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Trade Openness, Export Quality and Economic Growth Nexus in Kenya

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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 them 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 Kenya to experience similar measures from its trading partners.

Keywords: *Export quality, trade openness*

1. Introduction

1.1. Background

The term 'trade openness' is typically used to indicate the extent to which 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 and 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 remain 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 prevents trade from leading 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 that 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 as 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 also allows for knowledge spillover by facilitating technology transfer (Coe & Helpman, 1995). 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.

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 & Ngepah, 2021). Further, Oloyede et al. (2021) established that the 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 to promote trade openness have yielded Kenya's desired economic growth.

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). Consequently, 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 Kenyan government implemented further efforts to liberalize trade 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). 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].

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). 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).

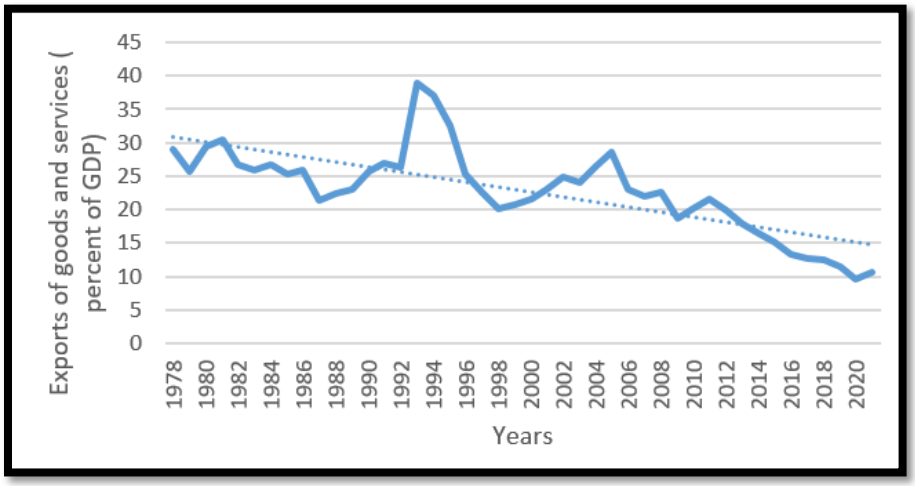

Figure 1: Export as Percentage of GDP
Source: (The World Bank Database, 2022)

Figure 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. There was 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 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.

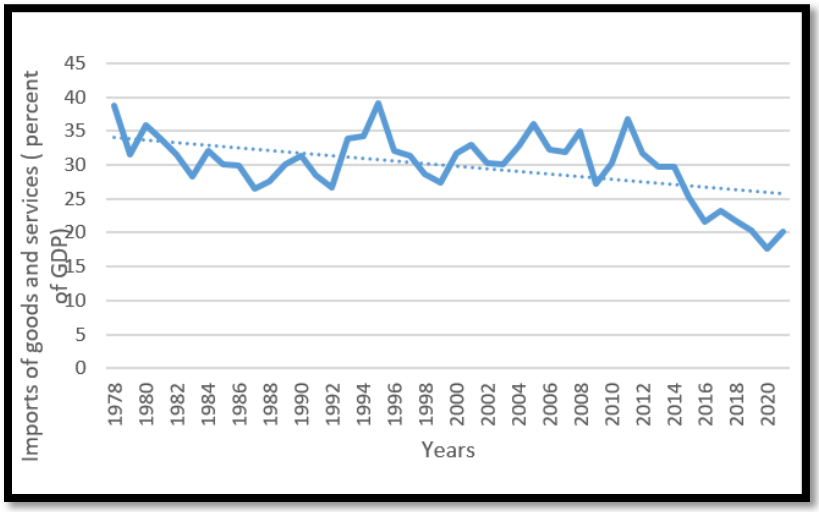

Figure 2: Imports as a Percentage of GDP
Source: (The World Bank Database, 2022)

Figure 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 2). However, the decline was smaller than that of exports. Figures 1 and 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 2) is larger than that of exports to GDP (Figure 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.

