

THE RELATIONSHIP BETWEEN EXPORT AND ECONOMIC GROWTH IN TANZANIA: GRANGER CAUSALITY APPROACH (1976 – 2013)

Japhet Mtaturu, Assistant Lecturer, Department of Business Administration, College of Business Education, Bibi Titi Mohammed Road, P. O. Box 1968, Dar es Salaam, Tanzania, E-mail: japhetmtaturu@yahoo.com

ABSTRACT

The main purpose of this paper was to analyse the causality between export and economic growth in Tanzania. This emanates from conflicting and overlapping study findings on the causal relationship between export and economic growth from other economies. The study employed Granger causality approach to analyse time series secondary data from 1976 to 2013. The results revealed the existence of feedback causality between export and economic growth. Thus, both export and economic growth granger cause each other for the case of Tanzania. This suggests that both export-led growth and growth-driven export strategies are vital for economic development of Tanzania.

Keywords: Export, Export-led Growth, Growth-Driven Export, Economic Growth, Granger Causality

INTRODUCTION

The theoretical association between export trade and economic growth was recognized in the classical economic theory originated from Adam Smith and David Ricardo (Afxentiu, 1991). In the theory, they argued that export growth plays a vital role in stimulating economic growth of different economies. Later on, it was observed from the theory that, export trade is also important in generating foreign currencies needed for importation of goods which cannot be produced locally (Chow, 1987).

Merriam-Webster (2008) defines export as to send a product to be sold in another country. Economic growth is a continuous process by which the productive capability of a nation is increased over time to raise the level of national output (Todaro and Smith, 2008). The term economic growth is used to show an increase in total gross domestic product (GDP). Normally, it is measured as the rate of change of gross domestic product (GDP) over a specified period of time. It denotes the market value of the amount of goods and services produced and not the way in which they are produced (Encyclopedia Britannica, 2008). Bhagwati (1988) defined growth-driven export as an increase in economic growth which generally leads to expansion of export trade.

In modern economics, the export and economic growth relationship is explained by export-led growth paradigm. The hypothesis was more remarkable after a success of the East Asian export-led growth strategies adopted during the 1970s and 1980s (Andre, 2007). The East Asian countries provide a good example of the importance of the strategy to economic growth (Tsen, 2006).

Export led growth hypothesis postulates that, export growth makes a significant contribution to economic growth (Krueger, 1978). The export-led growth hypothesis gained high popularity after the failure of import substitution industrialization strategy implemented by most African and Latin American countries (Abou-stait, 2005). Followers of export-led growth paradigm claim that, export trade is an important engine of economic growth because it increases the Total Factor Productivity (TFP) of local firms geared up by increased economies of scale (Sun, 1999).

According to Abou-stait (2005) an export-led growth strategy provides producers with incentives to export their goods through various governmental policies like exposing firms to hassle free environment for exports through special economic zones (SEZs) and economic processing zones (EPZs) schemes. This increases the quality and value of produced goods that can compete in the world market.

Chang (2007) asserted that, export trade is crucial in promoting economic growth both for developed and developing countries. It provides an important source of foreign exchange that relieves the balance of payments deficit and provides employment opportunities. Marin (1992) postulates that, economies with large exports grow faster than others. The export growth influences economic growth through technological spill overs and other forms of externalities (Michaely, 1977).

Problem Statement, Justification and Purpose of the Study

The study aimed to examine the nature of causality in Tanzania because various studies have revealed contradicting relationship between export and economic growth. For example, Ahdi et al (2013) made a similar study in South Africa from the year 1911 to 2011 and found no evidence of causality between export and economic growth. Hatemi (2002) found feedback causality for Japan for period of 1960 to 1999. Chimobi and Uche (2010) confirmed that economic growth granger causes export in case of Nigeria for the period from 1970-2005 while Jordaan and Eita (2007) discovered the existence of unidirectional causality from export to economic growth in Namibia for the period from 1970 to 2005. Therefore, there has been a need of examining the nature of causality between export and economic growth in a case of Tanzania so that we may come to conclusion. The findings of the study provide strong and basic premises for policy makers to formulate new or strengthening the existing relevant economic policies necessary for the better economic performance of Tanzania.

LITERATURE REVIEW

Export and Economic Growth in Tanzania

After independence in early 1960s, the new government of Tanzania adopted an economy based heavily on import substitution industrialization (UNIDO, 2011). According to Chang (2007), the strategy provides protection mechanism for domestic infant industries.

