Original Paper

The Nexus between Export and Economic Growth in Tanzania

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Abstract

This study explored the causal relationship between exports and economic growth in Tanzania. It analyzed time series data for the period of 1980 to 2015. Economic growth is measured in terms of growth per cent while exports are measured in percentage change of goods and services sold abroad. Econometrics analysis was employed in the due course. Such procedures as testing for the presence of unit root, co-integration and causality were done. Furthermore, the Johansen co-integration and Granger causality tests were employed to examine the long-run relationship among variables. The results of co-integration indicate the existence of one co-integrating equation. The causality test results exhibited causality which runs from economic growth to exports. The results conclude that, in the long run, there is a relationship between exports and economic growth in Tanzania. This study recommends the Government to make efforts to improve exports and eventually, in the long-run, rejuvenating the economy.

Keywords

economic growth, exports, co-integration, granger causality, unit root

1. Introduction

It is argued that the role of international trade in influencing the economic growth of countries around the World has always been an issue of interest for academicians, economists and politicians (Dutt, Ghosh, & Austin 2015). Literally, economic growth is an important element for economic welfare in the World. With this view, exports as an important component of economic growth (GDP) is linked with economic growth. Exports of goods and services stand as the most important source of foreign currency for countries. Exports relieve pressure on the balance of payments and urgently contribute to

creating employment opportunities. Economists link export trade with different levels of economic growth among countries. It is obvious that exports lead countries to intra-industry trade, integrate into the world economy and ease the pressure on external shocks for domestic economies (Abou-Stait, 2005).

From the theoretical perspective, the classical economists, i.e., Adam Smith and David Ricardo argued international trade as a key stimulus in boosting economic growth. In international trade, there emanates an important element "exports" which stimulates economic growth. On the other hand, neoclassical economists highlight the importance of competitive advantage in international trade. A country can maximise its well-being through activities which are most efficient in resource and production. Relatively, the benefits of international trade are static which imply that trade liberation and openness cannot simply lead to an increase in long-run economic growth through exports. However, the most probable impact is claimed to happen in influencing income levels amongst nations. Further, external and domestic reasons that govern a country's export performance in the integration into the global economy are argued not to operate independently (WTO, 1996). A complex interaction exists both positively and negatively implying that a factor from one category can correctly interact with other factors in other categories. The developments in the external factors can lead to improving or worsening impacts of domestic factors and vice versa.

Export broadening is an influential agent to the successful development of developing economies since it creates a fundamental base for economic growth. Most of the Least Developed Countries (LDCs) find that export diversification is a chimaera (Nicita, Shirotori, & Klok, 2013). Exports among LDCs are for large per cent concentrated in fewer sectors and are limited to primary commodities. Export indices concentration for LDCs has been rising since the last decade. In 2009, for example, the concentration of exports of LDCs was about four times as large as those of the developing economies (Nicita et al., 2013).

Although exports have been crucial for growth and development, developing countries are obscured by the challenge of expanding and diversifying export beyond their primary products. Through researches, it is well established that, trade openness and integration into global markets have become important elements to successful strategies with sustained economic growth which are associated with export growth (Dollar & Kraay, 2001). On top of that, the contribution of exports to economies of the developing countries is clearly subjected to a varied range of both empirical and theoretical perspectives. As a matter of fact, there have been various disagreements among scholars concerning the applicability and validity of export to economic development (Kaberuka, Rwakinanga, & Tibesigwa, 2014).

For Tanzania, it is noted that under the period under which the Monthly Economic Review was undertaken, i.e., in February 2015, the exports value of goods and services was approximated to USD 8,854.7 million. The value is claimed to be 3.8% higher than the recorded amount in the corresponding period in 2014 (BOT, 2015). This expansion is evidenced to good performance in exports of both

manufactured goods and travel receipts. Though the export sector shows to have been playing an important role in Tanzanian economic development, there is no much information which provides literature on the direct relationship between export and economic growth. From this perspective, this study is undertaken to objectively examine the relationship which typically exists between exports and economic growth in Tanzania. The application of exports and economic growth time series data for 54 years from 1980 to 2015 is carefully supplementing the study analysis. This study is orderly structured into main five sections: section one presents both introduction and the background to the study, section two presents synthesized information on literature review; section three discusses data and methodology employed, section four presents data presentation, analysis and discussion of the findings and section five presents conclusion and recommendations which the study findings suggest.

