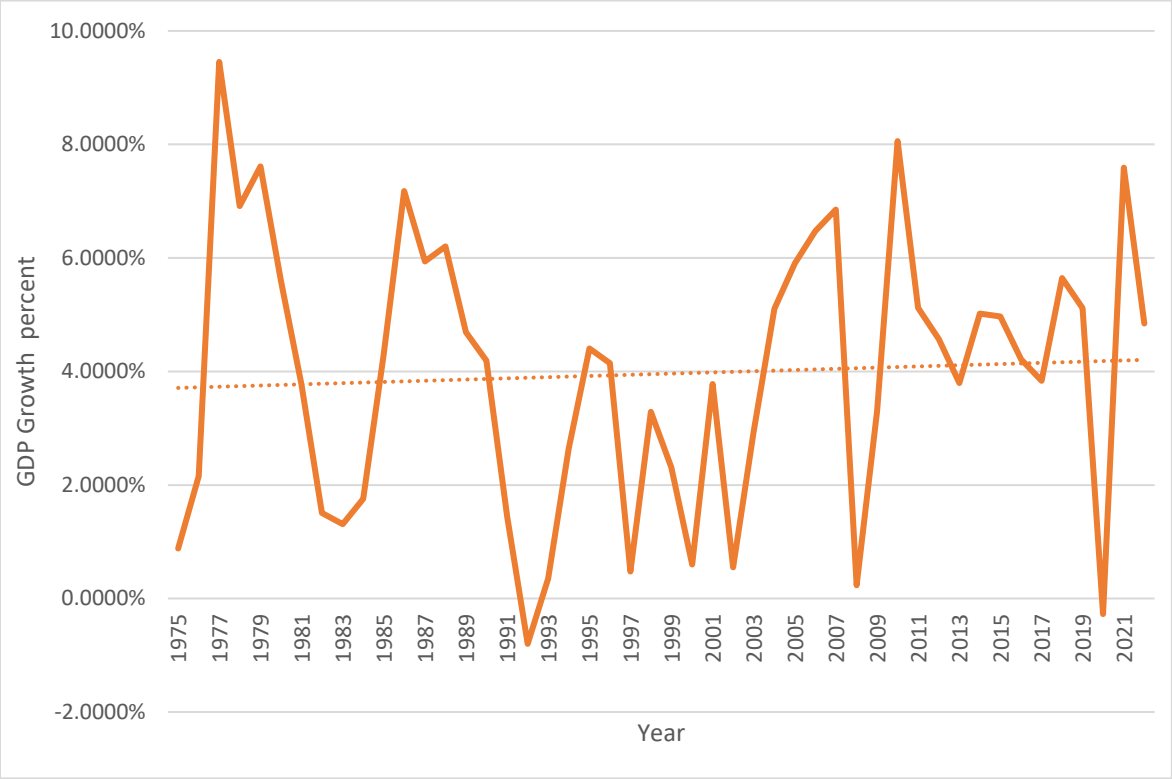

Figure 1.5: GDP Growth (Annual Percent) Kenya

Source: (World Bank, 2022)

Kenya's GDP growth fluctuated between 8 percent and -1 percent from 1979 to 2021 (Figure 1.5). The average growth has been about 4.0 percent. The notable years in GDP growth performance include 1981-1983, where the GDP growth was below 2 percent. During this period, Kenya experienced macroeconomic instabilities, which led to the implementation of SAPs (Omolo, 2011). In 1992, the economic growth was -0.8 percent. A notable issue during this period was the collapse of the Kenya shilling (Ndungu, 1997).

The GDP in 1997, 2002, 2008, and 2013 was smaller than in previous years. Kenya has a history of experiencing election tension and violence, which tends to slow economic activity during the election year or the one after if there is political violence. Economic recovery measures

implemented in 2003 by the NARC government aimed to stir the country's economy after a long stint of depressed economy from 1992 to 2002, occasioned by many factors, including political tension, disease (HIV/ AIDS), and poor economic policies (Republic of Kenya, 2003).

1.2 Statement of the Research Problem

According to Khandelwal (2010), high-quality varieties of existing export products can enable a country to enhance its productivity, leading to an increase in export revenues. Although Kenya has committed significant efforts on value addition of its exports, the country appears not to enjoy export-led growth (Figure 1.1). Contribution of exports to Kenya's GDP have been declining, as shown in Figure 1.1. Further, the quality of Kenya's exports has largely stagnated since 2011, as shown in Figure 1.4. While an increase in the quality of exports is expected to lead to more revenues, the extent of quality upgrading varies depending on a nation's exports (Henn et al., 2013). Manufactured products have greater room for quality upgrading compared to majoring in primary products such as those from agriculture and natural resources. However, Kenya remains a largely agriculture-led economy with a growing service industry and a struggling manufacturing sector. The country is making significant efforts to grow its agro-processing industries. Understanding how Kenya's exports and the quality of exports impact economic growth is vital for policymaking.

Despite efforts to increase levels of trade in Kenya through programs such as the SAPs and Vision 2030, trade openness levels have been declining. Kenya has implemented a series of far-reaching policies on trade aiming to enhance the country's overall economic performance. For example, SAPs were implemented in 1980 to liberalize the country and improve its levels of trade openness (Gertz, 2010). The National Trade Policy 2017 provided directions for further liberalization and diversification of trade to enhance Kenya's competitiveness (Republic of Kenya, 2018a). Vision

2030 enhances trade openness through policy, legal, and institutional reforms (Republic of Kenya, 2018a).

Even with all the above efforts to enhance Kenya's international trade, a casual look at Figure 1.3 shows that the trade openness in Kenya has been declining. Numerous studies show conflicting results on how trade openness impacts a country's economy (Clemens & Williamson, 2001; Dollar, 1992; Frankel & Romer, 1999; Kiganda et al., 2017; Musila & Yiheyis, 2015; Srinivasan & Bhagwati, 2001). Therefore, this research will explain whether trade openness positively contributes to Kenya's economic growth.

Finally, although there have been recent studies on trade openness in Kenya, the studies majored in trade flows, which have some major advantages and disadvantages (Kiganda et al., 2017; Musila & Yiheyis, 2015). Lee and Robert (2004) note that the main benefit of focusing on trade flows is that data is available for analysis; however, the method has a primary weakness in that it is an outcome-based measure. In particular, the variables are outcomes of many complex interactions between various factors that are not what the model aims to measure. This study expands past similar studies on Kenya by incorporating concepts from Barro and Lee's (1994) model. Therefore, while this paper still majors on trade flows, it incorporates a specific factor that can directly impact the flow of trade, which is the quality of exported products. Therefore, this paper argues that trade openness is a multidimensional concept.

1.3 Research Questions

i. What is the effect of trade openness on economic growth in Kenya?

ii. What is the effect of the quality of Kenya's exported products on its economic growth?

1.4 Research Objectives

The study's general objective is to analyze the effects of trade openness on Kenya's economic growth.

The specific objectives are:

i. To determine the impact of trade openness on the economic growth of Kenya.

ii. To establish the effects of the quality of exported products on economic growth in Kenya.

1.5 Significance of the Study

The research benefits the Government of Kenya, particularly in the Ministry of National Treasury and Economic Planning, which guides economic policy making and implementation. The study provides valuable information on the effects of trade openness on the growth of Kenya’s economy, noting the significance of the quality of exported products. The research provides crucial information on whether trade openness enhances investment levels in the country, enabling economic growth. In particular, the study explains why Kenya's trade openness levels appear to be declining despite efforts on trade liberalization (Figure 1.3). The information is crucial for the implementation of more effective policies. It also shows if existing policies on trade openness increase exports of the country's products. Accordingly, the research provides the Government of Kenya with insight on how to implement its efforts on trade to realize the desired economic outcomes. Specifically, the findings provide vital information for economic policy-making in Kenya, which will be instrumental to the Ministry of National Treasury and Economic Planning.

1.6 Scope of the Study

The research examines the relationship between trade openness and economic growth in Kenya while considering the role of the quality of exported products. The study uses country-wide data extracted from the World Bank Database, CBK, and KNBS from 1981 to 2020. Kenya has been actively implementing various policies to promote trade openness and quality of her exported goods, such as Vision 2030, ERS, and SAPs, in different levels during the 1995 to 2020 period, which makes the data set in this period suitable for this research. Furthermore, this period is long enough to provide sufficient data for econometric assessment.

1.7 Organization of the Paper

Chapter One is the introduction, Chapter Two is the literature review, Chapters Three, Four, and Five discuss the methodology, empirical results, and summary respectively.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter describes the literature on trade openness and economic growth.

