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A Comparative Analysis of Export-Led Growth and Growth-Led Export in Tanzanian Economy: A Time Series Analysis

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Abstract

This study investigates whether the export-led growth or growth-led export business strategy is suitable in the Tanzanian economy from 1970 to 2013. The research aims to check if the export-led growth (ELG) and growth-led export (GLE) doctrines are appropriate in the Tanzanian economy following the trade liberalisation in mid 1980s. Augmented Dicker Fuller test was employed to examine the unit root and the empirical results reveal that all variables are non-stationary at level and stationary at the first difference. Engle-Granger residuals and Johansen co integration test were utilised and results confirmed that variables are co integrated. Furthermore, co integration and error correction model investigates the long run and short run coefficients. In long run coefficients, the results conclude that both doctrines (ELG and GLE) are important in Tanzanian economy whereas in short run coefficients were not significant. Error terms confirm the existence of long run relationship amongst the variables. Granger causality test results indicate that in long run coefficients, there are bidirectional relationship between the Gross Domestic Product (GDP) and exports in Tanzanian economy while in short run coefficients there is unidirectional moving from exports to GDP. Structural break results show a stable contribution from GDP to exports while there is an unstable contribution from exports to GDP. In this context, the government should improve the production and export sector to boost the economic development in the long run in Tanzania.

Keywords: Economic growth, export-led growth, growth-led export, structural break, Tanzanian economy.

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Introduction

Studies have indicated a direct link between economic growth and export performance of countries under study (e.g. Abbas, 2012; Azeem et al., 2013). As the economic size of the country increases, the export growth also increases since all sectors will be increasing consecutively. Economic growth increases the export capacity and in turn raises the export performance as well. Again, economic growth enhances the import capacity through foreign currencies earned from export sectors.

Generally, the literature confirms a positive correlation between economic growth and export performance. Conversely, export performance improves economic growth of a given country. However, other literature denies the positive relation between economic growth and export performance in some countries.

Tanzania exports both traditional and non-traditional commodities. Traditional or primary commodities include cash crops and foodstuffs. Cash crops exported from Tanzania are cloves, cashew nuts, cotton, pyrethrum, sisal, coffee, tea and tobacco. Furthermore, there are other crops gaining momentum in export such as sunflowers, sesame and floriculture. Exported foodstuffs include maize, rice and wheat. Non-traditional commodities are precious germs like diamonds, gold and tanzanite.

Broadly speaking, traditional commodities account more than 60% of Tanzania's export earnings. However, in recent years, non-traditional commodities have been catching up by bringing more foreign currencies in Tanzania but this is still less compared to traditional commodities' foreign earnings.

This study, therefore, intends to investigate whether the export-led growth or growth-led export business strategy is suitable for the Tanzanian economy. The study investigates long run and short run relationship amongst the variables using modern econometrics techniques like co integration and error correction model to see if these strategies are better in economic prosperity for country like Tanzania.

In the same line, the present study examines the causal relationship between GDP and exports after determining the suitability of trade strategy in Tanzania using the Granger causality test. Furthermore, based on the nature of the study, it is imperative to investigate the contributions of these variables in the economy if it is stable or not. To capture the stability among the variables, the study employed a structural break test. Indeed, the study was motivated by sluggish economic growth and the export sector after the inception of trade liberalisation in mid 1980s.

In the past three decades, export growth in Tanzania particularly in traditional commodities decreased drastically as such it was imperative to uncover the role played by economic growth in the export sector or exports for economic growth. Tanzania engaged in the global economy in 1986 for liberalising trade and other economic sectors like the financial and agricultural sectors. In this line, economic growth was expected to have a positive contribution to the export performance. Empirical results from this study can shed light on policy formulations or forecasting purposes for other beneficiaries of the export sector and economic growth at large.

The export sector in Tanzania is among the important players in economic growth; thus, it should not be neglected. This sector is vital in fighting for poverty reduction and providing employment opportunities in Tanzania. Poverty reduction and employment provision improves the social welfare of people. Conversely, economic growth also is an important player in the growth of the export sector in Tanzania. Therefore, this study is crucial in the Tanzanian economy.