2. Literature Review

2.1 The Theoretical Standpoint

The export-led growth refers to a trade and economic policy initiative to foster the industrialisation process to facilitate the exportation of both goods and services. The goods under the export consideration are those with comparative advantages. It, further, requires the presence of market access mechanisms. This requirement arises due to the fact that some governments tend to sometimes aim at protecting infant industries. This action intends to provide an opportunity for small industries for growing and managing competition by comparative advantage. The prevalence of this situation, in reality, causes converse to occur. An example is on most of the East Asian countries which had strong barriers on imports around the 1960s-1980s (Sanderatne, 2011).

In promoting exports, there are various stimulants such as a reduction in trade barriers, tariff, floating the exchange rate and devaluation of currencies. Furthermore, governments may support the exporting sectors so as to promote export-led growth and, consequently, economic development. Essentially, the export-oriented industrialization was the stimulus of the improvement of the Asian economies of Hong Kong, Taiwan, South Korea, and Singapore after World War II (Sanderatne, 2011). Thus, export-led growth was a fundamental economic strategy adopted by some developing countries seeking to find a position in the world economy for their exported commodities.

Despite the criticisms on the export-led growth strategy that it increases market sensitivity to exogenous factors, and being partially responsible for the damage of the 1997 Asian financial crisis, for lacking product diversity, and having limited success to economies with a decline in terms of trade, literature has proven that governments from East Asia had potentially the ability and resources in identifying and exploiting comparative advantages. Therefore, export-led growth has been highly supported as being a suitable development strategy for developing countries like Tanzania. This is due to its success in Asia.

2.2 Empirical Review

Empirical studies on examining the relationships between export and economic growth (GDP) can be categorised into two aspects. The first one being cross-sectional studies which seek to study the impact

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of exports on the economic growth of a specified group of countries, and the other being cross-country studies in which individual countries are investigated with the aim of studying the impact of export to the economic growth of the respective country.

2.2.1 Cross-Country Studies

This part covers the empirical analysis of studies conducted on seeking the relationship which exists between exports and economic growth among the group of countries in the World. This means that countries are investigated jointly to examine the working relationship. Some of these studies are: Ee (2015) examined Export-Led Growth for the selected Sub-Saharan African (SSA) countries from 1985 to 2014. The approach used was a new generation panel data. The study findings showed the presence of cointegration. Moreover, there exists a long-run relationship between exports and economic growth. The estimation results showed that there is a positive impact of exports among other variables to SSA economic growth which proves that export-oriented growth strategy suit for the SSA countries.

Safdari and Mahmoodi (2011) explored the causal relationship between export and economic growth for 13 developing countries from 1988-2008, using panel Vector Error Correction Model (VECM). The result depicted unidirectional reverse causality running from economic growth to exports.

Parida and Sahoo (2007) examined export-led growth hypothesis for developing countries from the Asian countries of Pakistan, Bangladesh and Sri Lanka using Padroni's panel cointegration technique. The results confirmed the validity of the export-led growth hypothesis.

Abu-Quarn and Abu-Bader (2004), Dodaro (1993), Sharma and Dhakal (1994) researched on the long-run relationship between exports and GDP by using the causality test and found a positive relationship between the two. On the other hand, with the use of co-integration techniques, other studies examine the long-run relationship between exports and GDP of specific countries; these are Oskooee and Alse (1994) and Oskooee and Economidou (2009). Moreover, causality is reported to run from either export trade to GDP or to both directions. These studies further suggest that causality applies in most of developing countries particularly in Africa.

2.2.2 Specific Country Studies

Apart from investigating the link between export and economic growth among groups of countries, the empirical literature has in stock studies which researched the same to specific countries. The studies aimed at identifying the link so as to suggest important measures to strengthen the prevailing situation in both policies and strategies. Some of these studies are: Zehra, Nigar, and Taspinara (2015) investigated the Costa Rica export-led growth hypothesis. They employed both the Johansen co-integration and Granger causality tests. This study aimed at examining the long-run relationship and the causality between export trade and economic growth. The results of Johansen co-integration indicated a long-run equilibrium relationship between exports and economic growth. The results from the Granger causality test showed a causality being unidirectional from the economic growth to export growth.