2.2 Theoretical Literature Review

2.2.1. Comparative Advantage Theory

The theory provides insight into trade openness' possible benefits to all participant countries in international trade (Siddiqui, 2018). In this context, comparative advantage refers to a nation's ability to produce a specific good or service at least opportunity cost compared to rival trading nations. Opportunity cost is the best option after considering the trade-offs (Levchenko & Zhang, 2016). David Ricardo notes that for countries producing similar goods and services, it is more beneficial for each nation to specialize in making a good or a service where it has a comparative advantage. For example, suppose two economies, A and B, have varying efficiencies, and both countries can produce commodities X and Y. In that case, the optimal production will occur where each country specializes in one of the products after considering the trade-offs. If the two countries were to impose tariffs to protect their local manufacturers, the net gains would be smaller because decisions would not be purely based on the competitiveness of the respective countries. This theory helps explain why protectionism fails and justifies the need for trade openness.

2.2.2 Exogenous Growth Theory- Solow-Swan Growth Model

The Solow-Swan model, an exogenous theory of long-run economic growth, applies to this research. A simple Solow model assumes the economy is closed with no labor growth or

technological progress. The model considers capital accumulation, productivity growth linked to labor, and increased productivity caused mainly by technological advancements. The model utilizes the Cobb-Douglas production function for empirical analysis (Nafzinger, 2006).

The variables in the Solow-Swan Growth model show that the total output in an economy is an outcome of the combination of available factors of production within the economy- labor and capital stock (Hall & Papell, 2005).

Production Function

The model uses the Cobb-Douglas production function.

$Y = f(K, L)$; $Y = AK^{\alpha}(L)^{1-\alpha}$ …… 2.1

This function implies there is a constant return to scale because similar changes in inputs cause similar changes in output.

Capital Accumulation.

The growth rate of the capital stock is shown in the following equation.

$g_k = I/K-\delta$ ……2.2

Investment rate and capital stock are positively related, and depreciation rate and capital stock have a negative relationship. The change in capital stock has an optimal point where the cost of repair and replacement equals investment (Acemogul, 2009). Therefore, the economy reaches a steady state without foreign trade and technological progress. Any departure from the steady state is temporary.

$\Delta K = sY - \delta K$

ΔK is the change in capital stock, s is the savings rate, Y is output, δ is the depreciation rate, and K is the existing stock of physical capital stock.

The Mankiw et al. (1992) augmented Solow model includes human and physical capital accumulation. The model establishes that human capital affects output growth. Assuming a constant population growth, the labor productivity changes should be due to variations in human capital accumulation. In this case, the savings the economy does not spend on physical capital are invested in education and healthcare, effectively leading to increased human capital. The augmented Solow model suggests that technological progress results from skill accumulation through training and a healthier labor force.

$$Y = K^{\alpha}H^{\beta}AL^{(1-\alpha-\beta)}$$

Y is output, K is capital stock, H is human capital, A is level/ extent of technology progress, L is labor, and α, β, $(1 - \alpha - \beta)$ are respective portions of output from K, H, and L.

2.2.3 The Endogenous Growth Theory (EGT)

These models assert that factors internal to an economy influence its performance. The models do not refute the conclusions of the exogenous model, such as the conclusions of the Solow growth model; instead, they explain what determines technological progress, highlighting the importance of endogenous factors like human capital, investment capital, and level of innovation.

Studies have established that technological change alone cannot explain a significant proportion of economic growth, and empirical evidence does not support convergence as expected in the Solow Growth Model (P. M. Romer, 1994). Besides, empirical studies on regional economic convergence among industrialized nations show a slower rate of regional convergence than predicted by contemporary neoclassical models (Martin & Sunley, 1998). Furthermore, Martin and

Sunley (2008) opine that endogenous growth theory is superior to neoclassical theory because it rectifies some problems in the latter by having models where long-run growth rates are endogenous to the model.

An EGT model suitable for this study is the Romer Model. Romer (1986) asserts knowledge accumulation, innovation levels, and physical capital determine an economy's productivity. Knowledge is presumed to be a by-product of investment in education. Technology growth depends on the quantity of labor and capital invested in research and development and the current technology level (Hall & Papell, 2005).

$\Delta A = T(L_A, K_A, A)$

ΔA is technological progress, L_A is the share of labor, K_A is the share of capital dedicated to research and development, and A is the current stock of knowledge.

$Y = A(R)\ F\ (R_i, K_i, L_i)$

Y= Aggregate output

A= Public stock of knowledge.

R= Share of expense in research and development.

Ki= Physical capital.

Li= Labor stock.

Romer (1986) asserts that the spillover (to the entire economy) from research leads to innovations and the spread of knowledge. However, investments in research and technology exhibit diminishing returns (Madsen, 2007). Noteworthy, the benefits of investments in research and technology spread to the entire economy, primarily because of inadequacy in patent protection. In

practice, new ideas can be used infinitely, enabling more productivity by workers. International trade allows for access to a large quantity of human capital and more ideas and innovation, enabling faster economic growth (Romer, 1990). In conclusion, there is a need for increased trade openness to increase cases of knowledge spillover occasioned through interactions with foreign products, foreign workers, traders/ entrepreneurs, investors, and researchers.

For this research, trade openness creates avenues for individuals to interact with foreign technology and new products, allowing them to learn new skills, acquire new technology, and attract more investment, leading to greater productivity.

2.23 Empirical Literature Review

Keho (2017) researched trade openness' impact on Cote d'Ivoire's economic growth. The researcher used the country's economic performance data between 1965 and 2014. The researcher performed correlation, causality, and regression tests. The study also examined for the presence of lag by performing an ARDL bound test. Keho (2017) noted that there is a strong and positive relationship between trade openness and short-term and long-term economic growth in Cote d'Ivoire.

From the research by Keho (2017), there are reasonable grounds to believe that the increased trade openness in Kenya can result in positive economic growth because Cote d'Ivoire is a developing country similar to Kenya. Besides, increased trade openness can lead to spillover effects in the country, enabling more capital formation to facilitate economic activities.

Amna Intisar et al. (2020) researched how trade openness and human capital impacts economic growth of Asian countries. The researchers used data from 1985 to 2017 from 19 Asian countries. The researchers classified the countries into two major groups: Western and Southern Asia. Amna

Intisar et al. (2020) research entailed tests on the level of stationarity, correlation, cointegration tests, and causality tests. They also performed a regression analysis. The study revealed that trade openness and human capital accumulation leads to economic growth in Southern and Western Asia. Therefore, there is a high likelihood that increased trade openness in Kenya could enhance economic growth.

Although Amna Intisar et al. (2020) findings indicate that increased trade openness in Kenya can lead to similar economic benefits, the economic structure of some of the Southern and Western Asia countries is significantly different from that of Kenya. For example, some of the countries in the study, such as Saudi Arabia and Bahrain, rely on gas and oil as the primary sources of national income. However, the economies of other countries, such as India and Israel, are dynamic, relying on a wide variety of products- such as is the case in Kenya. In this regard, Kenya is likely to develop like nations with dynamic economic structures rather than those dependent on natural resources.

Kiganda et al. (2017) researched the effects of trade openness on Kenya's economic growth. The researchers used a correlation research design to examine the relation among variables. The scholars also performed cointegration, causality, stationarity, correlation tests, and a regression analysis. The researchers established that economic growth and trade openness have significant and positive long-term growth in Kenya.

A major limitation of the research by Kiganda et al. (2017) is the lack of inclusion of important control variables that impact the level of trade openness, such as export quality (competitiveness of exports) and variety of traded products. Barro and Lee (1994) note that the quality and variety of exports are important components of internationally traded commodities that determine economic growth. The researchers established that nations exporting high-quality (competitive)

products and those with a wide variety of exports enjoy greater economic growth than those majoring in low-quality products or with a limited variety of exports. The research used control variables to reduce the influence of confounding and extraneous variables. Accordingly, the control variables allow researchers to perform correlation and causal relationships of important variables, which reduces cases of research bias. In this regard, including one of the control variables, the quality (competitiveness) of traded products allows this study to eliminate possible research bias. Including a variety of variables is unnecessary in this study because Kenya has remained an agriculture-led economy since the 1980s, implying there are no major changes in the variety of traded products.

Fetahi-Vehapi et al. (2015) researched whether trade openness impacts economic growth in South-East European (SEE) countries. The study entailed a regression analysis of variables. Fetahi-Vehapi et al. (2015) research established that poorer SEE countries grew faster than richer ones. The research established there is a positive relationship between trade openness and economic growth in SEE countries. Further, the study concluded that trade openness favors countries that have a high initial income per capita, a high gross fixed capital formation, and high foreign direct investments (FDIs).

Based on research by Fetahi-Vehapi et al. (2015), trade openness in Kenya can lead to increased economic growth, but this largely depends on the country's current level of economic development, human capital, and grossed fixed capital formation. Further, since Kenya is a lower middle-income country, it is likely to experience significantly high economic growth, just like the SEE nations with similar economies. However, the country needs other enabling factors, such as fixed capital formation and increased foreign direct investments (FDI), to benefit from trade openness.