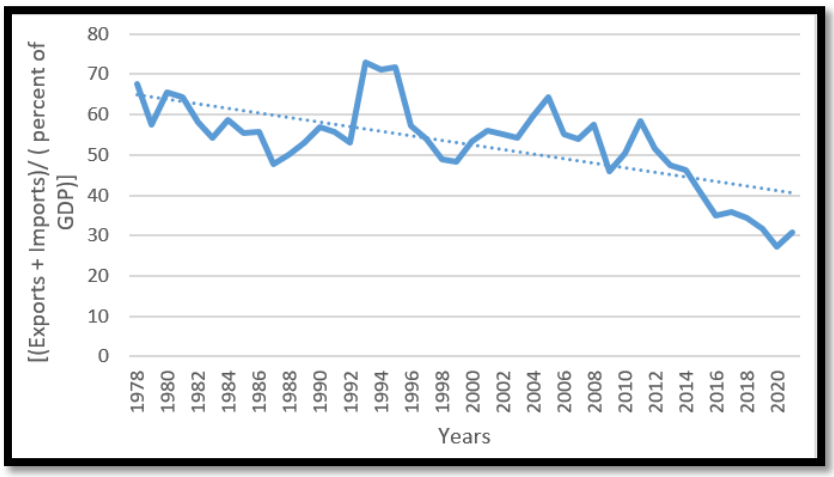

Figure 3: Trade Openness in Kenya
Source: (Extracted from Figure 1 and Figure 2 Data)

Figure 3 is extracted by summing up figures 1 and 2. Figure 3 shows Kenya's level of 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. Scholars have 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 import quality. The studies highlight the importance of export quality in enabling economic growth.

1.1.2.1. Export Quality in Kenya

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 of adding value to Kenya's products. 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 Kenya's quality over the years can provide insight into the effectiveness of the country's efforts to enhance the overall quality and value of its exported goods and services.

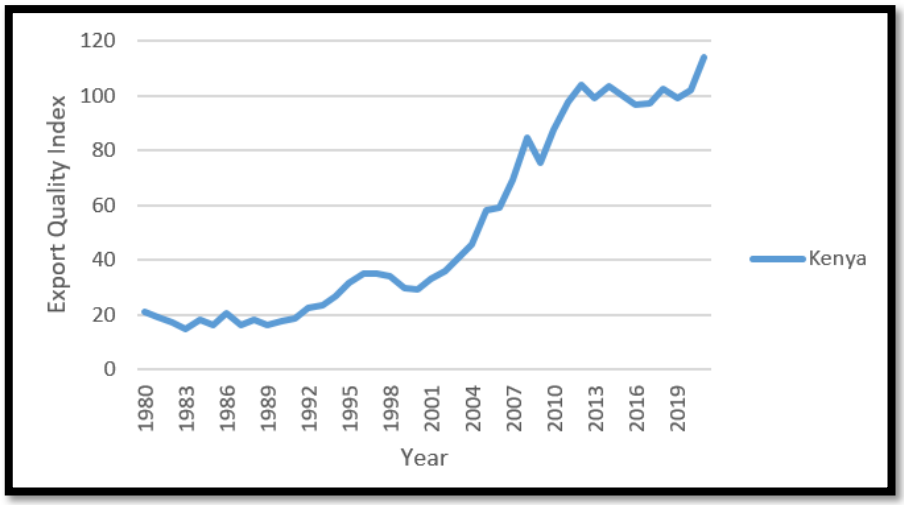

Figure 4: Export Quality of Kenya from 1960-2020

Figure 4 shows Kenya's export quality has substantially increased from 1960 to 2020. The quality of Kenya's exports has significantly increased over the years. The export quality index has ranged at around 100 points from 2011 to 2020, indicating stagnation in the quality of exports from Kenya for a very long period, 10 years. Stagnation in the 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

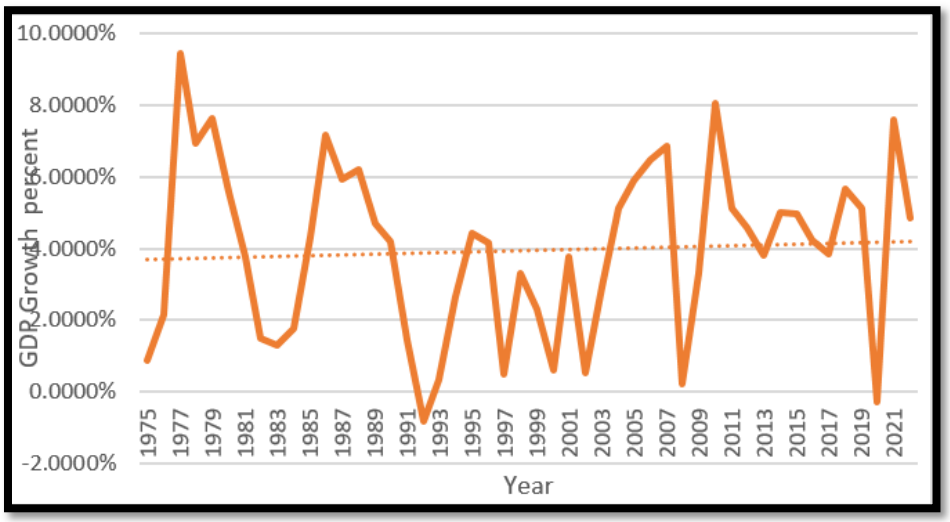

Figure 5: GDP Growth (Annual Percent) Kenya
Source: (The World Bank, 2022)

Kenya's GDP growth fluctuated between 8 percent and -1 percent from 1979 to 2021 (Figure 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 0 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).

