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# **The Linkages between Trade Openness, Financial Openness and Economic Growth in Nigeria**

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## **Abstract**

*This study examined the nexus between economic growth and economic openness in Nigeria. Financial openness and trade openness were used to measure the extent to which Nigerian economy is open international competitiveness that could pave way for the actualisation of development agenda. The study used time series data covering a period of 32 years (1980 – 2012). In the analysis, the study used Johansen cointegration model, Vector Error Correction model (VECM) and Granger causality test. The result of cointegration reveals that there exist a long run relationship among the variables used in the model. The result further indicated a positive relationship between real GDP and trade openness and revealed a negative relation between real GDP and financial openness. Also the paper shows that population growth is undermining the growth of Nigerian economy. Moreover, the study documented a positive relation between real GDP and government expenditure, while evidence of causal relation seems to run between trade openness and economic without feedback. The study concluded that outward looking policies should be pursued with a pinch of salt as chemistry of Nigerian economy is not suited to benefit freely from openness in the midst of laissez-faire doctrine.*

**Keywords:** Economic openness, financial intermediation, economic growth, time series

**JEL classification:** F43, O11, B26

## **INTRODUCTION**

Financial development involves the creation and expansion of financial institutions, efficient financial products, and services on the one hand, and provision of conditions that support and facilitates the mobilization of surplus resources and channels such accumulated saving to the deficit spending units for investment purpose, hence promoting economic growth (Levine and Zervos, 1998; Akinlo and Olufisayo, 2009). The increased demand for financial resources by business and individual beyond what the sector can provide calls for other institutions to complement the banking sector in the mobilization of funds and to assist in meeting the investment needs of businesses and individuals (Pagano, 1993; Nieuwerburgh, Buelens, Cuyvers, 2006; Rousseau and Xiao, 2007). Therefore, the role of stock market in the process of capital accumulation becomes imperative.

The discussion on the importance of financial development on economic growth process is traceable to the work of Schumpeter's of "creative destruction" in 1911 where he proposed that entrepreneurs are the main sources of economic prosperity. He points out that

entrepreneur are the pivot of growth via technological progress, inventions, and innovations. He however recognized the role of financial intermediation in growth process, in that while entrepreneurs are very important ingredient of economic development, they however may not possess the necessary and needed financial resources to transform their ideas into tangible or intangible final products. As such the role of efficient financial intermediaries in economics development is indispensable (Aliero and Ibrahim, 2012).

Another important area of interest in finance and growth studies is on the determinant of financial development. Rajan and Zingales (2003) argued that neither trade openness nor financial sector openness may affect growth positively unless we simultaneously open up trade and financial sector. According to them, trade openness without financial sector openness may provide industrial incumbents with cheap finances to rid-off competition. Also, financial sector openness without trade openness will provide big domestic firms access to non-needed foreign capital and starve off the small domestic firms. By so doing, promoting wastage and discouraging competition in the market. Thus only simultaneous opening of trade and financial sector will promote financial development and hence economic growth. The objective of this study is to examine both the short run and long run relationship between economic openness and the economic growth in Nigeria. The section in turn presents the review of related literature with the view of identifying any lacuna that is worth filling.

## **LITERATURE REVIEW**

The issue of how financial development impacted on economic growth has been debated extensively in academic literature. Scholars have varying findings with some economists were of the opinion that financial development is an important determinant of economic growth and contributes significantly to growth (Bloch and Tang, 2004; N'zue, 2006; Rousseau and Xiao, 2007), others were of the conclusion that financial development is unimportant to economic growth, or at best not significant to growth, and worst scenario, negatively impacting on economic growth (Al-Yousif, 2002, Ibrahim, 2011).