2.4 Overview

The review of past research indicates a lack of consensus on its impact. Furthermore, studies on trade openness in Kenya have yet to consider the effects of the country's quality (competitiveness of traded products) and variety of internationally traded products on its economic growth (Kiganda et al., 2017). Research by Barro and Lee (1994) notes that characteristics of quality and variety of internationally traded products complement the role of trade liberalization enabling greater and faster economic growth. Further, Fetahi-Vehapi et al. (2015) noted there was also a limitation in the data availability, which potentially adversely impacted the study. Furthermore, the structure and size of the economy were also established as an essential explainer of the effects of trade openness on a country's economic growth (Amna Intisar et al., 2020). Accordingly, this research analyzes the relationship between trade openness and economic growth in Kenya while considering the quality of traded products and addressing the research gaps in past similar studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter covers the research design, theoretical framework, model specification, measurement of variables, and diagnostic test and analysis.

3.2 Research Design

The study used a quantitative research design, which entailed the use of statistical methods establish the relationship between collected data and observations. The quantitative research design was descriptive in that it aimed to establish the relationship between variables. Descriptive and inferential analysis were implemented when analyzing the data obtained from secondary sources. Oso and Onen (2009) assert that quantitative research design allows the implementation of rigorous and replicable procedures to evaluate the relationship between variables. The study incorporated correlation, stationarity, cointegration, and causality tests.

3.3 Theoretical Framework

Solow (1956) neoclassical classical growth theory asserts that economic growth is a function of capital and labor. However, technology helps augment labor productivity by increasing the output capabilities of labor.

$$Y = AF(K, L) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \ 3.1$$

Y= Gross domestic product (GDP)

K= Share of physical capital

L= Unskilled labor in an economy

A= Level of technology

The neoclassical growth theory suggests that trade openness allows for efficient allocation of resources, which enables economic growth. In the new growth theory, Romer (1986) opines that trade openness enhances economic growth by accelerating technological development and enabling investment. Trade liberalization enables the production of investment goods that typically use imported intermediate materials. Besides, it allows the acquisition of capital equipment from competitive international markets (Baldwin & Seghezza, 1996). It also enables technological development through technological spillover; it leads to higher profits for innovators because they can share their technology with a larger market (Grossman & Helpman, 1991; Romer, 1990).

Kenya can gain from trade openness through technology spillover or imitation channels, especially from trade with more technologically advanced nations. However, the relationship may not necessarily be positive, particularly if Kenya is so far behind in human capital, making it unable to have reasonable skill transfer from the more advanced nations (Grossman & Helpman, 1991). With this insight, the aggregate production function when creating the study's model, as follows:

$$Y_t = f(K_t, H_t, x(TOP_t, EXV_t, Z_t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.2$$

Y_t is the level of real GDP per, $PCAP_t$ is gross fixed capital formation, TOP_t is the level of trade openness, $EXVA_t$ is the export quality, and Z_t are other control variables at time *t.*

3.4 Empirical Model Specification

In endogenous growth theory, the theoretical total productivity factor (At) is a function of other factors influencing economic output besides unskilled labor (Lt) and physical capital (Kt), such as initial level of economic growth, degree of trade openness, and HCA (skilled labor), PCAP, and TOP (Fatima et al., 2020). This approach has been used in similar research (Abdillahi & Manini,

2017; Kiganda et al., 2017). Following Fatima et al. (2020), the model of growth is estimated as follows:

Objective 1

$$GDPCAP_t = \alpha_0 + \alpha_1 TOP_t + \alpha_3 PCAP_t + \alpha_4 GNEX_t + \alpha_5 INF_t + \alpha_6 FDI_t + \alpha_7 TRADE_t + \alpha_9 DCREDIT_t + \alpha_{10} FXT_t + \alpha_{11} RATE_t + \alpha_{12} RATEt + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \; 3.3$$

Objective 2

$$GDPCAP_t = \alpha_0 + \alpha_2 EXPV_t + \alpha_3 PCAP_t + \alpha_4 GNEX_t + \alpha_5 INF_t + \alpha_6 FDI_t + \alpha_7 TRADE_t + \alpha_9 DCREDIT_t + \alpha_{10} FXT_t + \alpha_{11} RATE_t + \alpha_{12} RATEt + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \; 3.4$$

Model with both TOP and EXPV

$$GDPCAP_t = \alpha_0 + \alpha_1 TOP_t + \alpha_2 EXPV_t + \alpha_3 PCAP_t + \alpha_4 GNEX_t + \alpha_5 INF_t + \alpha_6 FDI_t + \alpha_7 TRADE_t + \alpha_9 DCREDIT_t + \alpha_{10} FXT_t + \alpha_{11} RATE_t + \alpha_{12} RATEt + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \; 3.5$$

Where:

GDPCAP: Per capita gross domestic product.

TOP: Trade openness.

PCAP: The gross fixed capital formation. It includes land improvement like making fences and ditches, machinery, electricity infrastructure, and telecommunication networks. Physical capital is theoretically assumed to enable more production effectively enabling economic growth (Li et al., 2015).

GNEX: Gross national expenditure. It is also referred to as domestic absorption.

FDI: Foreign direct investment.

TRADE: Net trade in goods and services.

DCREDIT: Domestic credit to the private sector.

FXT: Official exchange rate.

RATE: The official lending interest rates that are unadjusted for inflation

REMIT: Personal remittances.

EXV: The export quality measures the competitiveness of a country's traded products. High export quality enables economic growth (Henn et al., 2013).

INF: The inflation rate. The variable is important because it factors into the country's macroeconomic stability. It reflects the government's effectiveness in implementing macroeconomic programs to enhance economic growth. Inflation can positively or negatively impact a country's economy, depending on how policymakers manage it to foster macroeconomic stability (Agarwal & Baron, 2018).

$\alpha_{1,\ 2,\ 3\ \ldots\ldots 12,}$: The coefficients estimates.

μ_t : The error term.

3.4.1 Export Quality

Export quality is the literal meaning of the quality of a country's exported products, and it is measured by the average unit value of each exported product. Unit value is observable, implying that a highly valued exported product has higher export quality (Hausmann et al. (2007). Two potential sources of the export quality measure were the World Bank Database and the IMF Database. According to Henn et al. (2014), unit values is a suitable measure of quality, and prices

are a good and observable proxy for quality. In this research, the dataset from the World Bank indicating export quality was preferred since it provided sufficient data for the study. The IMF data was from 1995 to 2016, while World Bank data was from 1963 to 2022.

The World Bank determines the export quality as the value of all exports at the current value of exports when they are on freight (Free on Board, f.o.b)- valued in U.S. dollars and expressed as a percentage of the average for the base period (2015).

Table 3.1:Measurement of Variables

Country Code	**Indicator Name**	**Source**
GDPCAP	GDP per capita (current US$)	The Word Bank Database
EXPV	Export quality index (2015 = 100)	The Word Bank Database
TOP	Trade Openness	The Word Bank Database
PCAP	Gross fixed capital formation (constant 2015 US$)	The Word Bank Database
GNEX	Gross national expenditure (% of GDP)	The Word Bank Database
INF	Inflation, consumer prices (annual %)	The Word Bank Database
FDI	Foreign direct investment, net outflows (% of GDP)	The Word Bank Database
TRADE	Net trade in goods and services (BoP, current US$)	The Word Bank Database
DCREDIT	Domestic credit to private sector (% of GDP)	The Word Bank Database
FXT	Official exchange rate (LCU per US$, period average)	The Word Bank Database
RATE	Real interest rate (%)	The Word Bank Database

REMIT	Personal remittances received (% of GDP)	The Word Bank Database

Source: Author.

3.5 Data Analysis

A descriptive analysis design was used for the analysis of the quantitative research data. The data was from 1981 to 2020. The period for this analysis was sufficiently long for the model's analysis. The techniques used in examining the data and model included stationarity, cointegration, and heteroskedasticity tests. STATA 18 was used in data analysis and in performing various econometrics tests.

3.6 Tests

3.6.1 Pairwise Correlation Test

Calculating the pairwise correlation is necessary for establishing if there is an association between explanatory variables. It also shows if there is a multicollinearity problem. If there is a multicollinearity problem, the proposal suggests the removal of the highly correlated independent variables.

3.6.2 Stationary Test

It shows whether error, variance, and mean do not change over time. The research examined stationarity using the Augmented Dicey Fuller (ADF) test.

$$\Delta Y_t = \alpha + \beta t + \Upsilon Y_{t-1} + \delta \Delta Y_{t-1} + ... + \delta \Delta Y_{t-\rho-1} + \mu_t$$

Where α is a constant, β is the coefficient on the time trend, and ρ is the lag order in the autoregressive process.

The following hypothesis was tested:

H_0: Υ=0

H_1: δ <0

The ADF test informed the number of lags included in the long-run variance estimate to correct this problem (Abdillahi & Manini, 2017).

3.6.3 Causality Test

The study used the Granger causality test. Gujarati and Porter (2009) assert that the Granger causality test is effective for measuring causality in time series data. The Engle-Granger cointegration tests assume there is one cointegration vector. Therefore, the residuals of the cointegrating regressions are regarded as stationary if the variables are cointegrated.

3.6.4 Normality Test

Data for the study should be obtained from a normally distributed population. The Shapiro-Wilk test was undertaken to establish all departures from normality.