Recognising the role of exports, in the late 1990s, the government strengthened the export-led growth strategy through more value addition. The strategy has been an important source of foreign exchange

through accelerated exports. The paradigm was more pronounced through the Export Processing Zones (EPZs) established under EPZA Act of 2002 (Levin, 2005)

Export-led growth is a prerequisite for achievement of poverty eradication goal through GDP growth in Tanzania. However, the proficiency underpinning the competitiveness required in export-led growth is built and nurtured through the learning processes on export promotion in the domestic economy (URT, 2003).

In Tanzania, export promotion is done by EPZA through the following incentives to attract investors for production of high quality of export products; (i) exemption from corporate tax for ten years (ii) exemption from withholding tax on rent, dividends and interests for 10 years (III) exemption from custom duty, VAT and other taxes on raw materials and goods of capital nature related to production in EPZs (iv) exemption from taxes and levies imposed by Local Government Authorities on products produced in EPZs (v) exemption from VAT on utility and wharfage charges (Masoud, 2012).

From export promotion, Tanzania has experienced the highest manufactured export growth rate from 2000 to 2010, growing from US\$ 129 million to US\$ 1.9 billion. The significant increase mainly took place in the second part of the decade (UNIDO, 2011). In line with export promotion, URT (2011) reported that, despite the 2008 global economic crisis, on average, the Tanzanian economy has grown by seven percent per annum over the last ten years. Notably, this rate exceeds the average growth rate of the competitors in the East African Community (EAC) and the Southern African Development Community (SADC).

Table 1 shows the performance trend of export and economic growth in Tanzania from 2007 to 2013 period.

Table 1: Performance Trend of Export and GDP in Tanzania 2007 - 2013

Unit	2007	2008	2009	2010	2011	2012	2013
GDP (TZS Million)	26,770	32,765	37,727	43,836	52,763	61,434	70,953
Export(TZS Million)	5,064,729	5,396,769	5,586,651	5,965,581	6,568,665	7,622,632	7,669,987

Source; National Bureau of Statistics, United Republic of Tanzania, 2015.

Empirical Review

Ahdi et al (2013) examined the causal relationship between exports and economic growth. He employed Granger causality approach on annual real exports and real gross domestic product data for South African from the year 1911 to 2011. The granger causality results confirmed no evidence of causality between export and economic growth.

Hatemi (2002) examines causal relationship between export growth and economic growth in Japan by augmenting Granger causality test for period of 1960 to 1999. The estimation result indicated a bilateral causality.

Chimobi and Uche (2010) studied the direction of causality between export and economic growth in Nigeria. They employed Granger causality test using time series data for the period from 1970 to 2005. The results revealed that economic growth granger causes export in case of Nigeria.

Jordaan and Eita (2007) analyzed the causality between export and GDP in Namibia for the period from 1970 to 2005. They employed Granger causality approach. The results revealed that, exports granger cause GDP suggesting the application of export-led growth strategy in Namibia.

Pomponio (1996) employed Granger causality test to investigate the causality between export and economic growth in case of Italy for the period of 1965 to 1985. The conclusion was of one way causality from economic growth to export growth.

The cited studies did not take into consideration a structural break effect to the estimated model. According to Chow (1987) ignoring the test may result into structural unstable model characterised by a good number of outliers which may lead to invalid results. However, the findings of this study spell out a reliable and feasible causal relationship between export and economic growth in Tanzania. This arises from taking into account the structural break effects to ascertain with the stability of the model following the major economic reforms which took place in Tanzania around 1980s.

The literature survey provides empirical and theoretical evidence from other economies on the causal relationship between export and economic growth. The major reason of conflicting findings is the variation in economic policies exercised by such economies.

