Relationship between international trade and economic growth in Kenya

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The relationship between trade and economic growth has continued to dominate the debate in trade and development economics. Generally, countries which trade more have been seen to have a high growth path, some of which has been attributed to trade. Kenya government over the past years designed and implemented various trade policies whose aim was to rejuvenate economic growth. But it is difficult to attribute much of the past growth to trade and trade openness. Therefore focus objective of this research investigated the relationship between various trade and other macroeconomic variables for Kenya for the period 1984 to 2014. There are many components of international trade that effect economic growth but this study examined the relationship between Exports, imports, terms of trade and Kenyan economic growth. Secondary time series data of variables was obtained from World Bank in order to achieve the desired study objectives. The study used the vector auto-regression (VAR) modeling technique and the error correction model (ECM) to establish the nature of relationship between economic growth and trade variables. The result of the error correction model revealed that exports has a positive significant relationship with the GDP growth ($B=2.146770, p=0.0536$). The result further revealed that imports has a positive insignificant relationship with the GDP growth ($B=2.621045, p=0.1217$). The result also revealed that terms of trade has a positive significant relationship with the GDP growth ($B=4.557606, p=0.0170$). Finally the result revealed that inflation has a negative significant relationship with the GDP growth ($B=-0.042886, p=0.0344$). The results of VAR estimation also showed that the one and two year lagged values of terms of trade, inflation, export and imports are insignificant determinants of GDP growth. Based on the findings, this study concluded that exports, imports and terms of trade are key aspects of economic growth of a country.

Keywords: GDP growth, Economic growth, Terms of Trade, Inflation, Exports and Imports

INTRODUCTION

Background and research gap
Economic development is one of the foremost objectives of every economy in the world. Therefore economic growth is the primary determinant to economic welfare, and international trade represents one of the most important components that effects economic growth. International trade has been touted as an important tool in the path to development by prominent economists. However trade may not be a panacea for development as important questions surrounding how free trade really is and the harm trade can cause to domestic infant industries come into play. Therefore the nature of the relationship between International Trade and Economic Growth is still frequent topic of discussion, when economists try to explain the different levels of economic growth between countries but with little consensus. Therefore arguments’ concerning the role played by the international trade on economic growth is not new topic of discussion (Rodriguez and Rodrik, 2001).

Some models such as endogenous growth models (Schneider, 2004) have tried to link different channels of international trade with economic growth. Therefore, there is no country in the world that is self sufficient completely neither can each country produce all goods equally and efficiently. This is because factors of production are not evenly distributed throughout the
world. Nations specialize in the production of those goods for which they have necessary factors and facilities of production and export them, while they import those goods which they cannot produce or can produce only at a relatively high cost.

Most of the Sub-Saharan African countries are primary product exporters and have accounted for a sizeable proportion of individual gross domestic product. In Kenya for example, exports contribute about 29% of the Gross Domestic Product (GDP) and is mainly through the primary agricultural produce like tea (major export) coffee, horticulture etc (Diks C.G.H., Panchenko V, 2005). The market and prices of these exports are often unstable and the export dependence carries with it a degree of risk and uncertainty that is not desirable for the nations (Todaro, 1994).

International trade having made tremendous contribution to the development of less developed countries in the 19th & 20th centuries, it can be expected to make an equally big contribution in the future (Todaro, 2012). Therefore with a little effort, the exports in Kenya can lead to an improvement in economic growth. As a result of liberalization and globalisation of a country's economy has become much more closely associated with external factors such as openness which has made an increasingly significant contribution to economic growth (Sun and Heshmati, 2010). Schneider (2004) argues that imports bring additional competition and variety to domestic markets, benefitting consumers, and exports enlarge markets for domestic production, benefiting businesses. International trade exposes domestic firms to the best practices of foreign firms and to the demands of discerning customers, encouraging greater efficiency.

