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Influence of Inflation, Investment and Openness on Performance of Kenya's Exports (1997-2021)

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Abstract
The performance of Kenya's exports has been poor, yet, to achieve a middle-income status by 2030 through sustaining a 10% annual Gross Domestic Product (GDP) growth rate as per the Vision 2030, Kenya has to grow the export sector. Little is known about the results of policy efforts made towards this end over the past two decades. This study therefore evaluates the effect of Kenya's competitive advantage, inflation, investment and exchange rate on the performance of Kenya's exports over the period 1997-2021. Time series data was used and Autoregressive Distributed Lag (ARDL) model was estimated. The unit root test results found that all variables were stationary at first difference. The ARDL model results showed that revealed comparative advantage, gross capital formation, openness has a long-run positive effect on export performance, while; exchange rate and real interest rate had a negative long-run effect on the exports. In the short-run comparative advantage, investment and openness have positive effect, whereas; real interest rate, exchange rate and inflation rate had a negative effect on the exports. It is therefore recommended that Kenya should enhance investment in the industries they have a competitive advantage in; continue pursuing openness policies; maintain low inflation and interest rates and stabilize the exchange rate.

Introduction

The foreign sector is a vital sector in Kenya's economy and its contribution to economic growth and development of the economy has been acknowledged. Kenya's foreign trade has been volatile over the years with value of exports for example increasing from KES.595b in 2019 to KES.642b in 2020 and value of imports reducing from KES.1.81tr to KES.1.65tr over the same period (KAM, 2022). According to World Bank (2022) Kenya's main exports destination in 2020 by region and country were; Cub-Saharan Africa (34.80%), Europe and Central Asia (26.86%), Middle East and North Africa (12.44%) Uganda (11.18%), South Asia

(1021%), Pakistan (8.53%), North America (7.90%), United Kingdom (7.79%), United States (7.70%) Netherlands (7.60%), United Arab Emirates (5.37%). The trading partners are therefore dispersed.

At the beginning of the 21st century, Moyi and Kimuyu (1999) observed that Kenya has been gradually losing its competitiveness in export markets. According to the World Bank (2017), Kenya's economy has been based on domestic consumption (contributing to 75% of the GDP) with exports being a weak engine that has been declining in importance. The export performance is below its potential with foreign earnings not able to service the oil imports, let alone other imports. This means that the current economic imbalance is unsustainable, and the country may not achieve high growth rate in the near future as anticipated in the Vision 2030 plan. Kenya's export growth according to Wamalwa and Were (2021) has remained sluggish despite shifting its trade strategy from import substitution to trade liberalization and export promotion policies since 1990. The only success story of Kenya cited is in horticultural exports with it being attributed to favorable climatic conditions, early experience with Asian vegetables from immigrants in Europe, backward linkages of the thriving tourism industry and Kenya's favorable (though far from perfect) policies (UNCTAD, 2008).

Improved competitiveness of the export sector was expected to aid in sustaining investment in the sector and spur increased focus by the government in promotion of strategic policies for high and sustained economic growth. According to WB (2012, 2014), Kenya's manufacturing sector lost its international competitiveness with key constraint being weak business environment, but it still has great potentials. Among the critical needs of the sector are: access to capital for investment, efficient infrastructure to import inputs and export finished products, affordable and reliable electricity, competitive labor, fair regulations and trade policies.

According to International Monetary Fund (IMF), Kenya's export performance relative to its peers within the East African Community (EAC) and Sub-Saharan Africa (SSA) in the region has lagged, with overall exports to the rest of the world concentrated in products having low market growth and stiff competition from low-cost producers (IMF, 2021).

According to the *The East African Standard* (Wed 17th Aug 2022), high production cost relative to the continental average, has been cited by Kenya Association of Manufacturers (KAM) as a major reason for Kenya's loss of competitiveness in the region. The competitiveness of Kenya's industrial sector as per Competitive Industrial Performance (CIP) index world ranking is 112 (KAM, 2022). The pursuance of Africa free trade area policy (five-year National Africa Continental Free Trade Agreement (AfCFTA) Implementation Strategy of 2022-27) and more openness in existing regional trade arrangements are expected to improve trade in the region with Kenya benefiting through expanded opportunities for its industries.

A study by Githaiga (2021) revealed that Kenya, relative to China, lacks a comparative advantage for manufactured exports due to; non-existence of comprehensive trade policy and strict rules of origin, inadequate investment, limited value addition and high labor costs.

The main policy objective of Kenya's National Industrialization Policy (2012) was to improve Kenya's competitiveness in the global arena by: attracting investment, attainment and sustenance of 15% annual growth rate. This was further enhanced through: the development of Kenya Industrial Transformation Program (KITP) from 2015, which gave a 10-year plan for development of region-specific clusters for reviving manufacturing and industrial exports, and; enactment of Special Economic Zones (SEZs) Act and establishment of Special Economic Zones Authority (IMF, 2021).

