Developing Country Studies
ISSN 2224-607X (Paper) ISSN 2225-0565 (Online)
Vol.5, No.18, 2015

Economic Growth and Trade Performance in Tanzania

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Abstract

Economic growth is the increase in merchandise or services production over a definite period of time. Economic growth is enhanced by land, labour, capital and entrepreneur. The study examinedwhether Trade Performance can effectively generate employment and participate fully in the reduction of poverty in Tanzania. Using Ordinary Least Square method (OLS) of data encompassing a period of forty three years (1971-2013) and utilizing the econometric tool of co-integration analysis and error correction model, the study through empirical observationinculcated a firm nexus between Economic Growth and Trade Performance.The result of the study brings outa strong connectionbetween real GDP and the independent variables. The coefficient of net export -1.189868 has a negative and significant impact on real GDP growth. There is an inverse relationship between net export and real GDP growth which implies a 1% increase in net export leads to approximately 1.2% decrease in real GDP growth in Tanzania. Unlike net export, the coefficient of FDI 0.083152 has a positive and significant impact on real GDP growth. There is a direct relationship between GDP growth and Foreign Direct Investment inflows. This implies that a 1% increase in FDI can lead to approximately 0.08% increase in real GDP growth in Tanzania. There is an inverse relationship between exchange rate and real GDP growth which implies a 1% increase in exchange rate leads to approximately 0.04% decrease in real GDP growth in Tanzania.
Similarly, the coefficient of inflation -0.199134 has a negative and significant impact on real GDP growth. There is an inverse relationship between inflation and real GDP growth which implies a 1% increase in inflation leads to approximately 0.20% decrease in real GDP growth in Tanzania. In the same manner, in the short run correction model the adjusted R- squared value is 0.932361, implying that approximately 93% of the variation in economic growth is explained by the independent variables, which is an indication of a very good fit. The remaining 7% is captured by the error term. The Durbin-Watson statistic suggests that there is no first order autocorrelation which among the variables. The overall equation is highly statistically significant as shown by the probability value of the F-statistic (0.000000).The study therefore suggests the quest of policies that would ameliorate Economic Growth and Trade Performance in Tanzania.

Key words: Economic Growth; Net Export; Real GDP; Foreign Direct Investments; Tanzania

1.0. Introduction

Universally, documentation shows that the expedition of economic evolution has taken place in countries having impeccable and sound feasible macroeconomic policies provided by good institutions with good governance.Economic growth is the increase in merchandise or services production over a definite period of time. Economic growth is enhanced by land, labour, capital and entrepreneur. Mathematically, the change in the years over the first year, times 100 i.e. [(real GDP yr2 - real GDP yr1)/real GDP yr1] * 100 is Economic Growth.

Trade performance in Tanzania like many other countries, relies on the implementation ofdifferent policy reforms and liberalization. The average annual growth rates of exports and imports were 13.5 and 17.57 percent respectively within ten years of implementation. According to Statically Abstract 2013, the annual contribution of trade to the total GDP reads at the average of 11.74 percent next to the 17.1percent of agricultural crops.

In response to this remarkable contribution of trade to the economy, the government of Tanzania has mainstreamed trade in all development activities including employment generation and poverty reduction strategy (PRS).This paper contributes to the existing literature on Economic Growth and Trade Performance.

The main objective of this study is to examine whether Trade Performancecan effectively generate employment and participate fully in the reduction of poverty in Tanzania in the period review.The rest of this paper is organized as follows. Section 2, we present a basic literature review of the theoretical Review-Trade Theories followed in section 3by the methodology procedures used to gather data for the study. In section 4, we present the conceptual frame work, and in section 5, we provide recommendations and conclusions.

2.0. Review of Related Literature

The hypothesis that economic growth is promoted by export is not unanimously accepted. However, there are

anumber of economists who agreed that exports promoteeconomic growth. Prominent among these economists includeTyler, 1981; Balassa, 1985;Krueger, 1978; Salvatore and Hatcher, 1991; Chenery, 1979; Ram, 1985; Fosu, 1990; andKavoussi, 1984.

According to (Wagner, 2007), exports promotion will enhancerivalry and trade improvements in terms of productivity.Maizel's (1963) explored the impact of international trade on economic growth among developed countries using rank correlation analysis.He discoveredthe existence of a positive relationship between international trade and economic growth.Ghezakos(1973), examinedthe effect of export instability on economic growth in18 developed and 50 less developed countries. He found that growth rate of export proceeds has a positive effect on the growth rate of real per capita income. In a similar study conducted byKavousssi (1984) for 73 low and middle income developed countries, affirmed thatexports and economic growth are positively correlated for both middle and low incomecountries. However,these effects tend to diminish according to the level of development.