The trade policy evolution in Kenya can be traced back to the colonial era where the agricultural sector was protected because it was the major producer of raw materials to the colonial masters (Britain) manufacturing sector (Bigsten et al., 2010). Immediately after independence, Kenya adopted the import substitution strategy (ISS) which was highly characterized by protective trade barriers. The ISS, in many countries (including Kenya) failed to achieve its intended objectives due to the fact that it had very low export potential and the new capital intensive industries could not create more employment opportunities and also the heavy protection of local firms translated to inefficiency and lack of competitiveness of the industries. Despite the government protection enjoyed by the industries, the policy measures exercised were biased against exports as evidenced by the cumbersome and bureaucratic structures that included high effective protection rates, control of prices and foreign exchange and discouraging importation through the import licensing and overvaluing of the currency (Were et al., 2002).

Over the past Kenya has developed three development blueprints including the Poverty Reduction Strategy Paper 2001-2004 (PRSP), Kenya Vision 2030 and the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ERSWEC) all geared towards strengthening of the policy reforms in Kenya. The national export strategy that was recommended by the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007) proposed plans to increase national competitiveness through improving the export performance. It was mandated to open up new markets, deepen the existing ones, diversify the exports and improve market access for the Kenyan products. The Vision 2030 blue print aims at guiding the government to be economically, socially and politically stable by the year 2030, by improving on sectors that enhance economic growth.

Data from economic surveys (various) in Kenya shows the economy has been inconsistent since its independence in 1963. During the initial years of independence, the country achieved high economic growth of 6%, which declined to below 4% in the following decades. In the 1990s, Kenya's GDP also experienced great inconsistency, ranging between negative figures to 4%. It is indeed ironical that this dismal record has taken place when Kenya's economy was being liberalized, a policy move that was intended to stimulate productivity. It has been argued that the gains that could have been made through macroeconomic policy liberalization have been cancelled by other hidden costs that have increased the transaction costs such as infrastructure, inefficient bureaucracy and political uncertainty. After the millennium, Kenya started to produce higher and higher growth rates which peaked in 2007 with 7%. Post-election violence in early 2008, coupled with the effects of the global financial crisis on remittance and exports, reduced GDP growth to 1.7% in 2008, but the economy rebounded in 2010-11 by showing growth rates higher than 5% and the economic prospects for Kenya for the coming years remain favorable. If the positive trend continuous, Kenya is projected to be the first East African country to move from low-income status to middle-income status. Current GDP per capita is in the neighborhood of $760. High inflation have also been a problem for the past couple of years with inflation as high as 12%, but fiscal consolidation and tight monetary policy have secured a declining inflation.

Statement of the problem

The benefits accruing of international trade on economic growth have awakened interest over the years to both policy makers and economists. But the theoretical links between international trade and economic growth have been extensively discussed for over two centuries and a lot of controversies still abound concerning their real effects (Obadan and Elizabeth, 2007). For example, some studies argue that international trade is a catalyst to the economic growth as it complements domestic
investments, creates employment, and improves productivity through advanced and modern technology as well as improving human capital (Magnus and Fosu, 2008; Carkovic and Levine, 2000; Prassana, 2010; Borensztein, De Gregorio and Lee, 1998).

The other stream of research seems to suggest that international trade has limited effect on economic growth (Stait, 2005). Based on the foregoing discussion, there seems to be an existence of the relationship between international trade and economic growth. However, it is not clear if these relationships are causal. Some researchers found unidirectional causality between international trade and economic growth (Melina, Chaido and Antonios, 2004). Thangavelu and Kalirajan (2009) revealed that GDP growth stimulated a bidirectional long run relationship between exports, imports, and terms of trade and GDP growth in Malaysia.