Conceptual Framework

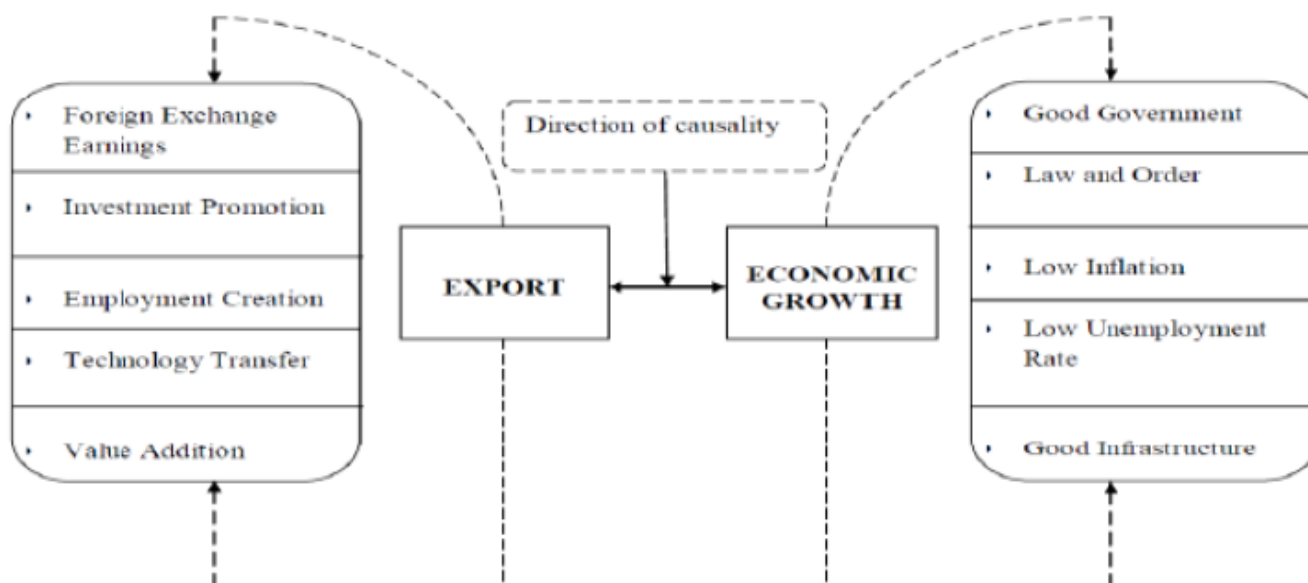
Figure 1.0 indicates a causal relationship that exists between export and economic growth. Export trade results into foreign currency earnings that lead to improvement of Balance of Payment (BoP). Through provision of various incentives, a country may attract investors within or outside the country. This will eventually promote investment in a nation.

Based on promotion of investment, it therefore attracts Foreign Direct Investment (FDI). The investment comes up with capital formation that brings in invisible financial resources to capital scarce developing countries. Therefore investment provides employment opportunities. Foreign investors through FDI come up with new technology from abroad that leads to efficient production that stimulates economic growth.

Export promotion stimulates and improves production skills and brings in new technology. This results into high quality products (value added) which may compete in the world market to fetch higher prices.

On another side, if an economy maintains steady economic growth, it will create better investment environment. Specifically, stable and sustainable economic growth results into provision of good infrastructure for high productivity, maintenance of peace, law and order, good governance, price stability and high employment rate.

Figure 1.0: Conceptual Model



Source: Researcher's Own Construction

Legend: $\longleftrightarrow$ Variables investigated in the study
 $\dashrightarrow$ Variables not investigated in the study

METHODOLOGY AND DATA

Theoretical Framework

In order to test the causality between export and economic growth, the study employed Granger causality approach developed by Granger (1969). This is an innovative and more efficient econometric methodology used to test the direction of causality between economic variables using time series data.

Granger Causality Approach/Model

Granger (1969) developed Granger causality test and according to him, a variable x is said to granger cause another variable y if the past and present values of x help to predict y . The test has been one of the main approaches of many econometrics studies for the past three decades. It is the appropriate econometric technique used in time series analysis to investigate the direction of causality between two economic variables (Gujarati, 2005).

Recently it has been proven by Gujarati (1995) that, the conventional F-test for determining joint significance of regression derived parameters to test causality is invalid if the variables are non-stationary and the test statistic does not have standard distribution.

Within a bivariate context, the Granger-type test states that; if a variable x granger causes variable y , the mean square error (MSE) of a forecast of y , based on the past values of both variables is lower than that of a forecast that uses only past values of y (Granger, 1969).

Pursuant to Frimpong and Oteng-Abayie (2008), the Granger test was implemented by running the following regression:

$$\Delta y_t = \sum_{i=1}^p \beta_i \Delta Y_{t-i} + \sum_{i=1}^p \gamma_i \Delta X_{t-i} + \mu_t \dots \dots \dots (1)$$

$$H_0: \gamma_1 = \gamma_2 = \dots \gamma_p = 0;$$

$$H_1: \gamma_1 \neq \gamma_2 \neq \dots \gamma_p \neq 0.$$

Granger causality from y variable to variable x occurs when H_0 of the asymptotic chi-square test is rejected. A statistically significant test occurs when x variable has predictive value for forecasting movements in y .

Data

Secondary data for annual GDP growth rate in percentage which is a proxy for economic growth and export growth rate in percentage for the case of Tanzania were used in the study for the period from 1976 to 2013.

Data Source and Reliability

The data set for GDP growth rate in percentage and export growth rate in percentage were accessed from the United Nations Statistics Division database at <http://www.unstats.un.org>. The data source is reliable as Tanzania is a member of the United Nations (UN). UN is given a mandate to publish agreed statistics of the country members under one umbrella through United Nation Statistics Division.