3.6.5 Heteroskedastic Test

Heteroskedasticity causes bias in the coefficient estimates, making them less precise. Besides, it produces p-values that are smaller than they should be. Lower precision makes the coefficient estimates far from the correct population value. The underestimating of p-values can result in a study concluding that a model term is statistically significant even though it is not significant. The analysis entailed the implementation of the Breusch Pagan test.

3.6.6 Autocorrelation Test

The Durbin-Watson test was implemented to establish if there is autocorrelation.

3.7 Data Types, Sources, and Collection

This research relied on both primary and secondary data. Government publications, the Central Bank, and from the World Bank Database were the main sources of data used in this research.

CHAPTER FOUR

EMPIRICAL FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter delves into the findings and discussions from the data analysis. The chapter is divided into the following sections: descriptive statistics, diagnostic tests, and empirical findings from data analysis.

4.2 Descriptive Statistics

The section presents descriptive and summary results of the variables in the research. The summary statistics were mean, percentages, standard deviations, number of observations, and range of variables. The first step was undertaking a descriptive statistic of the variables. Table 4.1 shows the model's descriptive statistics.

Table 4.1: Descriptive Statistics

Variable	**Obs**	**Mean**	**Std. dev.**	**Min**	**Max**
GDPCAP	41	780.5655	568.671	226.5212	2069.661
EXPV	41	52.78691	34.9463	14.71557	114.099
TOP	41	0.109419	0.070748	0.014067	0.321641
PCAP	41	7.160E+09	5.45E+09	2.10E+09	1.90E+10
GNEX	41	107.056	4.549788	95.21637	114.3336
INF	41	11.45912	8.513332	1.554328	45.97888
FDI	41	0.103174	0.122128	-0.14155	0.422672
TRADE	41	-3.22E+09	3.19E+09	-1.00E+10	-4437393

DCREDIT	41	24.79322	5.130222	18.41642	36.69933
FXT	41	61.68239	31.79438	9.047498	109.6377
RATE	41	7.312469	6.727627	-10.096	21.09633
REMIT	41	1.900381	1.051322	0.392071	4.535157

Source: Author computation

Kenya's mean gross domestic product per capita (GDPCAP) between 1981 and 2021 was $780. The minimum GDPCAP was $226.521, and the maximum GDPCAP was $2,069.661. The average GDPCAP indicates that Kenya has been a low-income country. In 2021, the GDPCAP was $2,069.661, indicating that Kenya was currently a low-middle-income country. According to The World Bank (2024), low-income economies are those with a GDPCAP of less than $1,135 and those whose GDPCAP is between $1,136 and $4,465 are lower-middle-income economies. Kenya's GDPCAP is almost equal to that of other countries in Sub-Saharan Africa. However, the low GDPCAP in the region compared to other areas of the world indicates a need for economic growth and development through major positive policy changes.

The export quality index (EXPV) had a mean of 52.78691. The minimum was 14.71557, and the maximum was 114.099, attained in 2021. Noteworthy, the export quality index was expressed using the index values derived by the World Bank (The World Bank Databank, 2024b). The average for the base period, which is 2015, is given a score of 100 (The World Bank Databank, 2024b). Therefore, Kenya's export quality from 1981 to 2021 has, on average, been below that of the base period of 2015, which indicates the low competitiveness of Kenya's exports globally. Further, the export quality has fluctuated mainly around the 100 mark from 2011 to 2020, indicating stagnation in the quality of Kenya's exports. In 2020, the export quality index of Kenya was 102. In 2021, Kenya's export quality index was 114.099, indicating that the country's products

had a score of 14 points above the value of 2015, whose score is 100. The stagnation in the quality of Kenya's exports reduces the competitiveness of the country's products and exposes them to higher levels of competition from nations that produce similar or substitute products.

Kenya's average trade openness (TOP) level between 1981 and 2021 was 0.109419 (10.94 percent). The minimum was 0.014067 (1.4067 percent) and the maximum was 0.321641 (32.1641 percent). In 2021, TOP was 0.014828 (1.4828 percent), which is very low compared to global average. According to the World Bank, the exports as percentage of GDP for the world was 32.1 percent in 2022, and the imports as a percentage of GDP was 30.5 percent. Therefore, the average trade openness for the world in 2022 was 62.6 percent (The World Bank Database, 2022a, 2022b). These figures highlight Kenya's low trade openness levels.

The average gross fixed capital formation (PCAP) for Kenya between 1981 and 2021 was USD 7.16 billion, the minimum was USD 2.1 billion, and the maximum was USD 19 billion. There has been an observable increase in Kenya's PCAP, which indicates significant growth in fixed capital in the country from 1981 to 2021. The increase in PCAP shows significant investment in fixed capital formation by Kenya's public and private sectors, and it can allow the country to increase its productivity.

The average gross national expenditure as a percentage of GDP (GNEX) in Kenya between 1981 and 2021 was 107.056 percent, the minimum was 95.21637 percent, and the maximum was 114.3336 percent. Kenya's GNEX is similar to comparable economies such as Tanzania, Uganda, and Ghana- in Sub-Saharan Africa, whose GNEX range between 98 and 110. The GNEX of the United States was 104 in 2021, and Kenya's was 108, indicating that even advanced economies like the US have a GNEX of about a similar range (The World Bank Databank, 2024a). The GNEX

of above 100 percent indicates that, on average, Kenya's national expenditures exceed its production levels, resulting in deficits.

The average inflation rate (INF) for Kenya between 1981 and 2021 was 11.4591 percent, the minimum was 1.554328 percent, and the maximum was 45.9789 percent. Noteworthy, the inflation rates in Kenya have been below 10 percent from 2012. Also, the highest inflation was experienced in 1993, when Kenya was experiencing serious economic challenges, which led to the implementation of structural adjustment programs. From 1988 and 1994, Kenya's inflation rate was between 12 percent and 45.9 percent. Currently, Kenya's Central Bank implements appropriate monetary policies to control the inflation rate with a target of 5 percent, +- 2.5 percent, to ensure macroeconomic stability (Republic of Kenya, 2020).

The average FDI as a percentage of GDP in Kenya between 1981 to 2021 was 10.3174 percent, the minimum was -14.155 percent, and the maximum was 42.2672 percent. The FDI in Kenya was 37.3726 percent in 2021, which was largely due to a huge increase in FDI in Africa, following reduced inflows in 2020 due to the COVID-19 pandemic. However, the average FDI in sub-Saharan Africa was about 21 percent of GDP between 2011 and 2020, which is below 37 percent for emerging and developing economies in Asia (International Monetary Fund, 2023). Contrasting this performance is Kenya's FDI which was between -14.155 percent and 15.6258 percent from 2016 to 2020. Therefore, Kenya attracted less FDI than peer countries in the Sub-Saharan Africa region. Although the FDI in 2012 and 2013 were high, at 42.267 percent and 32.2048 percent respectively, Kenya's FDI has largely been significantly lower than the global average during the period 2012 to 2021, indicating a need for increased efforts to attract foreign direct investments (The World Bank, 2024b).

The average net trade in goods and services (TRADE) for Kenya between 1981 to 2021 was -$3.22 billion (USD), the minimum was -$10 billion (USD), and the maximum was -$4,437,393 (USD). Essentially, Kenya has a net trade deficit. A review of the data from 2010 to 2021 indicates that Kenya's deficit in the TRADE segment has been increasing, highlighting a need for increased local production to reduce the deficits in the balance of payment.

Kenya's average domestic credit to the private sector as a percentage of GDP (DCREDIT) from 1981 to 2021 was 24.7932 percent, the minimum was 18.4164 percent, and the maximum was 36.6993 percent. The average DCREDIT for Sub-Saharan Africa was 35.8 percent in 2021, and the world average was 144.2 percent (The World Bank, 2024a). In this regard, Kenya's private investors, like most in Sub-Saharan Africa, have significant difficulty accessing credit. In this regard, there is a need for improvement in the access to financial services by private sectors in Kenya to enable credit financing necessary for facilitating economic growth.

The average official exchange rate (LCU per US$, period average) for Kenya from 1981 to 2021 was 61.68239 KES to 1 USD, the minimum was 9.047498 KES to 1 USD, and the maximum was 109.6377 KES to 1 USD, which was in 2021. In this regard, the KES has significantly weakened compared to the USD during this period. Although a weak currency makes a country's exports competitive, it also makes importing essential goods and services, some of which cannot be substituted locally, expensive. Primary goods imports such as crude oil and fertilizer are necessary for enabling productivity in other sectors of the economy. Therefore, there is a need to properly manage Kenya's currency to ensure macroeconomic stability.

Kenya's average real interest rate (RATE) from 1981 to 2021 was 7.3125 percent, the minimum was -10.096 percent, and the maximum was 21.0963 percent. The prevailing interest rates depend on various economic factors, typically adjusted to promote macroeconomic stability. The standard

deviation for the real interest rate during this period was 6.727627 percent, indicating high volatility levels in Kenya.