Problem Statement

The world is increasingly becoming more competitive and Kenya's export sector performance continues to be poor. To achieve and sustain an average GDP growth rate of 10% for the purpose of achieving Vision 2030 goals the, export sector has to grow through increased competitiveness. Serious concerns about low levels of investment in the manufacturing sector and in Research and Development (R&D) combined with high costs of inputs have been raised. As much as there are many policy efforts made to promote Kenyan exports, there is still little empirical evidence on the influence. Consequently, this study's purpose was to evaluate the influence of Kenya's policy towards promotion of its exports over the period 1997-2021. In particular, the authors address the effect of investment, production costs and openness on Kenya's export performance in the stated period.

Significance, Scope and Limitations

The persistent increase in foreign trade deficit has been a concern to policy makers. Since the implementation of export promotion policy little progress has been made to improve the competitiveness of Kenya's export sector. The increased competitiveness of the neighboring countries and the expanded regional market has caused firms to shift their investments and operations away from Kenya and should be addressed to reverse the loss. Formulation of appropriate policies to boost the export sector will not only lead to increased foreign exchange earnings but also enable expansion of the external market, financing of essential imports, facilitate servicing of the existing heavy foreign debt, reduce unemployment problem, greater development of feeder industries, growth of import substitution industries, sustained high GDP growth rate and improve the overall welfare of the citizens. The results of the study are therefore beneficial to policy makers at different levels, enabling them implement necessary policy changes to make Kenya's exports more competitive.

This study was however limited to examining the gross capital formation, gross fixed capital formation and real interest rate to represent investment factors; revealed comparative advantage, openness and exchange rate to represent the dimension of openness, and; inflation rate to represent changes in production costs. The study period was 1997-2021 whose data was available from the World Bank and World Economic Outlook.

Literature Review

Isard (1954) propounded the gravity model, where the volume of bilateral trade is said to be proportional to the economic mass of the two countries trading and the distance between them. The model is summarized in the equation,

$$F_{ij}=G(M_iM_j/D_{ij});$$

where: F_{ij} is the volume of trade between two countries *i* and *j*;

G is a constant;

M_i and M_j is the economic mass of each of the two countries, and;

D_{ij} is the distance between the two countries.

It can be adduced that the interactive levels of corruption between the two countries can also contribute to the volume of trade.

According to Marshall-Lerner condition, real exchange rate depreciation may improve current account balances if price elasticities for demand of imports and demand for exports exceed unity in absolute terms (Caporale *et al.*, 2015) Real exchange does determine exports and imports especially where the intervention measures such as devaluation or overvaluation policies are applied by the government. Misalignment in exchange rate in developing countries has often been in form of overvaluation with the consequences more amplified where the other trading partner country deliberately applies devaluation. In a study by Otieno (2014) on Kenya's exports and real exchange rate volatility, real exchange rate has been found to influence export sector performance, with overvaluation resulting in lower price of foreign goods relative to domestic goods and hence an increase decline in exports. However, the extent of the impact on trade will depend on the elasticity of demand for the imports and exports. As much as the flexible exchange rate regime has been effective since early 1990s, a study Mwega (2013) that sought to determine if the real exchange rate in Kenya was over-valued; admitted that in 2012 a slight misalignment of an overvaluation by 4.3% happened. This implies that overvaluation may happen even under flexible exchange rate regime as a result of interventions by the Central Bank of Kenya (CBK) authorities – CBK exchange rates have often been lower than the market exchange rate. As elucidated by Oduor and Khainga (2010) exchange rate misalignments have adverse effects that include: resource misallocation in sectorial production; trade pattern distortions; distortion of debt repayment schedules among others.

Based on the revealed comparative advantage theory according to Heckscher-Ohlin (also known as factor proportion theory) model, the relationship between proportions in which different factors of production are attained may differ from country to country. The interaction between the factors and production technology determines the comparative advantage that a country may enjoy. Increased strategic investment in export-oriented industries is expected to reduce production costs and improve the competitiveness of a country's exports (Krugman & Obstfeld, 2009). Pally (2008) notes that comparative advantage is not endowed, but it is created through deliberate human action and policies.

A study by Elbadawi (1998) on the real exchange rate policy and non-traditional exports in 60 developing countries revealed that real exchange rate variability negatively affected the exports.

Mukhtarov *et al.* (2019) studied the impact of foreign direct investment on exports in Jordan over the period 1980-2018 employing an ARDL model and found a significant positive effect of gross capital formation on exports, but a significant negative effect of real exchange rate on exports.