According to UN (2004) the United Nations Statistics Division (UNSD) works closely with states around the globe in collecting data and ensuring that the international community has reliable

information to help countries meet their economic, social and environmental goals. UNSD is persistent to produce statistics on the national and international level that is based on primary country data.

The Model

In order to test the direction of causality from export to economic growth, GDP was regressed as a function of export indicated in equation (2).

$$\Delta \ln^1 GDP_t = \alpha + \sum_{i=1}^{k+d} \beta_{1i} \Delta \ln GDP_{t-1} + \sum_{i=1}^{k+d} \gamma_{1i} \Delta \ln EXP_{t-1} + \mu_{1t} \dots \dots \dots (2)$$

To test the influence of economic growth on export, EXP was regressed as a function of GDP as indicated in equation (3).

$$\Delta \ln EXP_t = \alpha + \sum_{i=1}^{k+d} \beta_{2i} \Delta \ln EXP_{t-1} + \sum_{i=1}^{k+d} \gamma_{2i} \Delta \ln GDP_{t-1} + \mu_{2t} \dots \dots \dots (3)$$

Where;

1. $\Delta \ln GDP$ is the differenced natural logarithm of GDP growth rate in percentage (proxy for economic growth).
2. $\Delta \ln EXP$ is the differenced natural logarithm of export growth rate in percentage.
3. k is the optimal lag order, d is the maximal order of integration of the variables in the system and μ_{1t} and μ_{2t} are error terms.
4. β_i and γ_i are coefficients of variables EXP and GDP.
5. The model is assumed to have zero mean values of error terms with identical conditional variances (homoscedasticity) and that, the error terms are not correlated to themselves and to their respective variables. The model is further assumed to be free from specification bias with no perfect linear correlation among the variables.

Equation (1) indicates that current GDP is related to past values of itself which is a similar case for export in equation (2).

The following are interpretations of the two equations:

1. Unidirectional causality from EXP to GDP occurs when the summation of estimated coefficients on lagged value of EXP in equation (1) is statistically not equal to zero (i.e. $\sum \gamma_{1i} \neq 0$) and the summation of estimated coefficients on lagged value of GDP in equation (2) is statistically equal to zero (i.e. $\sum \gamma_{2i} = 0$).
2. On another hand, unidirectional causality from GDP to EXP occurs when the summation of estimated coefficients on lagged value of EXP in equation (1) statistically equal to (i.e. $\sum \gamma_{1i} = 0$) and the summation of estimated coefficients on lagged value of GDP in equation (2) is statistically not equal to zero (i.e. $\sum \gamma_{2i} \neq 0$).

¹ Indicates natural logarithm which was used for transformation of data to avoid the problem of multicollinearity

3. Bilateral causality, is suggested when the summation of coefficients of lagged values of *EXP* and *GDP* are statistically not equal to zero in both regressions.
4. A situation where neither *EXP* nor *GDP* causes one another occurs when the summation of coefficients of lagged values of *EXP* and *GDP* are statistically equal to zero in both regressions.

Since the past predicts the future and the future cannot predict the past, if variable *EXP* influences changes to variable *GDP*, then changes in *GDP* should be preceded by changes in *EXP*. Therefore, if we regress *GDP* on *EXP* including its own past values and it significantly improves the prediction of *GDP*, then we conclude that *EXP* granger causes *GDP*. A similar case applies when *GDP* granger causes *EXP*.

Data Processing and Estimation Technique

The following are essential data processing procedures used in the study necessary for validity of the findings resulting from time series analysis. The aim of the procedures is to make a fair treatment of the time series ready for final estimation. According to Gujarati (2005) evasion of the steps may lead to spurious regression.

Unit Root Test

Prior to any procedure, the study performed a unit root test. Khairul (2011) documented that; the purpose of the unit root test is to check for time series data stationarity. He added that, the data is said to be stationary if its mean, variance and covariance remain constant over time.

Cointegration Test

Cointegration means that despite being individually nonstationary, a linear combination of two or more time series can be stationary (Gujarati 2005). The Engle and Granger test was used to find out if export and *GDP* time series are cointegrated.

Chow Test for Structural Break

Chow test for structural break was employed to check for the model stability following economic reforms which took place in Tanzania in the late 1980s. According to Gujarati (2005) structural change or break occurs when the values of the time series parameters of the model do not remain the same through the entire time period. The effect comes from external forces such policy changes or sudden shock to the economy.

Estimation Technique

The study applied Seemingly Unrelated Regression (SURE) technique developed by Arnold (1962) in analysing the causality between export and economic growth in Tanzania.