Kenya's average personal remittances as a percentage of GDP (REMIT) from 1981 to 2021 was 1.9004 percent, the minimum was 1.0513 percent, and the maximum was 4.5352 percent. REMIT was highest in 1999 and 2000. However, from 2012 to 2021, REMIT has fluctuated between 2.1 percent and 3.44 percent of the GDP. Accordingly, REMIT is an important aspect of Kenya's net national product (NNP) and economy.

4.3 Diagnostic Test Results

The research used time series data for the analysis of the model. However, time series data is susceptible to problems of spurious results, which necessitates the need to check the properties of the data (Gujarati, 2004). For analysis of quality of data, the research involved performance of unit root and cointegration tests. Level of economic growth was measured using GDP.

4.3.1 Stationarity Test/ Unit Root Test

The test was performed to ensure that the data used in the analysis is stationary, which ensures the results are unbiased. The Augmented Dickey-Fuller (ADF) test was used to examine for non-stationarity and also to determine the order of integration of the variables. An ADF test was run at first difference, and the constant term was suppressed. The study observed that all variables were stationary, as shown in Appendix 2, Table A6. In addition, the Durbin-Watson d-statistic for the model was 1.9015, and the adjusted R-squared was 0.8701, which confirmed that the model was stationary. In practice, A larger Durbin-Watson d-statistic than adjusted R-squared indicates a likelihood the data is stationary.

4.3.2 Normality Test

The research employed the Jarque-Bera test to examine if the data set was normal. The value from normality test was 0.961, indicating that the model's variables were normally distributed. (Appendix 2, Table A7).

4.3.3 Heteroskedasticity Test

The Breusch-Pagan/ Cook-Weisberg test showed there is no heteroskedasticity among the variables (Appendix 2, Table A8).

4.3.4 Autocorrelation Test

Breusch-Godfrey's LM test showed there was no autocorrelation in the model. (Appendix 2, Table A9).

4.3.5 Causality Test

A Granger causality test for trade openness and export quality established the following: Trade openness does not Granger cause export quality; Export quality does not Granger cause trade openness (Appendix 2, Table A10).

4.4 Empirical Findings from Regression

The ordinary least square (OLS) technique was employed, and multiple linear regression estimation was performed to analyze the variables (Appendix 1, Table A3). Multiple linear regression estimation was suitable since the variables were confirmed to be stationary, normally distributed, and there was no heteroskedasticity or autocorrelation.

The first objective of the study was: To determine the impact of trade openness on Kenya's economic growth. The multiple linear regression was implemented for equations 3.3 and 3.4. Table A3 shows the results of the multiple linear regression for equation 3.3. The adjusted R-squared for

the model is 0.7925, indicating there are about 20 percent of factors impacted the GDPCAP not explained in the model.

The second objective of the study was: To establish the impact of export quality on Kenya's economic growth. Table A4 shows the results of the multiple linear regression for equation 3.4. The adjusted R-squared for the model is 0.6995, indicating there are about 30 percent of factors impacted the GDPCAP not explained in the model.

To enhance the predicting ability of the model, the independent variables in equations 3.4 and 3.5 were combined to form equation 3.5. Noteworthy, equation 3.5 contained trade openness and export quality as independent variables in addition to other variables, The adjusted R-squared for the model was 0.8701, and the R-squared was 0.9058, indicating that equation 3.5 was the most suitable model for predicting the relationship between the independent and dependent variables (Table A5).

4.4.1 Discussion of Objective One

The study established that trade openness decreases economic growth in Kenya in the long run. In particular, a one percentage change in trade openness (TOP) leads to a 0.4641 percentage decrease in GDPCAP in Kenya. Effect of trade openness on Kenya's economic growth was significant at 1 percent level. Trade openness is thought to promote economic growth by enabling economic players to access quality and affordable products from other nations, enabling the exchange of information and skills, and increasing access to international markets, which leads to more production and productivity. However, trade openness can also increase competition to a country's nascent industries and stifle their abilities, lowering economic growth. The study's findings contradict those of Kiganda et al. (2017) research, which concluded that in Kenya trade openness positively impacts economic growth. However, Hausmann et al. (2007) established that trade

openness can adversely impact economic growth in countries specializing in low-quality products. Kenya does not specialize in advanced products, and it mainly exports primary products, such as agricultural commodities, which are vulnerable to trade shocks. The negative impact of trade openness in Kenya's economy may be due to the type of products that the country mainly trades, which are vulnerable to trade shocks.

4.4.2 Discussion of Objective Two

The study established there is a positive relationship between growth in export quality (EXPV) and economic growth (GDPCAP) in Kenya. In particular, a one percent change in export quality leads to a 0.3389 percent change in the GDPCAP. The change was significant at a 1 percent confidence level. Marconi et al. (2013) also established that export and export quality are complimentary and enhance a country's net traded products, enabling higher economic growth. The scholars asserted that countries that export primary products and resource-based manufacturers enjoyed high economic growth because of the high demand for commodities between the years 2000 and 2008. However, from 2009 to 2013, exporters of higher-technological content products enjoyed higher economic growth, highlighting the importance of export quality in enabling long-run economic growth. Nouira and Saafi, (2022) also established that export upgrading enhances economic growth in countries with above-average levels of human capital, GDP per capita, and institutional quality. Given that Kenya is earnestly implementing efforts to become a highly developed country, then export quality provides a sustainable strategy for enabling economic growth since higher quality exports typically earn more revenues, have a higher profit margin, are less susceptible to trade shocks, and involve a lot of value addition, which makes the products difficult to replicate or substitute.

4.4.3 Discussion Focusing on Other Variables in the Estimate Model

The research established there is a positive and significant relationship between gross fixed capital formation (PCAP) and economic growth in Kenya. PCAP enables economic growth by facilitating efficient production of products. PCAP increases as long as the depreciation rate of existing capital is less than the investment rate of new capital (D. Romer, 2019). These results correspond with those of Oduor and Khainga (2010), who established that total factor productivity is a major determinant of economic growth in Kenya. Total factor productivity (TFP) measures the volume of output that can be produced after accounting for the aggregate inputs, such as physical capital input and labor input. Research by Kendrick (1994) concluded that the formation of capital does not necessarily lead to economic growth, but this depends on the efficiency capital allocation. In particular, capital should be allocated from less productive sectors to more productive ones to enhance economic growth. The study's findings highlight that Kenya has been progressively allocating resources to more productive sectors.

The study also established there is a positive relationship between gross national expenditure (GNEX) and economic growth (GDPCAP). In particular, a percentage increase in GNEX leads to a 0.7219 percentage increase in GDPCAP. The findings support theories on consumption-led growth, where increased private consumption promotes the production of consumer products, effectively enabling economic growth (Setterfield & Kim, 2017). Domestic absorption is essential in ensuring self-sustainable growth and resilience against global crises. The findings correspond with the conclusions of research by Neyapti (2023), which established that GNEX positively impacts economic growth. Further, the scholar observed that GNEX is associated with lower growth volatility.

The research established there is a negative and statistically marginal relationship (at a 10 percent level) between domestic credit to the private sector and (DCREDIT) and growth in Kenya's economy (GDPCAP). The results of this study correspond with those of Bui (2020), who established that there is an inverted U-shaped nonlinear impact of domestic credit on economic growth. Bui (2020) observed that domestic credit boosts the economy until it reaches an optimal threshold where domestic credit is equal to 97.5 of gross domestic product. Beyond this point, it hurts economic growth. Further, Begum et al. (2018) established there is a negative relationship between GDP and DCREDIT, and it is significant. Begum et al. (2018) findings correspond to the results of this study. The findings of this paper indicate a need for managed provision of credit to the private sector by financial institutions to ensure sustainable credit financing.

The study established a positive but not significant relationship between official foreign exchange rate (FXT) and gross domestic growth in Kenya. Research by Rodrik (2008) and Rapetti et al. (2012) showed there is a positive relationship between real exchange rate (RER) undervaluation and economic growth. In this regard, implementation of appropriate macroeconomic policies that enable the undervaluation of currency can help in enhancing economic growth in Kenya. However, the processes should be deliberately managed to ensure the policies do not cause significant macroeconomic instabilities.

The research established there is a positive but not significant relationship between remittances (REMIT) and economic growth (GDPCAP). A study by Barajas et al. (2009) established that remittances do not impact economic growth. However, Fayissa and Nsiah (2010) found that remittances to 36 African countries positively affected economic growth by providing alternative sources of financing to investments and helping the nations and investors to overcome liquidity constraints. Similarly, Mwangi and Mwenda (2015) established that remittances positively impact

economic growth in Kenya. In this regard, the outcomes of this research correspond to similar recent copies that have investigated the relationship between remittances and economic growth in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter includes the following sections: summary and conclusion, policy recommendation, and potential areas for further research.

5.2 Summary and Conclusion

This research examined the effects of trade openness and export quality on Kenya's economic growth. The study used an ordinary least squares regression. The paper analyzed data from 1981 to 2021. Data for the research was mainly from The World Bank databases. The analysis was performed using the STATA 18 analysis tool. The motivation for the study was that despite Kenya's numerous efforts to grow and modernize its economy, it remains a lower-middle-income economy.