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 to add value to its exports, the country appears not to enjoy export-led growth (Figure 1). The contribution of exports to Kenya's GDP has been declining, as shown in figure 1. Further, the quality of Kenya's exports has largely stagnated since 2011, as shown in figure 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. Vision 2030 program aims to enhance trade openness through policy, legal, and institutional reforms.

Even with all the above efforts to enhance Kenya's international trade, a casual look at figure 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 Objectives

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

- To determine the impact of trade openness on the economic growth of Kenya.
- To establish the effects of the quality of exported products on economic growth in Kenya.

2. Literature Review

2.1 Theoretical Literature Review

2.1.1. 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. This theory helps explain why protectionism fails and justifies the need for trade openness.

2.1.2. 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 Cobb-Douglas production function is effective in the empirical analysis of the Solow-Swan growth model (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).

2.1.2.1. 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.

2.1.3. 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 neo-classical models (Martin & Sunley, 2008). Furthermore, Martin and Sunley (2008) opine that endogenous growth theory is superior to neo-classical 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).

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

Where:

ΔA is technological progress,

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

In this regard, economic output is directly dependent on the levels of internal development within an economy, including the rate productivity, which depends on growth in technology, accumulation of human capital (dependent on research and knowledge transfer), and growth in physical capital. Therefore, aggregate output can be illustrated as follows:

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

Where:

Y= Aggregate output
A= Public stock of knowledge
R= Share of expense in research and development
K_i= Physical capital
L_i= 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). 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 enhance cases of knowledge spillover occasioned through interactions with foreign products, foreign workers, traders/entrepreneurs, investors and researchers. Therefore, 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.

2.2. 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 impact the 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 lead 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 in Kenya. In this regard, Kenya is likely to develop like nations with dynamic economic structures rather than those dependent on natural resources.

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 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.

2.3. 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 quality and variety of internationally traded products on its economic growth (Kiganda et al., 2017). Accordingly, this research analyzes the relationship between trade openness and economic growth in Kenya while considering the quality of Kenya's exports.

3. Research Methodology

3.1. Theoretical Framework

This study adopted a modified endogenous growth model. Solow's (1956) neo-classical classical growth theory asserts that economic growth is a function of capital and labour. However, technology helps augment labor productivity by increasing the output capabilities of labor.

$Y = AF(K, L)$ …… 3.1

Y= Gross domestic product (GDP)

K= Share of physical capital

L= Unskilled labor in an economy

A= Level of technology

The neo-classical 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 is as follows:

$Y_t = f(K_t, H_t, x(TOP_t, EXV_t, Z_t)$……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*.

3.2. 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:

$$GDPCAP_t = \alpha 0 + \alpha 1TOP_t + \alpha 3PCAP_t + \alpha 4GNEX_t + \alpha 5INF_t + \alpha 6FDI_t + \alpha 7TRADE_t + \alpha 9DCREDIT_t + \alpha 10FXT_t + \alpha 11RATE_t + \alpha 12RATE_t + \mu_t \quad \text{3.3}$$

Objective 2:

$$GDPCAP_t = \alpha 0 + \alpha 2EXPV_t + \alpha 3PCAP_t + \alpha 4GNEX_t + \alpha 5INF_t + \alpha 6FDI_t + \alpha 7TRADE_t + \alpha 9DCREDIT_t + \alpha 10FXT_t + \alpha 11RATE_t + \alpha 12RATE_t + \mu_t \quad \text{3.4}$$

Model with both TOP and EXPV:

$$GDPCAP_t = \alpha 0 + \alpha 1TOP_t + \alpha 2EXPV_t + \alpha 3PCAP_t + \alpha 4GNEX_t + \alpha 5INF_t + \alpha 6FDI_t + \alpha 7TRADE_t + \alpha 9DCREDIT_t + \alpha 10FXT_t + \alpha 11RATE_t + \alpha 12RATE_t + \mu_t \quad \text{3.5}$$

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 and effectively enable 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.