Ajmi, Aye, Balcilar, and Gupta (2013) conducted a study on investigating the dynamic causal linkage

between exports and economic growth. The study used Granger causality tests on annual data for South Africa specifically on real exports and real GDP from the period 1911 to 2011. The test results showed no linear Granger causality between exports and real GDP. On the contrary, the study on the same by using the nonlinear techniques to test for the Granger causality revealed the presence of bidirectional causality.

Kalaitzi (2013) conducted a study examining the nexus between exports and economic growth (GDP) in the United Arab Emirates (U.A.E.) from 1980 to 2010. In the study, the two-step Engle-Granger co-integration test was applied together with the Johansen co-integration test to check for the existence of a long-run relationship among variables. In addition to that, the study employed a Vector Auto-Regression (VAR) Model and Granger causality test to study the causality. The findings showed that a long-run relationship between manufactured and primary exports on economic growth exists. The Granger causality test depicted a unidirectional link between manufactured exports goods and economic growth. The study findings further suggested that an increase in the amount of export diversification from oil could result in the UAE's economic growth improvement.

Pistoresi and Rinaldi (2012) examined the relationship existing between real Exports, imports and economic growth (GDP) in Italy from 1863 to 2004. They employed the co-integration and causality tests. The existence of co-integration was confirmed by results from the analysis despite the direction of causality indicating to vary over time. The period pre-first World War, import led growth (GDP) turned into export-led growth (GDP). The causality observed was a bidirectional movement that was experienced after the Second World War.

Lorde (2011) employed the co-integration and Granger causality analysis techniques from 1960-2003 to probe the validity of export-led growth in Mexico. The results showed the existence of short-run relationship from export to economic growth. The study, further, identified inverse causation from economic growth to exports. This implies that economic growth (GDP) imposes significant effects on export for Mexico.

Kim and Lin (2009) studied the effect of export structure on economic growth (GDP). The study findings showed that not exactly all exports components contribute equally to economic growth. This is particularly relevant to the developing countries which largely depend on exports of their primary products which are affected by excessive price variabilities. Popularly, exports of the alike have minor impact on economic growth compared to industrial exports which had both a positive and significant effect on economic growth.

Abu (2006) scrutinised the export-led growth hypothesis in Jordan from the period 1976 to 1997. The empirical results of the study designated the existence of a unidirectional link from exports to output (GDP). The study findings maintained the Export-oriented growth strategy by the country. It argued that promoting economic growth more rapidly, government institutions like Free Zones Corporations, Jordan Investment Board (JIB) and Jordan Export Development Corporation (JEDC) had to continue chasing their missions to appealing foreign investments and boosting exports.

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In view of the above, we conclude that specific country study analysis conceals variations on the impact of export-led growth. Furthermore, the studies on developing countries reveal a significant influence of exports on economic growth (GDP). Results suggest that developing countries like Tanzania may boost their level of exports in lieu of the long run economic prosperity.

3. Data and Methodology

3.1 Data

We use time series data for Tanzania covering the period from 1980 to 2015. The data include exports, that is, the volume of goods and services in percentage change and the economic growth in per cent as it is the indicator in measuring economic growth. Data were aggregated from the World Development Indicator (WDI) 2016 together with the International Financial Statistics department of the International Monetary Fund.

3.1.1 Economic Growth

For this study, economic growth is the per cent change in GDP and is regarded as the regress and denoted by GDP.

3.1.2 Exports

Exports values, denoted by EXP, capture goods and services. It is regarded that export is a significant catalyst in improving the country's productivity. On the other hand, exports are believed to relieve economies of the foreign exchange constraint by allowing the importation of capital goods for boosting GDP. A positive sign, therefore, between exports and economic growth was expected in this study.

Export values are the current value of exports (f.o.b.) converted into U.S. dollars and expressed as a percentage of the average for the base period (2000). UNCTAD's export value indexes are reported for most economies. For selected economies for which UNCTAD does not publish data, the export value indexes are derived from export volume indexes (line 72) and corresponding unit value indexes of exports (line 74) in the IMF's International Financial Statistics

3.2 Methodology

Statistical descriptions for both economic growth and exports were analyzed. The study employed the unit root test to test for stationarity of the series, Granger causality test to identify the directional causality between the variables under investigation and the Johansen cointegration test to investigate a long-run link between the same variables.