FINDINGS AND DISCUSSIONS

Time Series Properties of Data

Augmented Dickey Fuller Unit Root Test

Prior to Granger causality test, Unit root test was carried out on GDP and EXP variables using Augmented Dickey-Fuller (ADF) test. Through the test, maximal integration order (d) of the variables was established. The test was also used to check whether the two variables were stationary.

According to Gujarati (2005), if the t -statistic of the ADF results is smaller than its corresponding critical values then the series is stationary. Table 2, indicates that GDP growth rate is stationary at 1% significance level at lag 1 i.e. I (1). Similarly, Table 2 indicates that export growth rate is stationary at 1% significance level at lag 1 i.e. I (1).

Therefore; both GDP growth rate and export growth rate were integrated of order 1 which allows for cointegration test.

Table 2: Unit Root Test on GDP and EXP Series

GDP Series				
	Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-5.03	-4.29	-3.56	-3.22
EXP Series				
	Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-6.26	-4.29	-3.56	-3.21

Optimal Lag Order (k)

Forecast Prediction Error (FPE) Criteria, Schwartz Bayesian Information Criteria (SBIC), Likelihood Ratio (LR), Akaike information criteria (AIC) and Hannan Quinn Information Criteria (HQIC) were employed to establish and select the optimal lag length of the VAR (k) model. Table 3 reports the results of selection order criteria for selecting the order of VAR model.

Table 3: Selection Criteria

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-118.87				6.55	7.55	7.58	7.64
1	-111.07	15.60	4	0.00	5.17	7.31	7.41	7.59*
2	-106.32	9.49	4	0.05	4.95	7.27	7.42	7.71
3	-104.16	4.30	4	0.37	5.61	7.39	7.59	8.03
4	-97.350	13.63*	4	0.01	4.78*	7.21*	7.48	8.03

On the basis of the results in Table 3, the LR, FPE and the AIC information criteria select four (4) lags while SBIC selects one (1) lag. The SBIC one (1) lag order of the VAR model is selected because the sample size is small which preserves some degree of freedom for the estimation.

Engle and Granger Cointegration Test

Cointegration test was employed using Engle and Granger (EG) technique to trace whether the variables had a long run relationship or cointegrated. The ADF test was performed to the residuals obtained from the regression and the results are presented in Table 4. According to Gujarati (2005) if the t-statistic of the ADF results is greater than its corresponding critical values then the residuals are not stationary and thus, no cointegration or long run relationship between the variables. The results in Table 4 clearly indicate that, the residuals were not stationary because the t-statistic (-.64) is greater than the corresponding critical values at all significance levels, indicating no cointegration between the two variables.

Table 4: Engle and Granger Test

	Test Statistics	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-.64	-3.75	-3.00	-2.63

Model Specification and Estimation

Model specification

Using the established maximal order of integration ($d = 1$) and the selected VAR length ($k = 1$), the following augmented VAR model was specified.

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^2 \beta_{1i} \Delta \ln GDP_{t-i} + \sum_{i=1}^2 \gamma_{1i} \Delta \ln EXP_{t-i} + \mu_{1t} \dots \dots \dots (4)$$

$$\Delta \ln EXP_t = \alpha_0 + \sum_{i=1}^2 \beta_{2i} \Delta \ln EXP_{t-i} + \sum_{i=1}^2 \gamma_{2i} \Delta \ln GDP_{t-i} + \mu_{2t} \dots \dots \dots (5)$$

Model Estimation - SURE Technique

Table 5(a) and 5(b) provide a summary of the results from Seemingly Unrelated Regression (SURE):

Table 5(a): Seemingly Unrelated Regression (SURE) I

Equation	Obs	Parms	RMSE	“R-sq”	Chi2	P
Equation 4a	38	2	1.02	.1154	4.56	.10
Equation 4b	38	2	1.78	.3191	16.40	.00

Table 5(b): Seemingly Unrelated Regression (SURE) II

Equation 4a		Coef.	Std. Err	Z	P > z	[95% Conf. Interval]	
	DlnGDPlag1	-.30	.16	-1.84	.066	-.62	.02
	DlnEXPlag1	.05	.08	-.60	.55	-.22	.11
	_Cons	.004	.17	.02	.99	-.33	.34
Equation 4b	DlnExplag1	.54	.15	-3.65	.00	-.83	-.25
	DlnGDPlag1	.23	.29	-.80	.42	-.79	.33
	_Cons	.002	.30	-.01	.99	-.59	.58

Based on the output from Table 5(a) and 5(b), the following estimated VAR model was developed.

$$\Delta \ln GDP_t = 0.30 \Delta \ln GDP_{t-1} + 0.05 \Delta \ln EXP_{t-1} + \mu_{1t} \dots \dots \dots (6)$$

$$\Delta \ln EXP_t = 0.54 \Delta \ln EXP_{t-1} + 0.23 \Delta \ln GDP_{t-1} + \mu_{2t} \dots \dots \dots (7)$$

Chow Test for Structural Break

Gujarati (2005) declared that, economic time series variables may contain a structural break due to changes in economic policy or sudden shock to the economy. This may affect some economic data series and lead to outliers for some observations where the regression line may not have the best of fit to the data.