Literature Review

Literature indicates that economic growth influences the export performance of a given country. For instance, Abbas (2012) affirmed a positive influence between economic growth and export performance in Pakistan. However, Afzal and Hussain (2010) found different results in the same country. They found that economic growth and export performance have no positive relationship as well as are not co integrated. Furthermore, Afzal and Hussain's (2010) study also confirmed that causality between economic growth, export and import is not there in Pakistan. Therefore, the export-led growth hypothesis in Pakistan

brought a mixed result. In the opposite direction, Azeem et al. (2013) examined the relationship between export and foreign direct investment (FDI) in economic growth in Pakistan. They found that both export and FDI have a positive relationship with economic growth as such economic growth influences export growth in the country.

Furthermore, Babalola et al. (2012) found a negative relationship between exports and economic growth in Nigeria. This implies that economic growth does not influence export growth. Conversely, export growth does not influence economic growth. A study by About-Stait (2005) found a positive relationship between economic growth and exports in Egypt.

Again, Anwer and Sampath (1997) found similar results that economic growth influences export performance in Turkey. This tells that economic growth is an important tool for improving the export performance of countries under study. Furthermore, Ekanayake (1999) uncovered that there is a positive relationship between export growth and economic growth in eight Asian developing countries which are India, Malaysia, Sri Lanka, Indonesia, Korea, Philippines, Thailand and Pakistan. In this context, every country should take care of the economic growth in their respective countries to stimulate their export sector.

Along the same line, Shiraz and Manap's (2005) empirical results revealed that there is a positive correlation between export, import and economic growth in four South Asian countries (Bangladesh, Nepal, Pakistan and India) except Sri Lanka. The positive relationship between economic growth and export so far seems to be more significant in many developing countries under study as compared to those with a negative relationship.

Congruent to Shiraz and Manap (2005), Dar et al. (2013) found that economic growth improved export growth in India. In the same vein, Dritsakis (2006) examined the European countries and US and found that export growth and economic growth have a strong relationship except in Japan. Certainly, these studies revealed that export performance of the countries under study should not ignore the role of economic growth in improving their export sectors.

Further empirical study was conducted by Usman et al. (2012) who found a strong relationship between export growth and economic growth in Pakistan. Similarly, Usman et al. (2012) and Mehdi and Shahryar (2012) in Iran found that export growth has a positive relationship with economic growth. In this regard, economic growth and export are moving together in the same direction such that it can be easily predicted and forecast for the betterment of the economy at large.

Interestingly, more evidence from Asian countries supports the doctrines, like Lin and Li (2011), who found that export and economic growth have a strong relationship in China. Thus, in China also economic growth and export are co integrated as in many other countries mentioned above. Also, Rahmddi and Ichihashi (2011) found similar results that export and economic growth in Indonesia have a positive relationship hence economic growth influences export performance.

Mehrara and Firouzjaee (2011) employed panel analysis to investigate the relationship between export and economic growth in developing countries and found a positive relationship between exports and economic growth. These findings from Mehrara and Firouzjaee (2011) comprehend the previous studies' results in China, Malaysia, India, Nigeria, amongst others. Anoruo and Ramchander (2000) asserted positive a relationship between exports and economic growth in Korea, India, Malaysia and Philippines.

However, Indonesia had a negative relationship between exports and economic growth. This relation suggests that outward oriented trade is significant for the economic development of the countries under study. The positive relationship between export and economic growth also is supported by various studies like Al Mamun and Nath (2005) and Bahmani-Oskooee and Oyolola (2007). Again, Al Mamun and Nath (2005) found a positive relation in Bangladesh while Bahmani-Oskooee and Oyolola (2007) revealed that more than 60% of the studied countries had a positive relationship between export and economic growth. The study included 44 developing countries investigating the export-led growth hypothesis. Thus, more than 60% of the 44 countries had a positive relationship between export and economic growth.

Silaghi and Ioana (2009) took a different outlook by examining both ELG and GLE. Empirical results under ELG show a positive relationship between export and economic growth in the Czech Republic, Lithuania, Bulgaria, Latvia and Estonia. Results further revealed that GLE had a positive relationship in Romania, Slovenia and Hungary. In fact, in both aspects, the positive relationship remains spectacular. These results also were supported by Chemeda (2001) in African countries. A study by Chemeda (2001) in Ethiopia found similar results that export growth and economic growth have a positive relationship and are co integrated too. These suggest that export and economic growth have long and short run relationship.

Therefore, the empirical results so far produce conflicting outcomes. In some countries, there are positive relationships between export and economic growth whereas in others there are negative relationships between export and economic growth. In other words, the export-led growth hypothesis and growth-led export hypothesis are still producing conflicting results in countries under study. Thus, these mixed results motivated to take a study in Tanzania to investigate the situation of growth-led export and export-led growth.