A study of Jambi Province by Syekh and Zainuddin (2021) on the relationship between exports, gross domestic capital formation, transfer fund allocation and private investment using Vector Error Correction Model (VECM) found that both in the short and long term, the gross domestic capital formation and private investment explain changes in exports.

According to Cheboi (2014) in a study to assess factors determining performance of Kenya's manufactured exports over the period 1980-2012 using error correction model, infrastructure development, human development, real exchange rate was found to be significant in positively explaining the performance of manufactured exports.

A study on competitiveness of Kenya's cut flower exports to the EU market by Yego *et al.*, (2018) using revealed comparative advantage (RCA) showed that Kenya has a comparative advantage against Malaysia, Germany, Italy, Belgium, Israel, Netherlands and Columbia but a comparative disadvantage against Ethiopia. Real interest rate, real exchange rate and foreign income were found to explain the comparative advantage.

A study by Matiy (2020) on macroeconomic factors affecting the performance of manufactured exports in Kenya employed Vector Error Correction Model (VECM) and found that foreign domestic investment and trade openness positively affected Kenya's manufactured exports while real effective exchange rate and terms of trade had a negative effect.

A study on the effects of foreign direct investment (FDI) on Kenya's manufacturing exports to regional trade blocs in Africa by Ruto *et al.* (2019) revealed that FDI has a significant positive effect on the manufacturing exports.

The conceptual framework adopted has the dependent variables as exports, whereas the independent variables are; inflation rate (proxy of production costs), gross domestic capital formation, gross domestic fixed capital formation, comparative advantage, openness, real exchange rate and real interest rate.

Methodology

This study employs causal research design using time series data over the period 1997-2021. Data for Kenya on exports, inflation rate, gross domestic capital formation, gross domestic fixed capital formation, revealed comparative advantage, openness, real exchange rate and real interest rate was collected from the World Bank, World Outlook and Kenya National Bureau of Statistics (KNBS).

Revealed comparative advantage index (RCA) as given by Balassa (1965) and also known as B index is used herein to measure competitiveness. The index is based on countries' relative shares of world (or regional) exports of different products (Laursen, 2015). According to Stellian and Danna-Buitrago (2022), the B index remains a standard RCA index in literature over 50 years since its creation.

Unit root test for stationarity and Autoregressive Distributed Lag model (ARDL) were used to analyse the data.

The general model adopted is,

$EX_{ki} = f(GCF_t, GFCF_t, RIR_t, INF_t, RCAI_t, REXR_t, OPEN_t)$

Where: *EX* = Value of exports

RCAI= Revealed comparative advantage index

GCF = Gross capital formation as a % of GDP

GFCF =Gross fixed capital formation as a % of GDP

RIR = Real interest rate

OPEN = Openess of the economy

EXR = Exchange rate

INF = Inflation rate

The objectives were achieved through testing for the significance of the coefficients in the above models.

Results and Discussion

The results of the unit root test are as given in Table 1, where the variables were all found to be stationary at first difference at 5% significance level.

Table 1: Results of the Phillips-Perron Unit Root Tests

Variable	Variable in its level	First difference	P-value
RCAI	-10.532	-32.487***	0.000
GCF	-5.215	-22.749***	0.000
GFCF	-5.177	-25.375***	0.000
RIR	-10.716	-33.695***	0.000
OPEN	-0.800	-22.460***	0.000
EXR	-1.352	-20.774***	0.000
INF	-20.450	-27.970***	0.000

Notes: The null hypothesis is that the series is non-stationary or contains a unit root.

*** denotes significant at 1%

Long-run ARDL Regression

Since revealed comparative advantage index and its determinants are cointegrated, the long-run parameters of the ARDL model are estimated and the results presented in the Table 2. The long-run ARDL model was estimated based on the Akaike Information Criterion (AIC) using a lag of one given the annual nature and relatively short sample properties of the data.

Table 2: Estimated Long-Run Coefficients using the ARDL Approach

ARDL (1, 2, 1, 1, 1, 2, 0, 1) selected based on AIC

Variable	**coefficient**	**Std. Error**	**t**	**P>|t|**
RCAI	0.164***	0.29	5.601	0.006
GCF	0.011**	0.005	2.33	0.034
GFCF	0.028**	0.010	2.78	0.021
EXR	-0.003**	0.001	-2.93	0.010
OPEN	0.066**	0.033	2.03	0.041
RIR	-0.002*	0.001	-1.99	0.065
INF	-0.002	0.001	-1.53	0.146
CONS	0.190*	0.100	1.89	0.078