Paulino, A.and Thirlway,A.(2004) on the other hand investigated the effect of trade liberalization on balance of trade, export growth, import growth, and the balance of payments for 22 developing countries that have adopted trade liberalization policies since the mid-1970s. They discovered that, liberalization enhanced export growth but raised import growth leading to deplorable balance of trade and payments and hence constrained the growth of output and living standards of the people.

Comparing findings from cross section and panel projections, Ann Harrisons (1991) analyzed openness and GDP growth. Heconcluded that the degree of openness is positively associated with GDP growth and further stated that the more the economy is open, the higher the growth rate or the more protected the local economy. Baldwin (2003) in his paperfound that countries with few trade restrictions achieve more rapid economic growth than countries with more restricted policies. This is because trade liberalization stimulates activities with a comparative advantage to expand and consequently foster economic growth and reduces relative price distributions. Poor countries tend to engage in labour – intensive activities due to an increaselabour supply.

2.1. Review of Trade Theory

The key determinants of trade patterns as identified by the supply theories of international trade are differences in methods of production and relative factor endowments. This general proposition leads to several variations with regards to economists.

Ricardian theory for instance targets labour as the pillar of production, and affirms that technique differences in production across countries would influence the relative prices of commodities and hence acts as a base for trade.

The Heckscher-Ohlin model in its two factor version counter pointed the Ricardian theory. The model accounts for both labour and capital and presupposes the availability of identical techniques in production of all commodities that cut across in all countries.It agrees that the basis for trade between countries is due to the relative differences in factor endowments. Obviously, scarcity of a resource or its relative abundance tends to lower or higher factor costs and therefore prices between commodities are lower or higher. The model discloses that a country should focus on exporting commodities that are relatively intensive with regards to relative abundant factor production, and import commodities that are relatively intensive with regards to scarce resource.

In recognizing the existence of at least some commodities being produced using a combination of labour and capital, the Heckscher-Olin model is more advanced than the Ricardian theory. This means that in establishing the comparative advantage of a country, emphasis should not only be focused on the relative abundance of a resource but also the intensity of the use of resources across different countries in producing commodities that will specify a pattern of trade.

Leontief's paradoxical findings on the other hand, bring about other factors in supplementing labour and capital, as stimulus of trade patterns. Peculiarly, the neo-factor proportions model maintains the neo-classical framework. The model exclusively reckons differences in the agglomeration of the labour force as a significant stimulus of comparative advantage. However, labour is not handled as a homogenous entity in this model. Variations between countries in terms of skilled, semi-skilled and unskilled labour will stimulate competitive advantage.

The neo-technology model in contrast to aforementioned theories, throw weight to the Product Cycle theory of trade. The model stressed on innovation and new methods of technology as the engine for the socioeconomic development of any nation. The model however does not usurp the fact that all countries have identical knowledge of wealth available to them.

Ultimately, recent empirical findings have requisitioned the pattern of trade as endogenous upon the differences

in economics of scale across industries. Imperfect competition and economics of scale are the pivot for intra industry trade.

3.0. Model Specification and Empirical Results

Secondary data was sourced from World Bank Data Base for the period 1971-2013 inclusive. The method of Ordinary Least Square (OLS) was employed to derive the empirical relationship between Real GDP and Net export, FDI, Exchange rate, Inflation, and openness to foreign trade.

The time series properties of the variables were examined.Given that the study requires the use of co-integration and error correction models, a few words regarding these are in place. It is a normal practice for every successful research that requires the use of econometric technique to draw attention to the importance of investigating the data generating process underlying the variables before estimating the parameters and carrying out various hypothesis testing. This process is meant to avoid the problem of spurious correlation between variables in a regression equation.

In order to foretell the impact of the above mentioned variables in the Tanzania economy, the model seeks to take the following functional form:

$$RGDP = f(NEXT, FDI, EXR, INF, OPEN) \quad (1)$$

Taking natural logarithm, equation (1) becomes

$$\ln RGDP_t = \beta_0 + \beta_1 \ln NEXT_t + \beta_2 \ln FDI_t + \beta_3 \ln EXR_t + \beta_4 \ln INF_t + \beta_5 \ln OPEN_t + \varepsilon_t \quad (2)$$

Where: NEXT = Net Export (Exports minus Imports); FDI = Foreign Direct Investments inflows; EXR = Exchange rate; INF = Inflation; OPEN= Degree of openness (import + export)/GDP.