Recognising the effect of structural break, the study employed a Chow test of structural break to detect whether the data set was affected by structural break or it was stable. This is in line with the economic reforms which took place in Tanzania in the late 1980s.

In order to test for a structural break, the data set was apportioned into three groups, from 1976 to 2013, 1976 to 1985 and from 1986 to 2013 respectively. The simple linear regression analysis was run to each of the three groups of data set in order to establish the sum of squares of the residuals to each group. From the sum of squares established, the overall F statistic was calculated for Export and GDP series exclusively and the results are indicated in Table 6.

Table 6: Chow Test

	Computed F- Statistic Value	Tabulated F - Critical Value
Export Series	0.9586	2.87
GDP Series	0.9437	4.14

H₀: No structural break in a series

H₁: A series has structural break

Table 6 indicates that, the computed F statistic values for Export and GDP series are 0.9586 and 0.9437 respectively. Both values are smaller than the corresponding tabulated F critical values (at 5% significance level) which are 2.87 and 4.14 respectively. Following the decision rule from Gujarati (2005), the null hypothesis is accepted in both cases and concluded that, there is no structural break in the data set. This indicates that, the dataset is stable with no significant outliers to affect the model results. Therefore, the regression doesn't suffer from structural break problem following economic reforms of the late 1980s'.

Empirical Findings

Granger Causality and Hypothesis Testing

Ultimately, the Granger causality test was performed to establish whether the estimated coefficient γ_{1i} and γ_{2i} of the lagged GDP and EXP variables are statistically significant or not. This was done in respect of equations 4(a) and 4(b).

From the results it is shown that, the computed F values are 4.49 and 4.23 respectively. The values are greater than the corresponding tabulated critical value of F which is 4.12 in both cases. According to Gujarati (2005), if the computed F statistic is greater than its tabulated critical value, the decision is to reject the null hypothesis and accept the alternative hypothesis. Therefore, the null hypothesis is rejected and the alternative one is accepted in both cases; i.e. overall, it shows a clear evidence of two way causality from EXP to GDP and vice versa.

CONCLUSION AND POLICY IMPLICATION

This paper aimed at analysing the direction of causality between export and economic growth in Tanzania. The study analysed the annual time series data for export growth rate in percentage and GDP growth rate in percentage (proxy for economic growth) for the period from 1976 to 2013. It employed Granger causality test, econometric approach which is more efficient to test the direction of causality between two economic variables.

This study initiated discussion on export and economic growth by focusing on the following four possible types of causal links between the variables; (1) Export-led growth hypothesis i.e. to find out if export growth results into economic growth, (2) Growth-driven export hypothesis i.e. to see if economic growth results into export growth, (3) To find out if there is two way causality between export growth and economic growth, and (4) To see if neither export growth nor economic growth cause each other.

From Granger causality test, the results suggest a clear evidence of feedback causality between export and economic growth. Therefore, from analysis of time series data of 1976 to 2013, empirically it is confirmed that, both export-led growth and growth-driven export strategies apply for the case of Tanzania. In this case export trade is important to stimulate economic growth and economic growth contributes to export growth in Tanzania which is consistent to the findings of Hatemi (2002).

Finally from the findings, the theoretical belief that export growth leads to economic growth is confirmed in the case of Tanzania and the vice versa is also evidenced to be true.

The findings provide guidelines to policy makers with the validity evidence that export growth is important for stable economic growth in Tanzania. Likewise, the findings underscore the importance of economic growth to stimulate export trade.

Export expansion will stimulate economic growth by offering greater economies of scale. This comes from exposure to international consumption patterns leading to investing in new technology for value addition as a strategy for production of larger scale of output (economic growth). Higher productivity leads to a lower marginal cost of production, in turn it makes the domestic goods cheaper which is a favourable condition for export growth. Therefore, economic growth affects export growth if the domestic production increases faster than the domestic demand at favourable prices.