$R^2 = 0.6915$ *F-Stat. F(7,15)=4.80*

$Adjust R^2 = 0.5475$ *Prob >F =0.0052*

Durbin-Watson d-statistic (8, 23) = 2.102914

S.E. of Regression =0.02337

The results show that the coefficients for gross domestic capital formation, gross fixed domestic capital formation and openness are all statistically significant and hence they positively influence export performance in the long-run. The results correspond with those expected under priori grounds where increased investment on fixed capital formation that include infrastructure is expected to improve the competitiveness of a country's exports internationally. This is in tandem with the study by Cheboi (2014) where increase in investment on infrastructure and human development is expected to improve the performance of exports; Syekh and Zainuddin (2021) where gross domestic capital formation and private investment positively influenced export fluctuations, and; Mukhtarov *et al.* (2019) who got a positive impact of gross capital formation on Jordan's exports. Interest rate does not however explain long-run changes in exports of Kenya and this can be attributed to high interest rates that have persistently remained so for several decades.

The coefficients of revealed competitive advantage and openness have significant positive values and hence have positive influence on export performance, whereas; exchange rate has a significant negative effect on export performance. These also tally with priori expectations where improved competitive advantage is expected to boost exports of a country. According to the comparative advantage theory, openness is expected to increase trade between trading partners. This finding agrees with the study by Matiy (2020) where openness was found to positively influence Kenya's exports. Real exchange rate is also expected on priori grounds to have a negative effect on exports, such that a depreciation or devaluation of a country's currency is expected to make exports to be less expensive and hence higher demand for exports. The study also corresponds to that of Matiy (2020), Mukhtarov *et al.* (2019) and Elbadawi (1998).

According to the results, inflation rate has no influence on Kenya's exports and appears to be contrary to priori expectation. This could be as a result of some adjustment in relative prices in the long run that dampen the effect of inflation on exports.

Results of the Short Run Dynamic Model

Once the long-run cointegrating model has been estimated, the next step is to model the short-run dynamic parameters within the ARDL framework. Thus, the lagged values of all level variables (a linear combination is denoted by the error-correction term, ecm_{t-1}) is retained in the ARDL model. Table 3 presents the results of the estimated error-correction model using the ARDL technique. The model is selected based on the AIC.

Table 3: Estimated Short-Run Error Correction Model using the ARDL Approach **(1,2,1,1,1,2,0,1) selected based on AIC**

Variable	coefficient	Std. Error	T	P>|t|
DRCAI	0.352**	0.157	2.25	0.042
DGCF	0.065**	0.024	2.68	0.019
DGFCF	0.011***	0.031	3.66	0.003
DRIR	-0.001	0.001	-1.37	0.194
DOPEN	0.002**	0.001	2.47	0.028
DEXR	-0.003**	0.011	-2.90	0.012
DINF	-0.001***	0.001	-3.21	0.007
ECM	-0.539**	0.230	-2.35	0.036
CONS	0.013**	0.006	2.04	0.062

$R^2 = 0.8297$ *F-Stat. F(8,13)=7.92*

Adjust $R^2 = 0.7249$ *Prob >F =0.0006*

Durbin-Watson d-statistic (9, 22) = 1.860463

S.E. of Regression =0.01694

The results indicate that the coefficients of first difference of revealed comparative advantage, gross domestic capital formation, gross fixed domestic capital formation are positive and statistically significant at 5% level. Hence in the factors positively influence changes in export performance in the short-run. This again is in tandem with priori expectations and other previous studies (Cheboi, 2014; Syekh & Zainuddin, 2021, Mukhtarov *et al.*, 2019). Interest rate however again has no effect on export performance.

The revealed comparative advantage and openness have significant positive effect on Kenya's exports performance in the short-run. This agrees with priori expectations and other studies (Matiy, 2020). Exchange rate has a significant negative effect on exports and also corresponds to priori expectations and other studies such as of Mukhtarov *et al.* (2019) and Elbadawi (1998).

Interestingly, inflation rate has short-run negative impact on export performance and tallies with priori expectations since inflation (proxy for production costs) makes Kenyan exports more expensive in the international market and hence reduces the exports.

As per the ECM coefficient as expected is negative and significant, hence the speed of adjustment to equilibrium of supply of exports is 53.87% each period. This shows that instabilities in exports are corrected fairly fast.

Conclusion

The results showed that investment in form of gross capital formation, and gross fixed domestic capital formation, have both long-run and short-run positive effect on export performance. Whereas, openness and competitive advantage has both short-run and long-run effect on exports; exchange rate has a negative short-run and long-run effect on the exports. Inflation and hence production costs has short-run effect on exports performance but no effect in the long-run.

It is therefore recommended that Kenya should enhance investment in the industries they have a competitive advantage in; continue pursuing openness policies; maintain low inflation and interest rates and stabilize the exchange rates.

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