4.0. Unit Root Test Analysis:

The unit root test is conducted under accessible practice to corroborate the stationarity of data series. This step is very vitalsince if non-stationary variables are not accepted and used in the model, it will lead to a hindrance of spurious regression, whereby the results propose that there are statistically significant relationships linking the variables in the regression model when in fact all that is evidenced is simultaneous correlation rather than consequential causal relationships. The Augmented Dickey-Fuller test was used and the test results are presented in table 1.

Table 1: Results of the Test for Stationary: Using Augmented Dickey Fuller Test

Variables	Level/ΔLevel	Calculated ADF	ADF critical value	Included in test equation	Inference
lnRGDP	Level	-1.136513	-2.933158	Intercept	I(1)
	ΔLevel	-8.611030	-2.935001***		
lnNEXT	Level	1.615727	-2.933158	Intercept	I(1)
	ΔLevel	-4.729085	-2.935001**		
lnFDI	Level	-0.707129	-2.936942	Intercept	I(1)
	ΔLevel	-7.674741	-2.936942**		
lnEXR	Level	0.765408	-1.949097	None	I(1)
	ΔLevel	-1.887640	-1.611824*		
lnINF	Level	-2.331883	-2.933158	Intercept	I(1)
	ΔLevel	-7.115888	-2.935001**		
lnOPEN	Level	-1.389706	-2.935001	Intercept	I(1)
	ΔLevel	-2.948803	-2.615817**		

Note: ***, ** and * indicates that the variable is stationary at the 1 %, 5% and 10% level respectively

Source: computed by author using E-views software

The unit root test result unveils that all the variables in the economic growth equation are non-stationary at their levels but turned into stationary after first differencing. This suggests the use of co-integration analysis since the concept of co-integration requires variables to be stationary after differencing at least once.

4.1. Co-integration Test Analysis:

The co-integrating equation is a linear combination and may be described as a long run equilibrium relationship involving variables. The core objective is to ascertain the most stationary linear grouping of the time series variables under consideration. Consequently, Johansen and Juselius (1988, 1990) co-integration technique has been employed for the investigation of stable long run relationships linking real GDP growth, net export, FDI, exchange rate, inflation and trade openness in Tanzania by using both the Trace and Maximum-Eigen tests statistics. The results are presented in tables 2 and 3.

Table: 2. Unrestricted Co-integration Rank Test Result (Trace)

Hypothesized No. CE(s)	Eigen value	Trace Statistic	0.05Critical Value	Prob.**
None *	0.760730	133.4320	95.75366	0.0000
At most 1 *	0.600856	74.79530	69.81889	0.0190
At most 2	0.339038	37.13952	47.85613	0.3410
At most 3	0.306854	20.16312	29.79707	0.4118
At most 4	0.114465	5.136006	15.49471	0.7942
At most 5	0.003699	0.151922	3.841466	0.6967
2 cointegratingeqn(s) at the 5% level are in conformity with the Trace test * indicatesdenial of the hypothesis at the 5% level **MacKinnon-Haug-Michelis (1999) p-values				

Source: E-views output

Table: 3. Unrestricted Co-integration Rank Test Result (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.760730	58.63665	40.07757	0.0002
At most 1 *	0.600856	37.65578	33.87687	0.0168
At most 2	0.339038	16.97640	27.58434	0.5820
At most 3	0.306854	15.02712	21.13162	0.2870
At most 4	0.114465	4.984084	14.26460	0.7438
At most 5	0.003699	0.151922	3.841466	0.6967
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 5%level * indicatesdenial of the hypothesis at the 5% level **MacKinnon-Haug-Michelis (1999) p-values				

Source: E-views output

The maximum-eigen test (table 3) and the trace test (table 2) results bothindicate that at least two co-integrating equations exist at the 5% significance levels. Therefore the null hypothesis of no co-integrating equation is rejected.Consequently, it can be concluded that there is a significant long run relationship between the given variables. In view of the fact that variables can either have long run or short run effects, then an error correction model (ECM) is used to disaggregate this effect.