Research Methodology

This research work employed time series analysis to examine the contribution of exports on economic growth and the impact of economic growth on exports. The paper intended to make a comparative analysis between ELG and GLE doctrines. To capture the intended goals, the study used co integration and Error Correction Model (ECM) to find the long run and short run coefficients.

Before estimating co integration and error correction terms, the study conducted the unit root test because these data are in time series and time series data have the problem of being non-stationary. Thus, the research checked for a unit root to avoid spurious regression. Formulation of the present study's models were adopted from previous studies like Ekanayake (1999), Anoruo and Ramchander (2000) and Abbas (2012), just to mention a few.

Furthermore, to minimise the problems of outliers and heteroscedasticity, the research instituted natural logarithms in every variable as shown in the models

(1) and (2). Model (1) determines the impact of GDP on exports in Tanzania and model (2) examines the impact of exports on economic growth in Tanzania.

Growth-Led Export (GLE)
Export values (X) = F (GDP)……..……..(1)

Export-Led Growth (ELG)
GDP = F (X)…….(2)
Where: X is export values and GDP is gross domestic product.

To examine the impact of exports on economic growth and GDP in exports, models (1) and (2) transformed into econometrics modeling and instituted the error terms as depicted in models (3) and (4).

The present study employed only two variables due to the availability of data in the database. Again, based on the nature of the study, it was required to analyse the export-led growth (ELG) and growth-led export (GLE) doctrines; thus, export and GDP were imperative variables in the study. Sources of data of the present study were obtained from Ivan Kushnir's Research Center data base.

GLE Model

$$LnX_t = \alpha_0 + \alpha_1 LnGDP_t + \varepsilon_t \quad \text{……..(3)}$$

ELG Model

$$LnGDP_t = \beta_0 + \beta_1 LnX_t + U_t \quad \text{……...……(4)}$$

Unit Root Test
This study tested the unit root using Augmented Dickey Fuller (ADF) rather than Dickey Fuller (DF) test. ADF is more powerful than DF test. It is important to note that the output of ordinary least squares (OLS) regression under stationary variables are not spurious (meaningless).

Again, it is worth noting that if the residuals of the regression at level are stationary, then regression outputs at level are not spurious rather represents the long run relationship coefficients (long run equilibrium) (Granger and Engle,

1987; Gujarati, 2004). In this context, the present study considered all these conditions in the regression analysis to produce robust results**.**

Testing for Co Integration

This research work employed two main tests for co integration, that is Engle-Granger residuals co integration test and Johansen co integration test. First, the study utilised the Engle-Granger residuals co integration test. The Engle-Granger residuals test for co integration has two main procedures. In the first step, the test requires to fit the co integrating regression by OLS where the variables are at level and must be integrated of order one *I* (1) that is non-stationary.

The second step requires testing the residuals obtained from step one (co integrating regression) using the DF or ADF. If the residuals are stationary, then the null hypothesis of no co integration is rejected and if the residuals are non-stationary then the null hypothesis are not rejected and therefore variables are not co integrated (Granger, 1986; Granger and Engle, 1987). The study employed the Augmented Dickey-Fuller test popularly known as Augmented Engle–Granger (AEG) test. Hereunder are co integrating regression equations (i.e. 5, 6, 7 and 8) and Augmented Engle-Granger models for GLE and ELG respectively.

GLE Model

(i) Co integrating regression equation

$$LnX_t = \alpha_0 + \alpha_1 LnGDP_t + \varepsilon_t \quad \text{.....(5)}$$

(ii) Residuals estimation equation

$$\Delta U_t = \alpha_1 U_{t-1} + \varepsilon_t \quad \text{.....(6)}$$

ELG Model

(i) Co integrating regression equation

$$LnGDP_t = \beta_0 + \beta_1 LnX_t + U_t \quad \text{.....(7)}$$

ii) Residuals estimation equation

$$\Delta U_t = \alpha_1 U_{t-1} + \varepsilon_t \quad \text{.....(8)}$$

H_0: $\alpha_1 = 0$: unit root (no co integration).

H_1: $\alpha_1 \neq 0$: Stationary (co integration).