3.2.1 Model Specification

It is noted in the neoclassical trade theory that a country can gain from trade when its terms of trade are different from its own relative prices in autarky. It is further noted that a country having different Terms of Trade has chances for the production expansion in the factor abundant good. The trade theory can be evaluated in the neoclassical production function framework integrating exports into the production function. The Exports component is included in the function to address its association with economic growth. Thus, the improved production function can be specified as follows:

Y = F(K, EXP, L)

Where Y refers to economic growth (GDP), K stands for capital, L is the labour force, and EXP is the total amount of exports in goods and services.

Being important in the production process, the economic theory appreciates that capital and labour effect GDP positively. Having positive externalities, the Export-Led Growth (ELG) hypothesis identifies that exports are expected to impose a positive effect on economic growth.

4. Results

4.1 Ordinary Least Square Technique

The nexus between export and economic growth in Tanzania is firstly presented in the form of Ordinary Least Square (OLS) Technique.

Table 1. Ordinary Least Square Results

Variables	Dependent variable (GDP), Independent Variable (EXP)				
	Coefficients	SE	t-ratio	R^2	F Statistic
EXP	0.0198724	0.0084639	2.35	0.1431	0.0250
Dependent variable (EXP), Independent Variable (GDP)					
	Coefficients	SE	t-ratio	R^2	F Statistic
GDP	7.202943	3.067805	2.35	0.1431	0.0250

Null Hypothesis (Ho): *There is no relationship between the study variables*.

Alternative Hypothesis (H1): *There is a relationship between the variables*.

The results reject the Null hypothesis which claimed that there exists no significant relationship between variables under investigation. The results propose a positive relationship between export and economic growth and vice versa. This allows for the analysis of the relationship to be investigated further.

4.2 Stationarity of the Series

Variables were individually analysed to identify their respective stationarity properties by using the Augmented Dickey-Fuller (ADF) tests. This implies that the presence of unit root in the study variables was examined. This is for the reason that the Johansen cointegration and Granger causality tests require stationarity of the series so as to avoid spurious analysis or regression.

The ADF test makes adjustments of the Dickey-Fuller (DF) test to cater for the possibility of serial correlation in the disturbance terms by adding the lagged difference terms of the dependent variable. When found not stationary, differencing was done to obtain stationarity.

Table 2. Results of the Augmented Dickey-Fuller (ADF) test

Full Period (1980-2015)

	Variables in Levels: Critical Values (-3.682 for 1% and -2.972 for 5%)	
	GDP	EXP
ADF TEST	-2.627	-4.443*
	1st Differencing: Critical Values (-3.689 for 1% and -2.975 for 5%)	
	GDP	EXP
ADF TEST	-10.352*	-8.160*

* and ** denote that the test statistic is significant at the 1 and 5 per cent levels of significance, respectively. By using the principle of parsimony, we try to obtain a model whose residual is white noise using the fewest parameters possible. Thus Information Criteria such as LR, FPE, HQIC, AIC and SBIC were deployed.

From Table 2 using ADF tests, EXP was stationary in order 0, that is, $I(0)$ but GDP was not stationary. GDP became stationary after the first differencing at 1 per cent level of significance and thus became integrated of order 1, that is, $I(1)$.

From the ADF each time series (GDP and EXP) were stationary at the 1% level meaning that they were stationary at the of order one I(1) and I(0) respectively. This was according to the selection criteria of which two lags were selected. The fact is that all variables were stationary after the first differencing at 1% level of significance. Therefore, the next move followed, which essentially necessitates that the two-time series variables must be co-integrated.

4.3 Co-Integration Test

Suppose there are n-dimensional time series variables y_t is said to be cointegrated if some linear combination $\beta_1 y_{1t} + \ldots + \beta_n y_{nt}$ of the component variables becomes stationary. This combination is called a cointegrating relation and its coefficients $\beta = (\beta_1, \ldots, \beta_n)$ compose a cointegrating vector.

Cointegration implies that despite the fact that being individually not stationary, the linear combination of the two-time series data can be stationary. Gujarati and Sangeetha (2010) argued that the integration of two-time series variables in the model suggests the presence of a long run or equilibrium relationship between them. Granger (1986) noted that a test for cointegration can be used as a pre-test to get out of a spurious regression situation.