Most of the studies as regards this subject have been done in developed countries and few in the third world countries and International trade has always been a “catalyst of growth” for global economy. In contrast, some economists are against this idea in that they believe only developed countries benefit from international trade at the expense of developing economies. Considering the Kenyan economy with fluctuating and dwindling exports, that has had adverse effect on economic growth as these exports are mainly dominated by primary agricultural products and raw materials which are characterised by low prices and high market volatility. This paper will therefore seek to fill in the fore mentioned gap by studying the relationship between international trade macroeconomic variables with Kenya’s economic growth.

Objectives of the Study
- To determine the relationship between Exports and economic growth in Kenya
- To examine the direction of relationship between Imports and economic growth in Kenya.
- To assess the linkage between Terms of Trade and trade openness on economic growth in Kenya.

Literature Review

Theoretical framework: Marxist theory
This theory was developed by Karl Marx, (1867) on studying the relationship between exchange and production in the final analysis. According to Marx the depth, breadth and the way of exchange are decided by the development and structure of production. Therefore all the elements of exchange are included in the production directly, or are decided by it. Essentially, production decides the exchange, but the exchange which is a stage of the exchange, is not merely decided by it and could react to produce under certain conditions. Sometimes, the counteractive of promoting or inhibiting is tremendous. On one hand, the expansion of production needs a growing market; on the other hand, the growing market will promote the expansion of production continuously. So, production and exchange, affect each other every seconds. This later provided a very important revelation to many economists in studying the trade and growth.

Empirical review
The theoretical augments concerning the nature of casual relationship between international trade and economic growth have been supported by many activated empirical studies by different scholars geared towards providing reliable answers. But mixed and conflicting empirical evidences have been received by different scholars. Some through their empirical studies of different countries have found that when a country opens up its economy (imports plus exports as a ratio of GDP) and participates more in international trade, it becomes integrated into the world economy and enjoy the static and dynamic benefits accumulating from international trade. Others are of the opinion that it is economic growth that strive international trade.

In their studies Halpern et al. (2006), analyzed two channels by which imported products lead to productivity improvements in Hungary: higher quality of these goods and imperfect substitution between foreign and domestic inputs. According to their results they find that two-third of productivity increase caused by importing is attributable to an increase in the variety of intermediates used and the rest is due to an increase in quality. In another study, Amiti and Konings (2007), using data from Indonesia show that reducing input tariffs increase productivity three times more than a reduction in output tariffs. Both studies provide evidence that motivates for investigation of how importing relates to innovation and growth.

Ayeb et al. (2013) testing for causality between exports and economic growth in South Africa using linear and non-linear tests, they found a co-integrating relationship between the two, and unidirectional causality from GDP to exports. They concluded that exports can improve growth in GDP through increasing employment and incomes in the export sector as well as technological development.

The likes of Kalaitzi (2013), examined the relationship between exports and economic growth in the United Arab Emirates over the period 1980-2010. The study applied the two-step Engle-Granger co-integration test and the Johansen co-integration technique in order to confirm or not the existence of a long-run relationship between the variables. The study also applied a Vector Auto-regression Model in order to construct the Impulse Response Function and the Granger causality test to examine the causality between exports and economic growth. Their findings confirmed the existence of a long-run relationship between manufactured exports, primary exports and economic growth. In addition, the Granger causality test showed unidirectional causality between
manufactured exports and economic growth. Thus, further increase in the degree of export diversification from oil could accelerate economic growth in UAE.

Critique of existing literature
The existing literature demonstrates enormous empirical studies which have been done with regard to the long run relationships and causality between foreign trade and economic growth. However, many of the studies explain relationships between two variables; either they studied the relationships between Terms of Trade and GDP, export and Economic growth or Imports and economic growth which is bias to other variables. Taking foreign trade and other factors as independent variables to explore the relationship qualitatively between the two can not only explain the relationship accurately, but also make the affecting extent of independent variables on dependent variables clear (Chen, 2009). This is useful for a country in establishing a specific foreign trade policy.