Decision criteria: Rejection of the null hypothesis implies the residual is stationary. If the residual series is stationary, then variables included must be co integrated and vice versa is correct. Furthermore, if the residuals of the co integrating regression equation are stationary, then co integrating regression outputs in step one (equation 5 and 7) are not spurious even though individual variables are non-stationary (Granger and Engle, 1987; Gujarati, 2004). Granger and Engle (1987) in Gujarati (2004:822) asserted that "the valuable contribution of the concepts of unit root, co integration, is to force us to find out if the regression residuals are stationary. A test for co integration can be thought as a pre-test to avoid spurious regression situations".

Secondly, the research uses Johansen co integration test to ascertain the empirical findings obtained from Engle-Granger residuals co integration test since the Johansen test is more powerful in determining the number of co integrating equations. This test has two main test statistics, that is trace and Maximum Eigenvalue.

Error Correction Model (ECM)

Having established that all variables are co integrated means have long run relationship. The study then formulated error correction model. The error term lag one is incorporated in short run equations to tie the short run behaviors of the variables. The present study formulated short run equations by transforming equation (3) and (4) into the first difference and thereafter the error terms were incorporated as shown in models (9) and (10).

GLE Model

$$\Delta \ln X_t = \alpha_0 + \alpha_1 \Delta \ln GDP_t + \alpha_2 EC_{t-1} + \varepsilon_t \quad \text{.....(9)}$$

ELG Model

$$\Delta \ln GDP_t = \beta_0 + \beta_1 \Delta \ln X_t + \beta_2 EC_{t-1} + U_t \quad \text{.....(10)}$$

Granger Causality

Granger causality test is important in checking if the inclusion of past values of variables do or do not support the prediction for present values of variables; in this case, exports and GDP in Tanzania. A significant condition in avoiding producing spurious causality is that variables should be stationary. This study took care of it by employing ADF in unit root test as previously described.

Furthermore, the existence of a long run relationship means co integration amongst variables is an essential condition under Granger causality. Thus, the existence of co integration makes the test valid (Granger, 1986; Granger and Engle, 1987). In testing for causality between the two variables, export and GDP, all variables are in natural logarithms. The study examined the order of integration between exports and GDP using the ADF test.

Structural Break

Structural break is an important test in time series analysis since it provides information whether the independent variable has a stable contribution to the dependent variable over some time. The present study employed the proposed "cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ)" tests by Brown et al. (1975) in Dufour, (1982). Decision criteria state that "if the plots of the CUSUM and CUSUMSQ fall within 5% critical bound, then H_0 is not rejected and vice versa is true (Dufour, 1982; Hosein, 2007).

Model Estimations and Discussion of Findings

This study investigated the unit root, co integration, long run and short run coefficients using the ECM, Granger causality and structural break.

Unit Root Results

The ADF test results revealed that all variables at level are non-stationary, thus they are integrated of order one *I(1)*. At first difference, all variables are stationary as such are integrated of order zero *I(0)*. Therefore, all models are in the same order of integration as required, thus all the results are not spurious since no any model has a different order of integration, say *I(1)* against *I(0)* in the regression analysis (Table 1). Furthermore, the Granger causality test has the proper condition under these results.

Table 1: Unit Root Test Results at Level and at First Difference

At Level				
Coefficients				
Variables	**Without Constant and Trend**	**With Constant**	**With Constant and Trend**	**Order of Integration**
LnX	3.867077	1.430159	-0.395311	*I(1)*
Ln GDP	3.280827	-0.771914	-1.366047	*I(1)*
First Difference				
Coefficients				
Variables	**Without Constant and Trend**	**With Constant**	**With Constant and Trend**	**Order of Integration**
LnX	-3.976345	-4.823012	-5.127056	*I(0)*
Ln GDP	-3.563883	-4.216814	-4.157481	*I(0)*

Source: Researcher's Computation

Notes: Without constant and trend: Test critical values: 1%, 5% and 10%, with constant: Test critical values: 1%, 5% and 10%, with constant and trend: Test critical values: 1%, 5% and 10%. If variables are integrated of order one *I(1)* means variables are non-stationary. If variables are integrated of order zero *I(0),* it means variables are stationary.

Engle-Granger Residuals Co Integration Test Results

Empirical results in both models revealed that co integrating equation residuals are stationary since the computed values are less than one and have negative signs that the GLE model has -0.101940 and ELG model has -0.138384 respectively as shown in Table 2. Since the computed ϱ (rho) is less than one ($\varrho < 1$), this signifies that residuals are stationary therefore variables are co integrated. If the computed value ($\varrho = 1$) implies that variables have unit root thus variables are not co integrated. Thus, the study concluded that the regression outputs obtained in non-stationary variables are no longer spurious and the empirical results are representing the long run relationship amongst the variables.