Rank is the key feature in Johansen's value. This is equal to the number of independent cointegrating equations in the model. Then the series will be tested for cointegration, suppose the tests rectify its presence, then an Error Correction Model (ECM) will be constructed, and later a parsimonious model of the series will also be developed.

The long-run relationship among variables can be estimated by using the Johansen cointegration test. It is relying on the Vector Autoregressive (VAR) models.

Table 3. Tests for Co-Integration Using Johansen Test

Full period model (1980-2015)			
Eigen Values	.	0.45101	0.08438
Hypotheses	$r = 0$	$r \leq 1$	$r \leq 2$
T Statistic	21.3226	2.7326*	

From Table 3, r is the hypothesized number of cointegrating vectors *and ** denote rejection of the hypothesis at 5 per cent and 1 per cent of significance. Trace statistic indicates the presence of cointegration at the 0.05 level since the trace statistic is less than the critical value rank.

Therefore, the results in Table 3 shows that Trace statistic value is above 5% critical value, hence it rejects the null hypothesis of no cointegration at $r \leq 1$. Thus the results, suggest that there does exist cointegrating (long-run) relationship between economic growth (GDP) and per cent changes in exports (EXP).

4.4 Granger Causality Test

Causality refers to a concept which is used in building the forecasting models. Granger causality test is a technique which is used in determining whether a one-time series is significant in forecasting another (Granger, 1969). In general, the standard Granger causality test pursues to determine whether previous values of a variable predicts changes in another. The following Table 4 presents the results obtained from the test.

Table 4. Result for Granger Causality Test

Granger Causality Tests for Full Period (1980-2015)			
Null Hypothesis: (Lags 4)	Obs	Chi-square	Probability
GDP does not Granger Cause EXP	32	21.672	0.000
EXP does not Granger Cause GDP	32	.95772	0.916

H0: EXP ≠ EXPG (EXP does not Granger cause GDP).

H_1: GDP ≠ EXP (GDP does not Granger cause EXP**).**

The results of the Granger Causality Test are presented in Table 4. The results suggest that economic growth (GDP) Granger cause exports while export does not Granger cause economic growth. Therefore, results show that the causality is unidirectional (i.e., causality runs in one direction).

5. Conclusion

The validity of the export to influencing economic growth has so many perspectives. This paper identifies the relationship between exports trade and economic growth (GDP GROWTH) in Tanzania. The use of time series data from 1980 to 2015 was considered. A number of econometric methodologies which offer various techniques were applied in investigating the causality relationship between Export trade growth and economic growth.

In the Tanzania case, the study reveals that the long-run relationship exists as it has been confirmed by the co-integration test which confirms the existence of cointegration between exports rates and GDP growth rates. The results are in line with Lorde (2011) who probed the validity of export-led growth in Mexico. Empirically, the results identified inverse causation from economic growth to exports. This implies that economic growth (GDP) imposes significant effects on export for Mexico. With the use of the Granger Causality test, it is evidenced that there exists unidirectional causality from GDP growth rates to exports rates. This concurs with the results of (Zehra et al., 2015) whose Granger causality test showed a causality being unidirectional from the economic growth to export growth. It is viable for Tanzania to make efforts to strengthen her level of GDP since it is an ingredient to attaining impacts on the export level. Tanzania can still adopt the export-led industrialization which will boost domestic production and consumption and consequently bring about impacts to export and the country as a whole.

6. Recommendations

We recommend that it is worthwhile for Tanzania to make efforts in strengthening the level of economic growth (GDP) and exports. Tanzania may still implement the export-led industrialization which can boost both domestic production and consumption and ultimately increase exports (EXP). It is now the matter of reviewing and restructuring policies and strategies which can successfully achieve the same in view of their long-run relationship.

We understand that Tanzania 2025 Vision is Industrialization with Foreign Direct Investment (FDI). Tanzania aims to become a semi-industrialized country by 20125, for which the contribution of manufacturing to the national economy must reach a minimum of 40% of the GDP (MoF, 2016). With industrialization, domestic production, as well as consumption, will be improved and thus, ultimately, boosting up exports. With boomed exports, economic growth will, in turn, be rejuvenated as predicted in the findings of this paper.

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