The knowledge of feedback causality between the two variables is critical in developing policies that would encourage more investors for export-led growth strategy in Tanzania through provision of attractive incentives to investors from within and outside Tanzania. It also puts emphasis to the government to elevate economic growth for better investment environment in development of industries, health sector, transport and public utilities as these sectors are crucial in enabling a pleasant environment for the private sector investments.

Research area remaining for future study, is to analyse the causal relationship within multivariate VAR system. This may be done by including other important variables together with export and economic growth using panel data of which may lead to improvement of the results with more strapping conclusions.

REFERENCES

- Abou-stait, R. (2005). Are growth exports the engine of economic? An application of cointegration and causality analysis for Egypt,. Economic Research Working Paper Series. Tunis: African Development Bank.
- Afxentiou, P. (1991). Exports and GNP Causality in the Industrial Countries:”. *Kyklos*, vol. 44, pp.167-79.
- Ahdi, N., Goodness, C., Mehmet, B. and Rangan, G. (2013). Causality between Exports and Economic Growth in South Africa: Evidence from Linear and Nonlinear Tests, Working Papers 201339, University of Pretoria, Department of Economics.
- Andre, C. (2007). Export and economic growth in Namibia: A granger causality analysis. *Journal of Economics and Development*, Vol.4, pp.16-89.
- Arnold, Z. (1962). *Causality and Econometrics*. Amsterdam, North Holland Publishing Company.

- Bhagwati, J. (1988). *Protectionism* (Cambridge, MA: MIT Press).
- Chimobi, O. and Uche, U. (2010). Economic Growth and Export: A Causality Test for Nigeria. *American Journal of Scientific Research*, vol 8, pp 78-97
- Chang, S. (2007). *Exporting Africa Technology, Trade and Industrialization in Sub-Saharan Africa*, Routledge, London.
- Chow, P. (1987). Causality between export growth and industrial development: Empirical evidence from the NICs. *Journal of Development Economics*, vol 26, pp 55-63.
- Encyclopedia Britannica, (2008). Economic Growth. Encyclopedia Britannica, Ultimate Reference suite DVD.
- Frimpong J.. and Oteng – Abiye, E. (2008). Bivariate causality analysis between FDI inflows and Economic Growth in Ghana. *International Research Journal of Finance and Economics*, vol 26(1), 55-63.
- Granger, C. (1969). Investigating the causal relations by econometric models and cross-spectral methods. *Econometrica*, vol 37(3), pp 424-438.
- Gujarati, D. (1995). *Basic Econometrics, Second Edition*. The McGraw–Hill Companies.
- Gujarati, D. (2005). *Basic Econometrics, Fifth Edition*. The McGraw–Hill Companies.
- Hatemi, J. (2002). Export Performance and Economic Growth Nexus in Japan: A Bootstrap Approach, *Japan and the World Economy*, vol14, pp 25-33.
- Jordaan, A. and Eita, J. (2007). Export and Economic Growth in Namibia: A Granger Causality Analysis, *South African Journal of Economics*, Vol 75,(3), pp. 540-547.
- Krueger, A. (1978). *Liberalization Attempts and Consequences*. Cambridge, MA: Ballinger.
- Khairul, S. (2011). The Association between Government Expenditure and Economic Growth in Malaysia. Unpublished Master's dissertation, Ritsumeikan Asia Pacific University.
- Levin, A. (2005). Complementarities between Exports and Human Capital: Evidence from the Semi-Industrialized Countries., MIT Press, Cambridge vol 46, pp 155-174.
- Masoud, R. (2012). Export Trade and Economic Growth in Tanzania: Disaggregated Approach, *Journal of Economics and Sustainable Development*, Vol. 3, pp 34-39.
- Marin, D. (1992). Is the export-led growth hypothesis valid for industrialised countries? *Review of Economics and Statistics*, vol 74(4), pp 678-688.
- Merriam-Webster, (2008). *Advanced Learners English Dictionary*, Massachusetts, USA.
- Michaely, M. (1977). Exports and growth: An empirical investigation. *Journal of Development Economics*.vol 40, pp 149-153.
- Pomponio, X. (1996). A causality analysis of growth and export performance. *Atlantic Economic Journal*, vol 24(2), pp 168-186.
- Sun, E. (1999). Export-led growth and the US economy. *Applied Economic Letters*, Vol 3, 341-344.
- Toda, H. and Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics*, vol 66, pp 225-250.
- Todaro, M. and Smith, S. (2008). *Economic Development*, Tenth Edition Addison-Wesley Publishers, Edinburgh Gate, England.