Table 4: Result of the long run co-integrating relationship

Dependent variable: lnRGDP				
Independent variables	coefficient	Standard error	t-statistics	conclusion
lnNEXT	-1.189868	0.02926	-40.6653	Significant
lnFDI	0.083152	0.00721	11.5329	Significant
lnEXR	-0.035719	0.00853	-4.1875	Significant
lnINF	-0.199134	0.02454	-8.1147	Significant
lnOPEN	1.203434	0.04018	29.9736	Significant
C	73.09164	……	……	……

Source: computed by author from e-views output

The net export coefficient -1.189868 has a negative and significant impact on real GDP growth. There is an inverse relationship between net export and real GDP growth which implies a 1% increase in net export correspondingly lead to approximately 1.2% decrease in real GDP growth in Tanzania.

Unlike net export, the coefficient of FDI 0.083152 has a positive and significant impact on real GDP growth. There is a direct relationship between GDP growth and Foreign Direct Investment inflows. This implies that a 1% increase in FDI can lead to approximately 0.08% increase in real GDP growth in Tanzania. This finding is in agreement with theories and findings from previous studies that there exist a positive relationship between GDP growth and Foreign Direct investment.

Similar to net export, the coefficient of exchange rate -0.035719 has a negative and significant impact on real GDP growth. Hence,there exist an inverse relationship between exchange rate and real GDP growth which implies a 1% increase in exchange rate leads to approximately 0.04% decrease in real GDP growth in Tanzania.

Correspondingly, the coefficient of inflation -0.199134 has a negative and significant impact on real GDP growth. There is an inverse relationship between inflation and real GDP growth which implies a 1% increase in inflation leads to approximately 0.20% decrease in real GDP growth in Tanzania. This finding is also in conformity with theories and findings from previous studies that there exist a negative relationship between GDP growth and inflation.

With regards to trade openness, the regression reveals a positive and significant relationship between Real GDP growth and openness to trade. The result shows that a 1% increase in the economy openness to foreign trade can lead to approximately 1.2% increase in real GDP growth in Tanzania.

4.2. Short run Model (ECM)

The presence of long run relationship among the I(1) variables suggests the valuation of the short run dynamic model. The short-run error-correction model (ECM) is an autoregressive circulated lag model for the stationary forms of real GDP growth, net export, FDI, exchange rate, inflation and trade openness. The mechanism is employed to observe the short-run and long-run behavior of economic growth in relation to its explanatory variables.

The results of the short run dynamic model are reported in table 5.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.055080	0.017766	3.100302	0.0038
D(LNEXP)	0.456847	0.100236	4.557724	0.0001
D(LNFDI)	0.001826	0.006815	0.267985	0.7903
D(LNEXR)	-0.113659	0.078575	-1.446507	0.1569
D(LNINF)	0.138394	0.034100	4.058453	0.0003
D(LNOPEN)	-0.870426	0.052972	-16.43170	0.0000
ECM(-1)	-2.070353	0.868809	-2.382979	0.0331

R-squared	0.942259	Mean dependent var	0.066908
Adjusted R-squared	0.932361	S.D. dependent var	0.281368
S.E. of regression	0.073177	Akaike info criterion	-2.240865
Sum squared resid	0.187419	Schwarz criterion	-1.951253
Log likelihood	54.05817	Hannan-Quinn criter.	-2.134711
F-statistic	95.19337	Durbin-Watson stat	1.642269
Prob(F-statistic)	0.000000		

Source: Computed by author using E-views Software.

The coefficient of the error correction term denotes the speed of adjustment in eliminating deviation from the long run equilibrium. The coefficient has the expected negative sign (-2.070353) and it is statistically significant. The significance of the coefficient further confirms the existence of the long run relationship between economic growth and the independent variables under consideration. The magnitude of the coefficient implies that approximately 2.1% of the disequilibrium in the previous quarter's shock adjusts back to long run equilibrium in the current quarter.Furthermore,the error correction term (ECM) was also found to be stationary andresults from the short run relationships differ from those of the long run relationships.

The adjusted R- squared value is 0.932361, implying that approximately 93% of the variation in economic growth is explained by the independent variables, which is an indication of a very good fit. The remaining 7% is captured by the error term. The Durbin-Watson statistic suggests that there is no first order autocorrelation which

among the variables. The overall equation is highly statistically significant as shown by the probability value of the F-statistic (0.000000)

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4.3. Diagnostics and Stability Test Results

To authenticate the parameter evaluation of the outcomes achieved by the model, the diagnostic tests were performed in this research. The goodness of fit of the model was tested in four main ways, i.e. The Jarque-Bera for normality test, the Breusch-Godfrey test for heteroscedasticity, the ARCH effect on the model's error and the langrage multiplier (LM) test for serial correlation. These tests results are presented in table 6.