The study's first objective was to determine the effects of trade openness (TOP) on economic growth in Kenya. The research established that trade openness leads to decreased economic growth in Kenya. The negative impact of trade openness on Kenya's economic growth is likely because the country's firms cannot compete with more competitive foreign producers. In particular, Kenya may be uncompetitive in terms of the cost or quality of goods and services it trades.

The study's second objective was to establish the effects of export quality (EXPV) on economic growth in Kenya. The research established that export quality leads to an increase in economic growth. Upgrading the quality of Kenya's exports can help enable the desired economic growth.

To enhance the internal validity of research and limit the influence of confounding and extraneous variables, the study used various control variables. The study established there is a positive and significant relationship between gross fixed capital formation (PCAP) and economic growth in Kenya. Therefore, the country should focus on increasing PCAP in the most productive areas to enhance economic growth. The study also established there is a positive and significant relationship between gross national expenditure (GNEX). Accordingly, Kenya should promote gross national expenditure as a strategy for promoting economic growth since it appears consumption-led economic growth is effective in the country. The research established that domestic credit to the private sector (DCREDIT) negatively and significantly impacts economic growth. In this regard, there is a need for the government to ensure there is properly managed private borrowing to reduce the risks of consumers being burdened by the cost of debt, which can adversely impact economic growth by reduced consumption in the future and also through credit default that can adversely impact the financial sector. Inflation (INF), foreign direct investments (FDI), official exchange rate (FXT), real interest rates (RATE), and remittances (REMIT) had a positive but not significant impact on economic growth. The net trade in goods and services (TRADE- Balance of Payment) had a negative but not significant impact on economic growth. There is a need to manage the effects of these variables on economic growth by implementing appropriate macroeconomic policies to ensure economic stability, growth, and development.

To conclude, trade openness has a significant and negative impact on economic growth in Kenya, which indicates Kenya's firms are uncompetitive, which can either be in in terms of quality or cost of traded goods and services. However, the Granger causality test (Appendix 2, Table A10) shows there is no causality between export quality and trade openness in Kenya. The results firmly indicate that quality is not the factor undermining the effect of trade openness on Kenya's

economic growth. Accordingly, only cost remains as the impediment to trade openness not enabling economic growth in Kenya. Therefore, Kenya should reduce the cost of doing business in the country by providing reliable and affordable electricity, transport, friendly tax regimes for corporations, and eliminating corruption, which typically adds operating costs.

5.3 Policy Recommendations

Based on the study's findings, Kenya should not adjust its current policies on trade openness. Although Kenya has been making efforts to promote trade liberalization, the research establishes that trade openness does not enhance Kenya's economic growth. A change on policies on trade liberalization implies Kenya adopting protectionist policies. If this were to happen, Kenya would likely experience various ramifications, such as the implementation of similar countermeasures and sanctions by its trading partners. Therefore, the failure of trade openness to positively impact Kenya's economic growth is due to the compounding effects of other issues in the economy and not because of the inadequacy of trade liberalization policy, which is revealed in the subsequent explanations on policies for export quality. Export quality complements trade openness (Barro & Lee, 1994). Therefore, without significant improvement in export quality, Kenya is unlikely to benefit from opportunities created through trade openness, and this is primarily because Kenya's products will be uncompetitive in terms of quality, cost, and other confounding factors when compared to those of its trading partners. Therefore, Kenya should enhance the quality of its exports to benefit from trade openness. Furthermore, it is currently almost impossible for Kenya to implement restrictive trade policies without experiencing significant ramifications. Accordingly, Kenya should not implement any measures to stall its trade openness level.

The study also establishes that export quality positively and significantly impacts Kenya's economic growth. Kenya should focus on enhancing the quality of exports in industries where it

has a comparative advantage, such as the agriculture sector, because quality upgrading is easier in such sectors. Secondly, Kenya should focus on diversification, such as by growing the manufacturing sector, because the sector has more opportunities for quality upgrading than sectors that major in primary goods, such as the agricultural and mining sectors. Diversifying and quality upgrading are complementary and can lead to higher levels of economic growth.

Improving export quality can be enabled by enhancing access to financial capital. Therefore, Kenya should implement measures to attract foreign direct investments, such as by developing the capital markets, fighting corruption, and improving the ease of opening businesses. Access to financial capital can allow Kenya's entrepreneurs to produce high-end products in the manufacturing and agricultural sectors. The country should also promote the development of its financial sector, such as banks, capital markets, SACCOs, and microfinance institutions, to enable access to financial services.

Noteworthy, improving the quality of exports will enhance the competitiveness of Kenya's products in the international markets, enabling the country to harness the opportunities created by policies on trade liberalization. Without competitive products, which can be enabled through quality upgrading of locally manufactured products, Kenya cannot fully exploit the opportunities created by policies on trade liberalization.

Lastly, Kenya should reduce operating costs in the country. One of the reasons for trade openness not enabling desired economic growth is the high cost of running a business in Kenya, which makes goods and services from the country uncompetitive. Lowering the cost of key inputs to business, such as transport, electricity, and licensing fees, can enhance the competitiveness of Kenya's products. Further, Kenya should actively fight corruption because it increases costs of doing business.

5.4 Potential Areas for Further Studies

This study established there is a positive relationship between export quality and economic growth in Kenya. Further, various studies also note that export quality complements trade openness. However, this study has shown that trade openness has a negative relationship with economic growth in Kenya, an indication of significantly low levels of quality upgrading of locally produced goods and services and a high cost of doing business in the country. Considering that quality upgrading of goods and services requires financial investments by local firms, which is a costly process, an analysis of the relationship between access to financial services by Kenya's firms and export quality can establish if financial constraints are a major limitation for quality upgrading of the country's exports. Similarly, analyzing the relationship between financial sector development and trade openness in Kenya can establish whether access to finances can increase the volumes and value of Kenya's exports and imports. Further, a study on the relationship between cost of production and trade openness can clarify whether indeed cost is the main hinderance for policies on trade openness in enhancing economic growth in Kenya.

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APPENDIX

Appendix 1

Table A1: Study Data (1981- 2021)

KENYA	GDPCAP'	EXPV'	TOP'	PCAP'	GNEX	INF'	FDI'	TRADE'	DCREDIT'	FXT'	RATE'	REMIT'
1981	408.3467	19.27729	0.157416	3.07E+09	103.2379	11.60305	0.085462	-5.8E+08	21.00308	9.047498	1.410506	1.145818
1982	369.3871	17.34985	0.157601	2.45E+09	103.7963	20.66671	0.149471	-2.6E+08	20.43702	10.92233	2.605412	1.056972
1983	330.9008	14.71557	0.163683	2.21E+09	100.491	11.39778	0.242486	-4.3E+07	19.32301	13.31152	3.572394	0.971368
1984	330.1541	18.1876	0.17811	2.17E+09	101.4177	10.2841	0.110934	-1E+08	18.9864	14.41388	3.83512	0.91675
1985	315.3909	16.21206	0.175799	2.1E+09	101.0275	13.00657	0.088283	-6.1E+07	19.33408	16.43212	5.257538	1.075789
1986	359.068	20.30958	0.155239	2.4E+09	100.0099	2.534276	0.068108	-4437393	19.31199	16.22574	4.864495	0.720253
1987	381.706	16.2646	0.124973	2.63E+09	105.1115	8.637673	0.385801	-4.3E+08	18.41642	16.45449	8.15739	0.82802
1988	386.3559	18.06468	0.12935	2.6E+09	105.3968	12.26496	0.026301	-4.6E+08	18.92614	17.7471	8.026232	0.916296
1989	369.9834	16.10309	0.143672	2.72E+09	111.8038	13.78932	0.016432	-6.4E+08	19.22448	20.57247	6.815212	1.075682
1990	370.1001	17.47497	0.154069	2.74E+09	105.1962	17.78181	-0.00516	-4.8E+08	18.65653	22.91477	7.332797	1.624524
1991	340.8065	18.75666	0.163136	2.82E+09	101.2562	20.0845	0.002454	-1.3E+08	19.95807	27.50787	5.745513	1.522176
1992	332.9499	22.67571	0.158975	2.54E+09	99.90736	27.33236	-0.00116	-2.2E+07	22.15245	32.21683	1.825329	1.398932
1993	226.5212	23.27	0.321641	2.77E+09	95.21637	45.97888	0.048475	-1.3E+09	18.4962	58.00133	3.413472	2.05397
1994	273.5218	26.86769	0.26055	3.06E+09	96.86456	28.81439	0.013492	-1.5E+09	19.83416	56.05058	16.42811	1.920497
1995	336.5653	31.806	0.21317	3.31E+09	105.9244	1.554328	0.125522	-2.4E+09	25.81412	51.42983	15.80165	0.96722
1996	436.1957	35.00548	0.131391	3.52E+09	106.2539	8.864087	0.022906	-2E+09	21.68163	57.11487	-5.77659	0.726746
1997	462.4045	34.77081	0.116904	3.63E+09	107.8567	11.36185	0.045389	-3E+09	24.35518	58.73184	16.87957	3.862643
1998	483.7086	34.00383	0.101088	3.92E+09	110.6367	6.722437	0.086025	-4.1E+09	23.96342	60.3667	21.09633	3.774037
1999	430.3673	29.58226	0.111979	3.89E+09	109.8547	5.742001	0.190464	-4.1E+09	26.56944	70.32622	17.45405	4.535157
2000	411.8214	29.35691	0.129447	4.22E+09	110.7592	9.980025	7.87E-05	-9.9E+08	25.75838	76.17554	15.32743	4.23365
2001	408.3606	32.91414	0.137004	4.74E+09	114.3336	5.738598	7.70E-05	-1E+09	25.22269	78.5632	17.8125	0.392071
2002	401.0924	35.83053	0.137556	4.45E+09	110.8307	1.961308	0.056404	-6.5E+08	25.8546	78.74914	17.35814	0.434626
2003	441.3914	40.82471	0.12264	4.09E+09	111.7326	9.815691	0.013924	-6.5E+08	25.15568	75.93557	9.770511	0.441781
2004	462.6182	45.44302	0.128566	4.39E+09	110.3472	11.62404	0.027437	-1E+09	27.28752	79.17388	5.045258	2.334908
2005	522.7768	57.90284	0.123339	5.62E+09	110.4293	10.31278	0.051699	-1.4E+09	26.27688	75.55411	7.609988	2.268083
2006	699.3997	59.28704	0.078977	7.4E+09	109.2124	14.45373	0.092768	-2.2E+09	22.88831	72.10084	-8.00987	2.208898
2007	840.1916	69.09261	0.064146	7.56E+09	109.9413	9.75888	0.11275	-3E+09	23.04496	67.31764	4.819091	2.018912
2008	915.9989	84.67179	0.062859	8.53E+09	110.6143	26.23982	0.121929	-4.3E+09	25.38061	69.17532	-0.985	1.859074