- Tsen, W. (2006). Granger Causality Tests Among Openness to International Trade, Human Capital Accumulation and Economic growth in China: *International Economic Journal*, vol 20(3), pp 285-302.
- UN (2004) Securing reliable data for development, Department of Economic and Social Affairs; New York.
- UNIDO (2011), Tanzania Sustainable Industrial Development and Competitiveness. Dar es Salaam.
- URT (2003). Analytical Overview of the Experience and Prospective Strategies in Industrial Development in Tanzania, Ministry of Industry and Trade, Dar es Salaam.
- URT(2011). Poverty and Human Development Report. The status of Economic Growth in Tanzania. Dar es Salaam.
- URT (2015) . National Accounts of Tanzania 2007 – 2014, Ministry of Finance, Dar es Salaam.

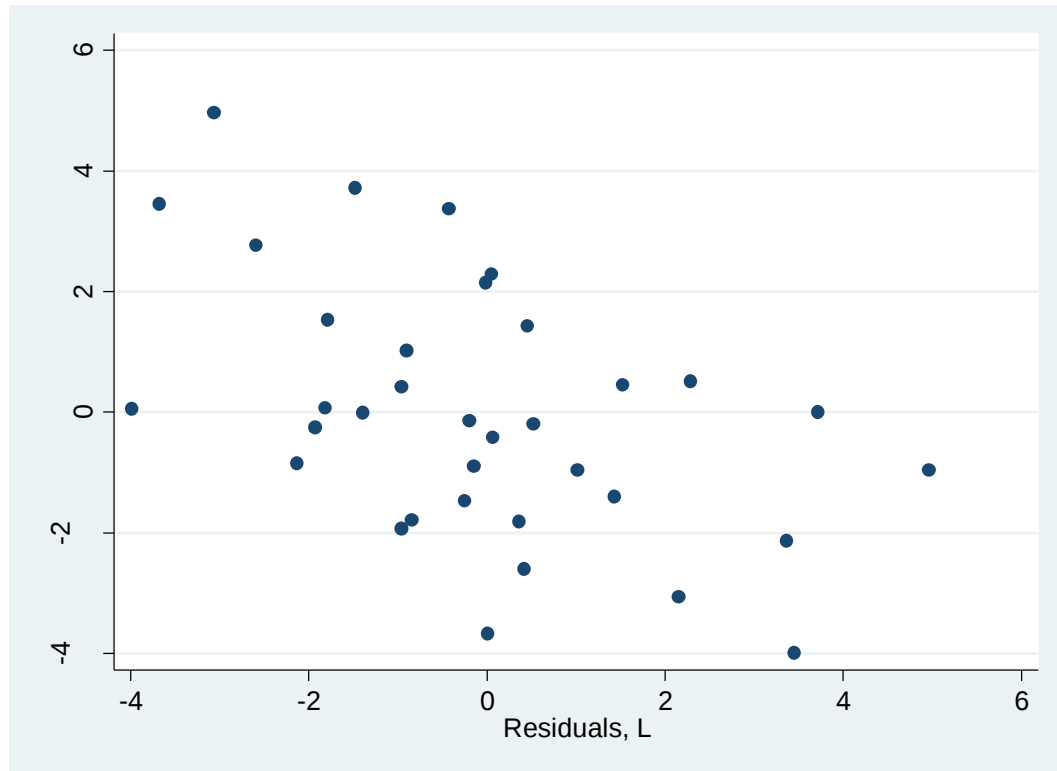
APPENDICES

Data Used in Analysis

Year	Export Growth Rate (%)	GDP Growth Rate (%)
1976	32.2	6.4
1977	-9.8	0.4
1978	-24.3	1.2
1979	0.2	3.3
1980	-4.2	3.0
1981	-15.6	-0.5
1982	-24.6	0.6
1983	-32.0	-2.4
1984	0.7	3.4
1985	17.7	4.6
1986	-10.3	1.9
1987	155.1	4.9
1988	59.4	4.1
1989	7.1	4.0
1990	7.7	4.5
1991	-10.5	5.7
1992	22.9	3.5
1993	33.7	4.2
1994	-0.5	3.0
1995	48.5	3.6
1996	1.0	4.5
1997	-12.0	3.5
1998	9.8	3.7
1999	20.0	4.8
2000	17.6	4.9
2001	17.1	6.0
2002	7.7	7.2
2003	19.5	6.9
2004	8.3	7.8
2005	13.5	7.4
2006	-3.3	6.7
2007	16.8	7.1
2008	6.6	6.7
2009	3.5	3.9
2010	6.8	5.8
2011	10.1	9.5
2012	16.0	5.1
2013	0.6	8.2

Source: United Nations Statistical Division.

Residual Scatter Plot for Engle and Granger Test of Cointegration



Source: Stata Output.