Table 2: Engle-Granger Residuals Co Integration Results

GLE Model			ELG Model		
Variable	**Constant**	**Resid (-1)**	**Variable**	**Constant**	**Resid (-1)**
Coefficient	-0.008572	-0.101940	Coefficient	0.018569	-0.138384
Std. Error	0.028269	0.063036	Std. Error	0.020047	0.063926
t-statistic	-0.303236	-1.617179	t-statistic	0.926282	-2.164738
Prob.	0.7632	0.1135	Prob.	0.3597	0.0363

Source: Author's Computation

Note: Dependent Variable: DRESID

Johansen Co Integration Test Results

The Johansen co integration test results in all models (GLE and ELG) indicate the presence of co integration amongst the variables. In the GLE model, trace statistics indicate one co integrating equation similar to Maximum Eigenvalue. Again, in the ELG model, all test statistics indicate one co integrating equation as shown in Table 3. Thus, these empirical results signify that exports and GDP can be predicted in future since they are co integrated or moving together. Also, Granger causality test is properly estimated since all the variables are co integrated as a crucial condition in estimating the relationship.

Table 3: Johansen Co Integration Results

GLE Model							
Rank Test (Trace)				**Rank Test (Maximum Eigenvalue)**			
Hypothesised No. of CE(s)	Trace Statistic	0.05 Critical Value	*P*-values	Hypothesised No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	*P*-values
None *	25.09775	15.49471	0.0013	None *	24.79491	14.26460	0.0008
At most 1	0.302842	3.841466	0.5821	At most 1	0.302842	3.841466	0.5821
ELG Model							
Rank Test (Trace)				**Rank Test (Maximum Eigenvalue)**			
Hypothesised No. of CE(s)	Trace Statistic	0.05 Critical Value	*P*-values	Hypothesised No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	*P*-values
None *	25.09775	15.49471	0.0013	None *	24.79491	14.26460	0.0008
At most 1	0.302842	3.841466	0.5821	At most 1	0.302842	3.841466	0.5821

Source: Author's Computation

Notes: Trace test indicates there is one co- integrating equation at the 0.05 critical levels whereas Max-Eigen statistics test indicates one co integrating equation at the 0.05 critical levels.
* denotes rejection of the hypothesis at the 0.05 critical level under MacKinnon et al. (1999) p-values.

Long Run Coefficients

In the long run coefficients under GLE model, GDP is found to be a significant factor in determining or influencing exports in Tanzania. GDP has positive sign (1.266791) and statistically significant at a 5% level of significance. This implies that when other things remain constant 1% increase in GDP raises exports by 1.27% in Tanzanian economy. These empirical results show that growth-led export doctrine in Tanzania is correctly accepted. Therefore, Tanzanian government ought to improve the economic growth to boost the export sector.

Similarly, under the ELG model, exports have a positive contribution to the economic growth in Tanzania as well. Exports have a positive coefficient 0.621753 and are statistically significant at a 5% level of significance. This connotes that a 1% increase in exports raises the economic growth by 0.62% in the Tanzanian economy. The export-led growth hypothesis also is affirmed by the obtained empirical results.

The message from these empirical results is that both doctrines are appropriate in the Tanzanian economy as such the government and other practitioners should earmark these variables to improve the economy and social welfare at large. Comparatively, economic growth seems to be more significant in influencing exports as compared to exports in increasing economic growth as per the obtained coefficients.

Table 4: Long Run Coefficients Results

GLE Model				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-4.372091	0.911806	-4.794982	0.0000
LNGDP	1.266791	0.101499	12.48076	0.0000
ELG Model				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	4.620742	0.350813	13.17154	0.0000
LNX	0.621753	0.049817	12.48076	0.0000

Source: Author's Computation

Note: Adjusted R-squared: 0.782575

Short Run Coefficients Results

In short run coefficients, all variables (GDP and exports) in GLE and ELD models are found to be statistically insignificant and have negative signs. GDP has a negative sign -0.045325, implying that GDP in short run coefficients affects exports negatively. This can be possible due to the fact that in short run coefficients, it is difficult to realise the impact of economic growth in exports. In the same vein, exports in short run coefficient have a negative sign -0.027161, thus affecting the economic growth negatively. This implies that the growth-led export and the export-led growth hypotheses are not effective in short run coefficients in the Tanzanian economy.