2009	1049.122	75.5712	0.043794	9.38E+09	105.0481	9.234126	0.108597	-3.9E+09	21.87482	77.35201	-10.096	1.491151
2010	1093.64	87.51898	0.046079	1.1E+10	107.0427	3.961389	0.003475	-4.5E+09	23.98664	79.23315	12.52696	1.510292
2011	1099.315	97.44774	0.053126	1.12E+10	110.5822	14.02249	0.183466	-6.4E+09	27.36595	88.81077	4.526186	1.993087
2012	1289.781	103.7383	0.040025	1.26E+10	109.6663	9.377767	0.422672	-6.7E+09	26.40223	84.5296	9.313511	2.147327
2013	1376.829	99.14055	0.034474	1.29E+10	110.7446	5.717494	0.322048	-7.3E+09	28.33217	86.12288	9.293946	2.11488
2014	1489.92	103.5331	0.030989	1.55E+10	112.7613	6.878155	0.110007	-9E+09	34.52207	87.92216	8.249079	2.110023
2015	1496.654	100	0.026945	1.55E+10	110.3468	6.582174	0.34511	-7.1E+09	36.69933	98.17845	6.268806	2.23796
2016	1562.077	96.4217	0.02232	1.49E+10	108.3655	6.297158	0.156258	-6.3E+09	35.57107	101.5044	10.11813	2.331933
2017	1675.988	97.30985	0.021477	1.61E+10	110.9115	8.005723	0.133977	-8.6E+09	33.1506	103.41	5.656748	2.391951
2018	1845.783	102.4593	0.018645	1.6E+10	108.8276	4.68982	-0.00349	-8.6E+09	31.19869	101.3016	8.48796	2.95041
2019	1970.08	98.85656	0.016121	1.68E+10	108.9353	5.23586	0.037087	-8.9E+09	30.83203	101.9913	7.831101	2.827492
2020	1936.251	102.1456	0.014067	1.71E+10	108.5686	5.404815	-0.14155	-8E+09	32.14981	106.4508	6.714634	3.087631
2021	2069.661	114.099	0.014828	1.9E+10	108.0342	6.110909	0.373726	-1E+10	31.12312	109.6377	7.427581	3.436612

Table A2: Changes in Variable Over-Time

YEAR	GDPCAP	EXPV	TOP	PCAP	GNEX	INF	FDI	TRADE	DCREDIT	FXT	RATE	REMIT
1981	-0.0902	-0.08568	0.080049	0.048633	-0.02914	-0.16273	4.759058	-0.31423	-0.03708	0.219309	0.496416	2.003149
1982	-0.09541	-0.09999	0.001176	-0.20174	0.005409	0.781144	0.748978	-0.55162	-0.02695	0.20722	0.847147	-0.07754
1983	-0.10419	-0.15183	0.038589	-0.09917	-0.03184	-0.4485	0.622297	-0.83229	-0.05451	0.218744	0.371144	-0.08099
1984	-0.00226	0.235943	0.088145	-0.01857	0.009222	-0.09771	-0.54252	1.336059	-0.01742	0.082812	0.073543	-0.05623
1985	-0.04472	-0.10862	-0.01298	-0.02896	-0.00385	0.264726	-0.20418	-0.39735	0.018312	0.140021	0.370892	0.173481
1986	0.138486	0.252745	-0.11695	0.139607	-0.01007	-0.80515	-0.22853	-0.92716	-0.00114	-0.01256	-0.07476	-0.33049
1987	0.063047	-0.19917	-0.19497	0.095256	0.051011	2.40834	4.664528	95.02129	-0.04637	0.014098	0.676924	0.149625
1988	0.012182	0.110675	0.035024	-0.01144	0.002715	0.419938	-0.93183	0.080833	0.027678	0.078557	-0.01608	0.10661
1989	-0.04238	-0.10859	0.110729	0.045836	0.060789	0.124285	-0.37525	0.397697	0.015763	0.159202	-0.15088	0.173947
1990	0.000316	0.085194	0.072363	0.008399	-0.0591	0.289536	-1.31426	-0.25965	-0.02954	0.113856	0.075946	0.510226
1991	-0.07915	0.073344	0.058849	0.03087	-0.03745	0.129496	-1.47515	-0.72669	0.069763	0.200443	-0.21646	-0.063
1992	-0.02305	0.208942	-0.0255	-0.10188	-0.01332	0.360869	-1.47158	-0.83342	0.109949	0.171186	-0.6823	-0.08097
1993	-0.31965	0.026208	1.023211	0.093244	-0.04695	0.682214	-42.8961	58.74758	-0.16505	0.800342	0.870059	0.468242
1994	0.207489	0.154607	-0.18994	0.10214	0.01731	-0.37331	-0.72168	0.121208	0.072337	-0.03363	3.812727	-0.06498
1995	0.230488	0.183801	-0.18185	0.084423	0.093531	-0.94606	8.303718	0.6484	0.301498	-0.08244	-0.03813	-0.49637
1996	0.296021	0.100594	-0.38363	0.062456	0.003111	4.702842	-0.81752	-0.165	-0.16009	0.11054	-1.36557	-0.24862
1997	0.060085	-0.0067	-0.11025	0.0312	0.015084	0.281784	0.981584	0.485073	0.12331	0.028311	-3.92207	4.314981