The use of econometric methods to explain the relationship between foreign trade and economic growth expands the vision of studying in this area, and has a profound impact on economics. But majority of the methods often chosen by most scholars for their analysis and testing use the annual Single cross-set (time series) data have potential problem on the low side that might lead to errors while calculating long term causalities and the instabilities. In addition, simply dealing with the data is just equal to considering them to be coessential, so their heterogeneity was ignored. But the quarterly data may be more suitable for measuring the causality of variable

RESEARCH METHODOLOGY
A descriptive research design was used by employing the use of time series data from the period 1984 – 2014 to study the relationship between international trade and economic growth in Kenya. This design was employed because raw secondary data for macroeconomics variables such as total exports to GDP ratio, imports to GDP and terms of trade was easily available from Statistical Bulletins and the Monthly/Annual Economic Reviews of the Central Bank of Kenya (CBK), the Economic Surveys of the Kenya National Bureau of Statistics (KNBS), KIPPRA, Treasury, Ministry of Devolution and Planning while the main sources of international data will be the International Financial Statistics (IFS), and the Directorate of Trade Statistics (DTS).

The study made use several econometric methods to explore the findings on the nature of relationship between the real GDP growth rate, real growth rate of exports and real growth rate of imports in Kenya for the period 1984-2014. The concepts of both linear and nonlinear Granger causality tests and the method of bootstrap based on leveraged residuals were used to provide a complex environment for the examination of all the main study hypotheses as formulated in the previous section.

The study utilized annual time series data of Exports, imports and GDP growth of Kenya for the period 1984-2014. It is important to note that it is possible to obtain reliable and credible data for the Kenya economy for the fore mentioned period. Therefore this study was to be limited to 30 observation points that were used in the time series analysis to represent the entire population. The study involved judgmental sampling technique using secondary data concerning total exports, total imports, terms of trade and economic growth in Kenya for a period of 30 years. Sampling of the 30 consecutive recent year’s time series data of 1984 to 2014 was carried out so as to have the most recent data to the entire population.

This study made use of the Vector autoregressive (VAR) model using E-views for analysis purposes. In the VAR model, each variable is explained by its own lagged variable (Chidothi & Sheefeni, 2013). The study adopted the following simple empirical model used to test the relationship between real GDP and real exports, imports and terms of trade:

\[ Y = f(X, M, TOT) \]

Where \( Y \) is real GDP, \( X \) is real exports, \( M \) is real imports and \( TOT \) is the terms of trade \( \text{GDP} = f(X, M, TOT) \)

Specification of the model

\[ Y = \alpha + \beta_1XR - 1) + \beta_2XR - 2) + \beta_3 MR - 1) + \beta_4 MR - 2) + \beta_5 TOT - 1) + \beta_6 TOT - 2) + \beta_7 P - 1) + \beta_8 P - 2) + \beta_9 TO - 1) + \beta_{10} TO - 2) + \mu (1) \]

Where

\( Y = \text{GDP growth} \)
\( \alpha = \text{Constant} \)
\( XR = \text{total exports to GDP ratio} \)
\( MR = \text{total imports to GDP ratio} \)
\( TOT = \text{terms of trade} \ [(\text{export prices} + \text{import prices})/\text{GDP}] \)
\( TO = \text{trade openness} [(\text{TX+TM})/\text{GDP}] \)
\( P = \text{inflation} \)

FINDINGS AND DISCUSSIONS

Descriptive Statistics

Prior to data analysis the descriptive statistics of the variables was conducted. The table 1 shows the Mean, median and other descriptive statistics of other variables.