However, error terms in both models (GLE and ELG) have shown negative signs -0.156934 and -0.233471 respectively. These empirical results suggest the presence of a long run relationship amongst the variables means that they are co integrated. Variables in the GLE model adjusted to long run equilibrium at the speed of 16% per annum whereas in the ELG model, the variables adjusted to long run equilibrium at the speed of 23% per annum. The implications of these results particularly in error terms is that the government may improve the economic environment to speed up the long run relationships amongst the variables.

Table 5: Short Run Coefficients Results

GLE Model				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.078505	0.024134	3.252905	0.0023
DLNGDP	-0.045325	0.204126	-0.222045	0.8254
E_{t-1}	-0.156934	0.079358	-1.977560	0.0549
ELG Model				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.067585	0.018088	3.736477	0.0006
DLNX	-0.027161	0.122323	-0.222045	0.8254
E_{t-1}	-0.233471	0.052727	-4.427952	0.0001

Source: Author's Computation

Granger Causality Results

In long run coefficients Granger causality results indicate that there is a bidirectional causality amongst the variables from lag one to three at 5% level of significance. This implies that GDP causes an effect on exports and conversely exports cause economic growth in Tanzania. Indeed, these results are in line with the long coefficients results.

On the other hand, Granger causality empirical results in short run coefficients reveal that in lag one to two, there is no causal relationship between exports and GDP. In lag three, the results further indicate that Granger causality came from the exports to GDP, while GDP did not Granger cause the exports; meaning that causality is in one direction. In lag four, the results show the bidirectional causality amongst the variables at a 5% level of significance. This implies that GDP has a positive effect on exports and exports cause economic growth in Tanzania. All these results are attached in the appendices.

Structural Break Results

In the growth-led export model, variables show stable contributions over some time since the CUSUM and CUSUM of squares plots fall within the critical bounds at a 5% level of significance as shown in Figures 4.7(a) and 4.7(b). These results suggest that economic growth has an important role in boosting the export sector in Tanzania.

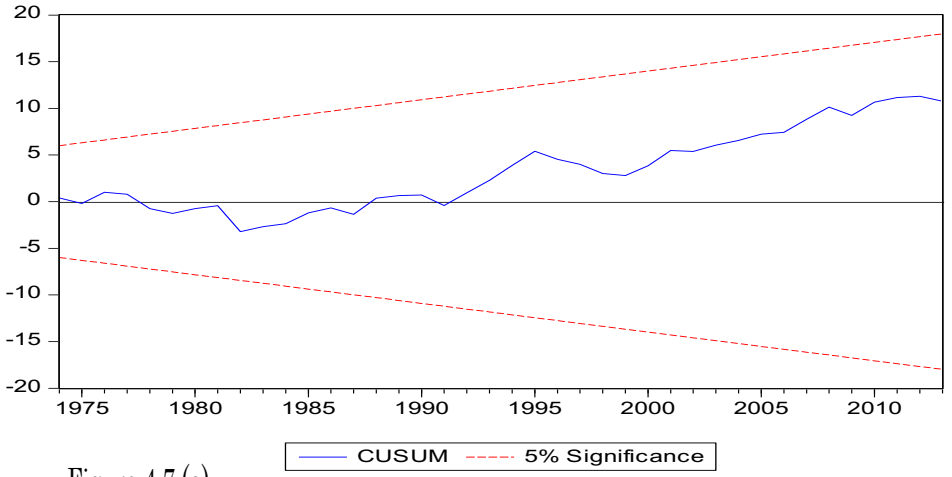

Figure 4.7 (a)