1998	0.046072	-0.02206	-0.13529	0.080915	0.025775	-0.40833	0.895275	0.368199	-0.01609	0.027836	0.249814	-0.02294
1999	-0.11028	-0.13003	0.10774	-0.00757	-0.00707	-0.14585	1.214046	0.013439	0.10875	0.164984	-0.17265	0.201672
2000	-0.04309	-0.00762	0.155989	0.08261	0.008233	0.738074	-0.99959	-0.7604	-0.03053	0.083174	-0.12184	-0.06648
2001	-0.0084	0.121172	0.058375	0.123817	0.032272	-0.42499	-0.02161	0.050569	-0.0208	0.031344	0.162132	-0.90739
2002	-0.0178	0.088606	0.004033	-0.06121	-0.03064	-0.65823	731.4639	-0.37158	0.025053	0.002367	-0.02551	0.108538
2003	0.100473	0.139383	-0.10844	-0.07952	0.008138	4.004665	-0.75314	-0.00356	-0.02703	-0.03573	-0.43712	0.016462
2004	0.048091	0.113125	0.04832	0.073351	-0.0124	0.18423	0.970487	0.551318	0.084746	0.042645	-0.48362	4.285219
2005	0.130039	0.274185	-0.04066	0.277986	0.000743	-0.11281	0.884255	0.386417	-0.03704	-0.04572	0.508345	-0.02862
2006	0.337855	0.023906	-0.35968	0.317472	-0.01102	0.401536	0.794392	0.593386	-0.12896	-0.04571	-2.05255	-0.02609
2007	0.201304	0.165391	-0.18779	0.021978	0.006674	-0.32482	0.2154	0.346474	0.006844	-0.06634	-1.60164	-0.08601
2008	0.090226	0.225483	-0.02006	0.128535	0.006121	1.688814	0.081414	0.42466	0.101352	0.027596	-1.20439	-0.07917
2009	0.145331	-0.10748	-0.3033	0.099689	-0.05032	-0.64809	-0.10934	-0.08248	-0.13813	0.118202	9.249781	-0.19791
2010	0.042433	0.1581	0.052187	0.168285	0.018987	-0.57101	-0.968	0.161297	0.096541	0.024319	-2.24078	0.012836
2011	0.00519	0.113447	0.152922	0.020314	0.033066	2.539792	51.79491	0.39837	0.140883	0.120879	-0.63868	0.31967
2012	0.173258	0.064553	-0.2466	0.126697	-0.00828	-0.33123	1.303816	0.055025	-0.03522	-0.04821	1.057695	0.077387
2013	0.067491	-0.04432	-0.13869	0.024096	0.009833	-0.39031	-0.23806	0.090601	0.073098	0.018849	-0.0021	-0.01511
2014	0.082138	0.044306	-0.1011	0.198431	0.01821	0.203002	-0.65842	0.234688	0.218476	0.020892	-0.11242	-0.0023
2015	0.00452	-0.03413	-0.13048	0.00148	-0.02141	-0.04303	2.137176	-0.21852	0.063069	0.116652	-0.24006	0.060633
2016	0.043713	-0.03578	-0.17166	-0.03767	-0.01796	-0.0433	-0.54722	-0.11364	-0.03074	0.033876	0.614044	0.04199
2017	0.072923	0.009211	-0.03776	0.080084	0.023495	0.271323	-0.14259	0.379151	-0.06805	0.018774	-0.44093	0.025737
2018	0.10131	0.052918	-0.13186	-0.00391	-0.01879	-0.41419	-1.02604	-0.00329	-0.05888	-0.02039	0.500502	0.233474
2019	0.067341	-0.03516	-0.13538	0.045013	0.00099	0.116431	-11.6289	0.038807	-0.01175	0.006809	-0.07739	-0.04166
2020	-0.01717	0.033271	-0.12743	0.022949	-0.00337	0.032269	-4.81669	-0.10398	0.042741	0.043724	-0.14257	0.092003
2021	0.068901	0.117023	0.054145	0.108254	-0.00492	0.130642	-3.64028	0.25226	-0.03193	0.029938	0.106178	0.113026

Table A3: Regression of TOP Impact on GDPCAP

Source	SS	Df	**MS Number of obs**		41
			F(10, 30)		16.28
Model	0.480557	10	**.048055721 Prob > F**		0
Residual	0.088561	30	**.002952025 R-squared**		0.8444
			Adj R-squared		0.7925
Total	0.569118	40	**.014227949 Root MSE**		0.05433
GDPCAP	**Coefficient**	**Std. err.**	**T**	**P>t [95% conf.]**	**interval]**
TOP	-0.31964	0.081295	-3.93	0.000 -.4856635	-0.15361
PCAP	0.462767	0.100953	4.58	0.000 .256593	0.668941
GNEX	0.310528	0.431329	0.72	0.477 -.5703621	1.191419
INF	0.017028	0.008765	1.94	0.061 -.0008724	0.034927
FDI	1.73E-05	8.31E-05	0.21	0.836 -.0001523	0.000187
TRADE	-0.00068	0.000625	-1.08	0.287 -.0019536	0.000598
DCREDIT	-0.08518	0.12331	-0.69	0.495 -.3370099	0.166654
FXT	-0.14304	0.142022	-1.01	0.322 -.4330912	0.147005
RATE	0.001646	0.005611	0.29	0.29 0.771 -.0098136	0.013106
REMIT	6.43E-05	0.009393	0.01	0.01 0.995 -.0191184	0.019247
_cons	0.018059	0.018247	0.99	0.99 0.330 -.0192063	0.055324

Table A4: Regression of EXPV Impact on GDPCAP

Source	**SS**	**df**	**MS**	**Number of obs**	**41**
			F(10, 30)		10.18
Model	0.439562	10	**.043956165**	**Prob > F**	0
Residual	0.129556	30	**.004318543**	**R-squared**	0.7724
			Adj R-squared		0.6965
Total	0.569118	40	**.014227949**	**Root MSE**	0.06572
GDPCAP	**Coefficient**	**Std. err.**	**T**	**P>t [95% conf.**	**interval]**
EXPV	0.109711	0.105833	1.04	0.308 -.106428	0.32585
PCAP	0.348256	0.129152	2.70	0.011 .0844925	0.612019
GNEX	0.120828	0.522046	0.23	0.819 -.9453314	1.186988
INF	0.023758	0.01044	2.28	0.030 .0024369	0.045079
FDI	-6.5E-05	9.82E-05	-0.66	0.516 -.000265	0.000136
TRADE	-0.00057	0.000775	-0.74	0.467 -.0021548	0.001012
DCREDIT	-0.17745	0.153399	-1.16	0.256 -.4907312	0.135832
FXT	-0.59668	0.097008	-6.15	0.000 -.7948	-0.39857
RATE	0.009119	0.006634	1.37	0.179 -.0044293	0.022666
REMIT	0.001838	0.011644	0.16	0.876 -.0219415	0.025617
_cons	0.063112	0.016581	3.81	0.001 .0292495	0.096975

Table A5: Regression of TOP and EXPV Impact on GDPCAP

Source	**SS**	**df**	**MS**	**Number of obs**		**41**
			F(11, 29)			25.35
Model	0.515513	11	**.046864775**	**Prob > F**		0
Residual	0.053605	29	**.001848463**	**R-squared**		0.9058
			Adj R-squared			0.8701
Total	0.569118	40	**.014227949**	**Root MSE**		0.04299
GDPCAP	**Coefficient**	**Std. err.**	**t-stat**	**P>t**	**[95% conf.**	**interval]**
EXPV	0.338861	0.077924	4.35	0.000	0.1794887	0.498233
TOP	-0.46407	0.072397	-6.41	0.000	-0.6121375	-0.316
PCAP	0.342989	0.0845	4.06	0.000	0.1701662	0.515811
GNEX	0.721943	0.354183	2.04	0.051	-0.0024429	1.446329
INF	0.006737	0.007328	0.92	0.366	-0.0082511	0.021724
FDI	2.61E-05	6.58E-05	0.4	0.695	-0.0001084	0.000161
TRADE	-8.3E-05	0.000513	-0.16	0.873	-0.0011319	0.000966
DCREDIT	-0.18748	0.100372	-1.87	0.072	-0.3927619	0.017804
FXT	0.089762	0.124483	0.72	0.477	-0.1648346	0.344358
RATE	0.002848	0.004449	0.64	0.527	-0.006251	0.011947
REMIT	0.008679	0.007692	1.13	0.268	-0.0070527	0.024412
_cons	-0.01535	0.016356	-0.94	0.356	-0.0487996	0.018102

Appendix 2

Table A6: Stationarity Test-ADF

Variable	Type of Test	Form of Test	Test Statistics	Critical Value at 5%	Conclusion
GDPCAP	ADF	Intercept	-4.275	-2.958	Stationary *I*[0]
EXPV	ADF	Intercept	-7.188	-2.958	Stationary *I*[0]
TOP	ADF	Intercept	-5.875	-2.958	Stationary *I*[0]
PCAP	ADF	Intercept	-4.699	-2.958	Stationary *I*[0]
GNEX	ADF	Intercept	-6.751	-2.958	Stationary *I*[0]
INF	ADF	Intercept	-8.105	-2.958	Stationary *I*[0]
FDI	ADF	Intercept	-6.327	-2.958	Stationary *I*[0]
TRADE	ADF	Intercept	-6.550	-2.958	Stationary *I*[0]
DCREDIT	ADF	Intercept	-7.635	-2.958	Stationary *I*[0]
FXT	ADF	Intercept	-5.320	-2.958	Stationary *I*[0]
RATE	ADF	Intercept	-7.154	-2.958	Stationary *I*[0]
REMIT	ADF	Intercept	-7.002	-2.958	Stationary *I*[0]

Table A7: Normality Test

Jarque-Bera Normality Test	0.0795 Chi(2)	0.961
Jarque-Bera test for H0: normality		

Table A8: Heteroskedasticity Test

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable Fitted values of GDPCAP
H0: Constant variance
chi2(1) = 0.96
Prob > chi2 = 0.3275

Table A9: Autocorrelation Test

Breusch-Godfrey LM test for Autocorrelation			
lags (p)	chi2	df	Prob > chi2
1	0.028	1	0.8679
	H0: no serial correlation		

Table A10: Granger Causality

Granger Causality Wald Test				
Equation	**Excluded**	**chi2**	**df**	**Prob > chi2**
EXPV	TOP	3.2876	2	0.193
EXPV	ALL	3.2876	2	0.193
TOP	EXPV	3.4951	2	0.174
TOP	ALL	3.4951	2	0.174

Appendix 3

Data Used in the Research: Contains Stata Files, Data Set for other Variables in Excel Workbook

https://drive.google.com/drive/folders/185qpDPHkWPUhWVpcuI9I1bgK6JSFTgBC?usp=drive_link