Trend analysis

Trend analysis for GDP growth rate

The figure 1 indicates that GDP growth has been very volatile. In the trend analysis it shows that GDP growth exponentially increased from 1984 to 1986 before reducing to it historical lowest in 1992. The drop in GDP growth was experienced in the following years; 1992, 1997, 2002 and 2008. This drop can be attributed to political events in Kenya since these years also correspond to elections years. The highest growth rate...
Table 1: Descriptive statistics of variables

<table>
<thead>
<tr>
<th></th>
<th>GDP Growth</th>
<th>Exports</th>
<th>Imports</th>
<th>Inflation</th>
<th>TOS</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.812903</td>
<td>24.30968</td>
<td>31.88710</td>
<td>10.62581</td>
<td>56.12903</td>
<td>0.911806</td>
</tr>
<tr>
<td>Median</td>
<td>4.200000</td>
<td>23.00000</td>
<td>32.00000</td>
<td>8.700000</td>
<td>55.00000</td>
<td>0.972000</td>
</tr>
<tr>
<td>Maximum</td>
<td>8.400000</td>
<td>38.90000</td>
<td>39.20000</td>
<td>42.00000</td>
<td>73.00000</td>
<td>1.091000</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.800000</td>
<td>16.40000</td>
<td>26.40000</td>
<td>9.000000</td>
<td>48.00000</td>
<td>0.610000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>2.390222</td>
<td>4.887900</td>
<td>3.141840</td>
<td>8.187957</td>
<td>6.375693</td>
<td>0.158521</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.195600</td>
<td>1.352934</td>
<td>0.359647</td>
<td>2.099168</td>
<td>1.357875</td>
<td>-0.632108</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.110525</td>
<td>5.047287</td>
<td>2.967984</td>
<td>8.303907</td>
<td>4.450022</td>
<td>1.837276</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>1.219595</td>
<td>14.87109</td>
<td>0.669612</td>
<td>59.10338</td>
<td>12.24224</td>
<td>3.810636</td>
</tr>
<tr>
<td>Probability</td>
<td>0.543461</td>
<td>0.000590</td>
<td>0.715477</td>
<td>0.000000</td>
<td>0.002196</td>
<td>0.148775</td>
</tr>
<tr>
<td>Sum</td>
<td>118.2000</td>
<td>753.6000</td>
<td>988.5000</td>
<td>329.4000</td>
<td>1740.000</td>
<td>28.26600</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>171.3948</td>
<td>716.7471</td>
<td>296.1348</td>
<td>2011.279</td>
<td>1219.484</td>
<td>0.753871</td>
</tr>
</tbody>
</table>

Figure 1: Showing yearly trend for GDP growth from 1984 to 2014

Figure 2: Showing yearly trend for Exports from 1984 to 2014

was experienced in 2010.

Trend analysis for exports to GDP ratio
The study conducted an analysis of exports prices experienced as a percentage of GDP. The figure below shows the trend analysis of how exports have been varying across time from 1984 to 2014. The highest exports were experienced in the year 1993 while the lowest was in the year 2014. There was an increase in exports from 1988 to 1992 which was followed by a sharp decline from 1993 to 1998 (figure 2).
Trend analysis for imports to GDP ratio
The study also conducted an analysis of imports prices experienced as a percentage of GDP. The trend analysis of how imports have been varying across time from 1984 to 2014 is shown in figure 3. The highest imports were experienced in the year 1995 while the lowest was in the year 1987. There was an increase in imports from 1992 to 1995 which was followed by a sharp decline from 1995 to 2005.

Trend analysis for terms of trade
Analysis of variation of terms of trade across time was also conducted. The analysis depicts that terms of trade had an average increasing trend despite the small variations. Terms of trade have been increasing from 1984 to 2014. Figure 4 shows the trend analysis of terms of trade.

Trend analysis for trade openness
The trend analysis in the figure 5 show that trade
openness was volatile. Trade openness was highest in between 1992 and 1996 while it was lowest in 1987 and 1999.

**Trend Analysis for Inflation**

Inflation trend in the figure 6 shows that inflation of Kenya has been oscillating across time from 1984 to 2014. The highest inflation was recorded in 1996 while the lowest in 2002. In the year 2010 inflation was also low.