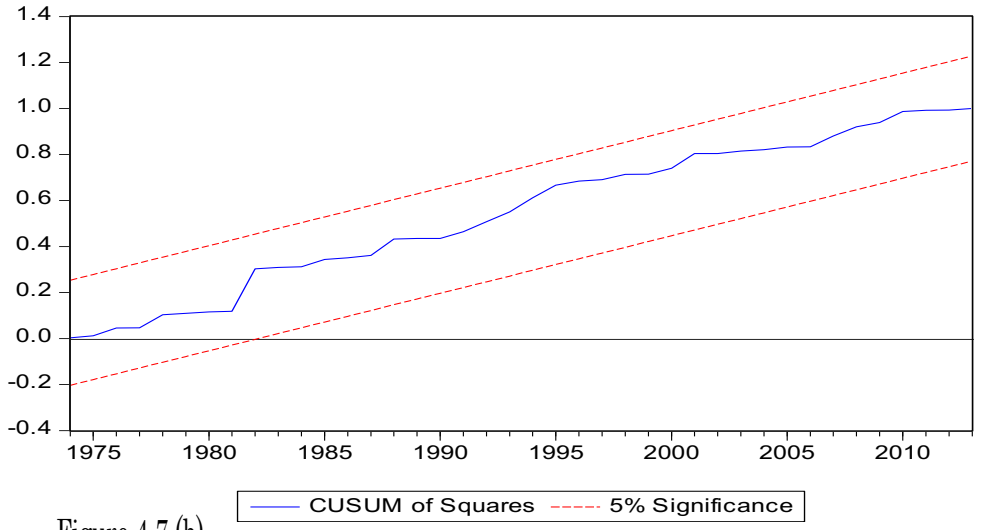

Figure 4.7 (b)

In the export-led growth model, the results show an unstable contribution of exports to economic growth since one of the CUSUM of squares critical bound is crossed; thus, the null hypothesis of stable contribution was rejected. This implies that even though exports have a positive impact on economic growth, their contributions are not stable over time. Thus, the government ought to improve the export sector to make stable contributions to the economic growth. Figures 4.7(c) and 4.7(d) present the structural break results.

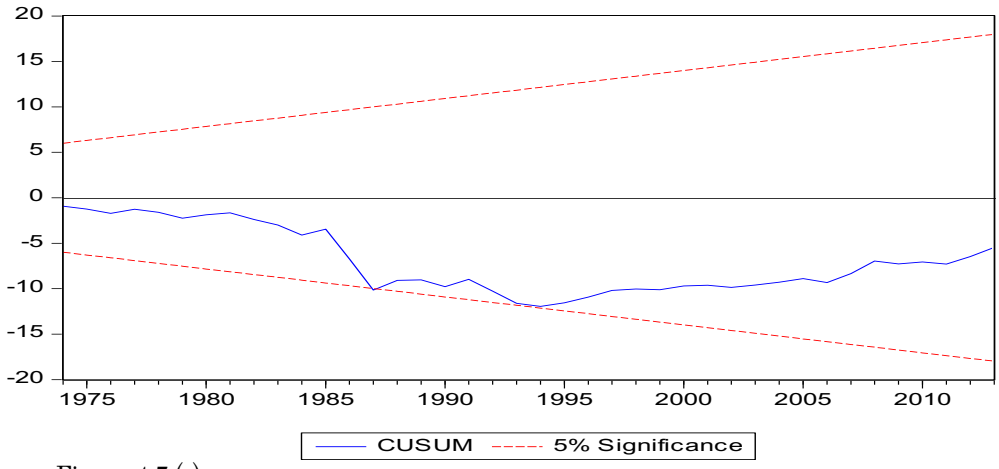

Figure 4.7 (c)

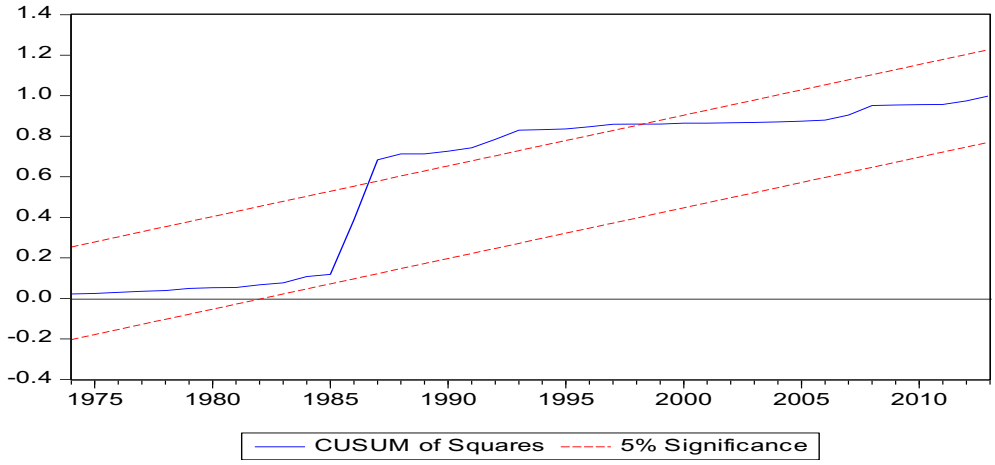

Figure 4.7 (d)