Table 6: Diagnostic test results

Test	Null Hypothesis	F-Statistics	Probability	Inference
Langrage Multiplier (LM)	No serially correlated errors	4.432880	0.1090	Accept H0
ARCH	ARCH effect does not portray model's errors	0.663593	0.4153	Accept H0
Breusch-Godfrey	No heteroscedasticity	4.441076	0.6172	Accept H0
Jarque-Bera (JB)	There is a normal distribution	0.093131	0.954502	Accept H0

Source: Author's computation using E-views

The results presented in table 6 suggested that there is no ARCH effect on the model's error, no serial correlation, no heteroscedasticity and there is a normal distribution in the Economic Growth model. We therefore fail to reject the null hypothesis and conclude that the model has a very good fit.

With regards stability test, evidence from the figures below shows that both the CUSUM and CUSUMQ plots lie within the 5% critical bound thus providing support that the parameters of the model do not suffer from any structural instability over the period of study.

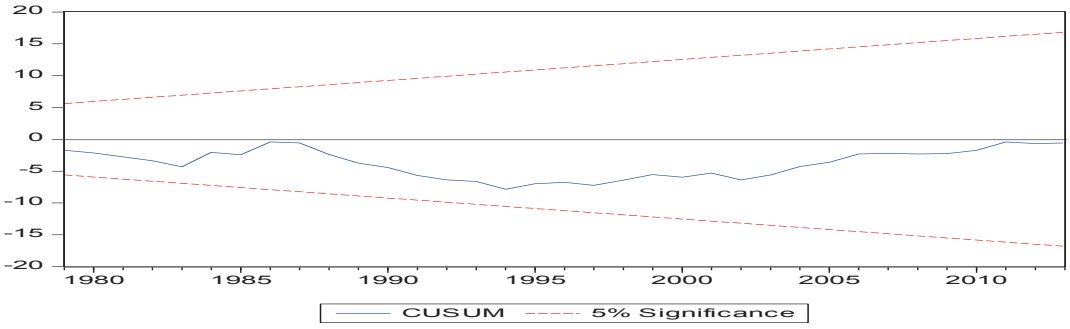

Figure 1: Plot of Cumulative Sum (CUSUM)

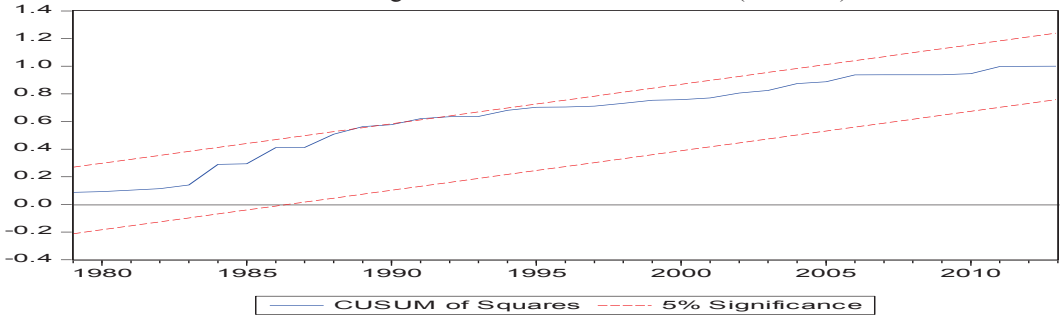

Figure 2: Plot of Cumulative Sum of Squares (CUSUMQ)

5.0.Conclusion and Recommendation

Based on our findings, it is evidence that though the Tanzania's Economic growth and Trade Performance has performed fairly well in relation to other Economic growth in sub-Saharan Africa, a lot needed to be done to strengthen the link between Economic growth and Trade Performance in Tanzania. We therefore recommend that:

- Government provides an enabling environment that will enhance microeconomic variables that will stimulate foreign trade and hence engage in more of export trade that will minimize on import trade that has a tendency of derailing the economy. Promotion strategies as well as substitution strategies should also be reviewed to enhance a change in dimension in terms of import and export. Diversification of export should be encouraged by Government and Tanzanians should frown at excessive consumption of foreign goods and services so that there will be cut-off in terms of import.
- Manufacturing companies should focus on producing output that are comfor their meaningful copetitive in the global market. Local industries should be encouraged to export their goods and services by reducing Excise duties.

Acknowledgement

This paper would not have been completed without the coordinated effort of related articles and certain individuals. Many thanks are due to Mr. BrimaSesay and Mr. Ibrahim Dumbuya for their meaningful comments guidance and precious help to achieve this goal. The remaining errors are the author responsibility.

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