α, 1, 2, 3 ……: The coefficients estimate.

μ_t: The error term.

3.2.1. 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). According to Henn et al. (2014), unit values are a suitable measure of quality, and prices are a good and observable proxy for quality. In this research, the World Bank dataset indicating export quality was preferred since it provided sufficient data for the study. 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, FoB) – valued in US dollars and expressed as a percentage of the average for the base period (2015).

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

Table 1: Measurement of Variables
Source: Author

3.3. 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.

4. Empirical Findings and Discussions

4.1. Diagnostic Test Results

The research used time series data to analyze the model. However, time series data is susceptible to spurious results, which necessitates checking the properties of the data (Gujarati, 2004). For analyzing the quality of the data, the research involved performing unit root and cointegration tests. The level of economic growth was measured using GDP.

4.1.1. 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 determine the order of integration of the variables. An ADF test was run at the first difference, and the constant term was suppressed. The study observed that all variables were stationary, as shown in table 1. 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 likelihood that the data is stationary.

4.1.2. Normality Test

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

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

Table 2: Jarque-Bera Normality Test
Source: Author Computation

4.1.3. Heteroskedasticity Test

The Breusch-Pagan/ Cook-Weisberg test showed there is no heteroskedasticity among the variables.

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 3: Heteroskedasticity Test
Source: Author Computation

4.1.4. Autocorrelation Test

Breusch-Godfrey's LM test showed there was no autocorrelation in the model.

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

Table 4: Autocorrelation Test
Source: Author Computation

4.1.5. 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.

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

Table 5: Granger Causality
Source: Author Computation

4.2. Empirical Findings from Regression

The ordinary least square (OLS) technique was employed, and multiple linear regression estimation was performed to analyze the variables. Multiple linear regression estimation was suitable since the variables were confirmed to be stationary and 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. Multiple linear regression was implemented for equations 3.3 and 3.4. In the multiple linear regression for equation 3.3, the adjusted R-squared for the model was 0.7925, indicating that about 20 percent of factors impacted the GDPCAP were not explained in the model.

The second objective of the study was to establish the impact of export quality on Kenya's economic growth. In the multiple linear regression for equation 3.4, the adjusted R-squared for the model was 0.6995, indicating that about 30 percent of factors impacted the GDPCAP were 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.

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

Source	SS	df	MS	Number of obs		41
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

Table 6: Regression of TOP and EXPV Impact on GDPCAP
Source: Author Computation

4.2.1. 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 growth in Kenya. The effect of trade openness on Kenya's economic growth was significant at a 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 the country mainly trades, which are vulnerable to trade shocks.

4.2.2. Discussion of Objective Two

The study established that 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 growth. 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 exporting primary products and resource-based manufacturers enjoyed high economic growth because of the high demand for commodities between 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.

4.2.3. Discussion Focusing on Other Variables in the Estimate Model

The research established that there is a positive and significant relationship between gross fixed capital formation (PCAP) and economic growth in Kenya. PCAP enables economic growth by facilitating the 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 of 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 that 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 growth. 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 non-linear 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 that there is a negative relationship between GDP and DCREDIT, and it is significant. The findings of Begum et al. (2018) correspond to the results of this study. The findings of this paper indicate a need for financial institutions to manage the provision of credit to the private sector to ensure sustainable credit financing.

The study established a positive but not significant relationship between the 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, the 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 that 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.

5. Conclusion and Recommendations

5.1. Conclusion

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 Kenya'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 research established that export quality leads to an increase in economic growth. Upgrading the quality of Kenya's exports can help attain the desired economic growth. Additionally, the study established that there is a positive and significant relationship between gross fixed capital formation (PCAP) and economic growth in Kenya. The study also established that there is a positive and significant relationship between gross national expenditure (GNEX). The research established that domestic credit to the private sector (DCREDIT) negatively and significantly impacts economic growth. 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.

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 terms of quality or cost of traded goods and services. However, the Granger causality test shows that there is no causality between export quality and trade openness in Kenya. Therefore, quality is not the factor undermining the effect of trade openness on Kenya's economic growth. Accordingly, only cost remains an impediment to trade openness that does not enable economic growth in Kenya. Therefore, Kenya should reduce the cost of doing business in the country by providing reliable and affordable electricity and transport, creating friendly tax regimes for corporations, and eliminating corruption, which typically adds to operating costs.

5.2. 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 in 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. 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.

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 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 the costs of doing business.

6. Conflicts of Interest Statement

The author declares no conflicts of interest.

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