Conclusion

Based on the empirical results of the present study, all the tested hypotheses indicate a positive relationship amongst the variables under study. This implies that the export-led growth or growth-led export doctrines are properly adopted in the Tanzanian economy. In long run coefficients, both models indicate that they are suitable for economic prosperity in Tanzania. In the short run coefficients, all doctrines were found to be insignificant in developing the Tanzanian economy. However, error terms indicated that variables have a long run relationship, which means that they are co integrated and are adjusting to the long run equilibrium at 16 and 23 speeds per annum respectively.

Furthermore, other tests reveal that variables are non-stationary at level and stationary at first difference. Also, the co-integration tests show that all variables are co integrated, meaning that they have a long run relationship. The Granger causality results reveal that in the long run coefficients, all variables have a bidirectional relationship, meaning that exports cause economic growth and economic growth influences the export performance in the Tanzanian economy.

However, structural break results show that GDP has a stable contribution to the export sector in Tanzania, whereas exports show an unstable contribution to the economic growth. From these empirical results, the government should put more attention to these variables (exports and GDP) to improve the economic growth in Tanzania. Now it is clear that the government should

provide specific attention to the crops that are exported like cloves, cashew nuts, cotton, pyrethrum, sisal, coffee, tea, and tobacco, to mention a few.

It is imperative to add value to those cash crops rather than exporting in raw forms. Exporting added value cash crops will improve the export sector in the Tanzanian economy. On top of that, food crops like sunflowers, sesame and floriculture also ought to be given more priority. Furthermore, maize, rice and wheat amongst others should be commercialised for export and not only being viewed as food crops. Out of traditional crops, non-traditional commodities like diamonds, gold and tanzanite should also be improved significantly to pull up the export sector in Tanzania. Improving the export sector conversely will boost the economic growth as well.

The present study's limitation is the use of secondary data as data sometimes is associated with errors in figures due to roundoff or recording. This study could not rectify that weakness since the data used was prepared by an independent source, that is, Ivan Kushnir's research centre database. A further area of research may be to examine the applicability of the tested doctrines in a sector-wise basis.

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Appendices

Long Run Granger Causality Results

Pairwise Granger Causality Tests
Date: 07/15/15 Time: 22:27
Sample: 1970 2013

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGDP does not Granger Cause LNEXPORT	43	5.22550	0.0276
LNEXPORT does not Granger Cause LNGDP		25.9129	9.E-06

Pairwise Granger Causality Tests
Date: 07/15/15 Time: 22:27
Sample: 1970 2013

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGDP does not Granger Cause LNEXPORT	42	4.94463	0.0125
LNEXPORT does not Granger Cause LNGDP		12.1218	9.E-05

Pairwise Granger Causality Tests
Date: 07/15/15 Time: 22:28
Sample: 1970 2013

Lags: 3

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGDP does not Granger Cause LNEXPORT	41	5.49300	0.0035
LNEXPORT does not Granger Cause LNGDP		9.15756	0.0001

Short Run Granger Causality Results

Pairwise Granger Causality Tests
Date: 07/16/15 Time: 00:24
Sample: 1970 2013

Lags:1

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNEXPORT does not Granger Cause DLNGDP	42	1.87833	0.1784
DLNGDP does not Granger Cause DLNEXPORT		2.85055	0.0993

Pairwise Granger Causality Tests
Date: 07/16/15 Time: 00:25
Sample: 1970 2013

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNEXPORT does not Granger Cause DLNGDP	41	2.45540	0.1001
DLNGDP does not Granger Cause DLNEXPORT		2.32444	0.1123

Pairwise Granger Causality Tests
Date: 07/16/15 Time: 00:26
Sample: 1970 2013

Lags: 3

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNEXPORT does not Granger Cause DLNGDP	40	3.67227	0.0218
DLNGDP does not Granger Cause DLNEXPORT		2.33606	0.0917

Pairwise Granger Causality Tests
Date: 07/16/15 Time: 00:27
Sample: 1970 2013

Lags: 4

Null Hypothesis:	Obs	F-Statistic	Prob.
DLNEXPORT does not Granger Cause DLNGDP	39	3.65295	0.0154
DLNGDP does not Granger Cause DLNEXPORT		2.63458	0.0536