**Pre and post-estimation tests/equation diagnostics**

Prior to running a regression model pre-estimation tests were conducted the test indicated that there is no Multicollinearity. Stationarity was corrected by using variables at first differenting. Post estimation tests indicated that the residual were normally distributed, the error term was Homoskedastic and there is no serial correlation of any order. This implied the model used was not biased.

**Long run model summary**

The long run results are presented in table 2. The long R squared of 0.28 indicates a good goodness of fit. The model implies that 28% of the variation in GDP growth is explained by the independent variables. The overall model was significant as demonstrated by an F statistic of 8.0001 (p-value= 0.0384). This further implied that the independent variables had good joint explanatory power on GDP growth (table 3).

The results further indicate that in the long run, inflation has a positive significant relationship with the GDP growth (B=-0.042886 p=0.0344). The result indicate that TOT has a positive significant relationship with the GDP growth (B=4.557606, p=0.0170). The result indicate that exports has a positive significant relationship with the GDP growth (B=2.146770, p=0.0536). The other
Table 4: Model Summary

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-squared</td>
<td>0.426499</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.389910</td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>2.572126</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>145.5483</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>64.54079</td>
</tr>
<tr>
<td>F-statistic</td>
<td>17.954206</td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.0477907</td>
</tr>
</tbody>
</table>

Table 5: Error correction model results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEXPORTS</td>
<td>1.726575</td>
<td>2.336557</td>
<td>0.738940</td>
<td>0.0468</td>
</tr>
<tr>
<td>DIMPORTS</td>
<td>2.243205</td>
<td>2.450836</td>
<td>0.915281</td>
<td>0.3700</td>
</tr>
<tr>
<td>DINFATION</td>
<td>-0.012945</td>
<td>0.064801</td>
<td>-0.199770</td>
<td>0.0435</td>
</tr>
<tr>
<td>DTOS</td>
<td>1.961177</td>
<td>2.381749</td>
<td>0.823419</td>
<td>0.4191</td>
</tr>
<tr>
<td>DTOT</td>
<td>14.36976</td>
<td>7.659453</td>
<td>1.876082</td>
<td>0.0040</td>
</tr>
<tr>
<td>LAGRESID</td>
<td>0.245952</td>
<td>0.203368</td>
<td>1.209393</td>
<td>0.2393</td>
</tr>
<tr>
<td>C</td>
<td>0.288921</td>
<td>0.545952</td>
<td>0.529205</td>
<td>0.6020</td>
</tr>
</tbody>
</table>

Results for error correction model

The relationship between the short run Dexport rate and short run DGDP growth was positive and significant (B=1.726575, p=0.0468). The relationship between the short run Dinfation and short run DGDP growth was negative and significant (B=-0.012945, p=0.0435). The relationship between the short run DTOT and short run DGDP growth is positive and significant (B=14.36976, P=0.0040). Short run Dimport rate, DTOs and LAGresid had positive and insignificant relationship with short run DGDP growth. The findings are shown in the table below.

CONCLUSIONS

The study conducted empirical analysis of effects of international trade on economic growth in Kenya. The international trade factors investigated includes exports, imports and terms of trade. Data analysis was conducted using secondary data collected from World Bank and CBK. The results of this study revealed that exports of have a positive and significant relationship with economic growth in Kenya. The findings also showed that there existed a positive and significant relationship between import and economic growth in Kenya and finally the results revealed a positive and insignificant relationship between terms of trade and economic growth in Kenya. Based on the findings above this study therefore concludes that exports, imports and terms of trade are key aspects of economic growth of a country.

Recommendations

Based on the findings of this study the following recommendation can be made for policymaker and relevant stakeholders.

- The policymakers should encourage domestic companies to produce goods and services for exports in order to boost economic growth.
- The law should encourage exporters and limit importers especially of goods and services that are produced locally in order to boost economic growth.
- The study also recommends that effective way of managing optimum terms of trade to boost economic growth
- Study further recommends exports, imports and terms of trade are key determinants of economic growth therefore they should be properly regulated to realise improved economic growth.

REFERENCES