Another issue of immense important, yet of great divergence among economists is on the issue of causal relationship between financial development and economic growth. Some economists postulate supply leading hypothesis, which states that financial development, causes economic growth (Christopoulos and Tsionas, 2004; Arestis, Demetriades and Luintel,

2001; Akinlo and Olufisayo, 2009; Rousseau and Wachtel, 2000; Yang and Yi, 2008). Other claimed demand following relationship, implying that it is economic growth that leads to financial development (Chakraborty, 2008). The bi-directional proponents' hypothesized that financial development cause economic growth and that economic growth leads to further financial development (Arestis, Demetriades and Luintel, 2001).

Christopoulos and Tsionas (2004) examined the relationship between financial depth and economic growth in a sample of ten (10) developing countries from 1970 to 2000. Through Vector Error Correction Mechanism (VECM) and Fully Modified Ordinary Least Square (FMOLS) approaches, they find that in the long run, financial depth leads to economic growth. Also, they discovered weak evidence in support of threshold effect. Furthermore, they found that financial development and investment are major determinants growth. Akinlo and Olufisayo (2009) investigated the long run causal link between stock market development and economic growth among seven (7) Sub Saharan African countries between 1980- 2004. Using bound testing and Granger Causality test based on VECM approaches, their results shows that except for Egypt and South Africa, there is no long run relationship between stock market development and economic growth. Also their results revealed positive and significant long run relationship between measures of stock market and economic growth in both Egypt and South Africa. In the short run relation, they found that stock market capitalization positively and significantly affects growth in Egypt while value traded is found to positively and significantly affect growth in South Africa. Also, their results shows that valued traded has significant effects on growth in Kenya, Zimbabwe, but weak significant effect in Morocco. Granger Causality based on VECM revealed bi-directional relationship between finance and economic growth in the long run and supply leading relationship in Egypt and South Africa. Also, they found, demand leading relationship in Nigeria, supply leading relationship in morocco, and bi-directional causal relationship in Cote d'Ivoire, Zimbabwe, and Morocco. Odhiambo (2008) conducted a research on the causal relationship between financial development and economic growth in Kenya, from 1968-2002 by using VECM model and Granger causality test. The study revealed a bi-directional causal long run relationship between finance and economic growth. It further found a bi-directional causal relationship between the ratio of liquid liability to GDP and economic growth, while demand following

hypothesis existed between the ratios of currency in circulation to money supply and private sector credit to GDP and economic growth.

Law (2008) examined the role of trade and capital account openness on financial development in Malaysia. By means of a Bound testing technique based on Autoregressive Distributive Lag Model (ARDL). The study documented that in the long run, rule of law is positively and significantly associated with measure of banking sector development while trade and financial openness have significant positive effect on banking sector development, but the interaction effect of the measures of openness is however negatively and insignificantly related to financial development. He further revealed that rule of law is said to be insignificantly associated to stock market development, while trade openness has positive effect but yet insignificant to stock market development. Also his result further reveals that Capital account openness has positive effect but still insignificant to stock market development. His result also shows in the short run, openness is significantly and negatively associated to financial development, while the interaction of the measures of openness is positively and significantly affects financial development. Moreover, Law and Shah Habibullah (2009) investigated the role of institution, trade openness, and financial liberalization on financial development using a panel of twenty seven (27) countries, from 1980-2001, using dynamic panel Generalized Method of Moment (GMM) and Pooled Mean Group estimation procedures. They found that institutional factors are important determinant of financial development both banking and stock market. Trade openness is said to be insignificant in banking sector development, but significant determinant of stock market development. Also they found full liberalization to be marginally significant, domestic financial liberalization to be significant to both stock and banking sector development. They further revealed that stock market liberalization significantly affects stock market development, but capital account liberalization is said to be insignificant to financial development. Also institutional variables and trade openness are said to positively associate with financial development and financial liberalization to be important determinant of financial development.

Chin and Ito (2003) examined the impact of financial openness on financial development among a panel of one hundred and eight (108) countries, from 1980-2000.

According to them, financial openness contributes to stock market development in both the sample of developing and emerging market economies. Also, financial openness is dependent on the legal development, and that capital account opening would be most effective after threshold level of legal and institutional development are attained. Also, the development of general laws is more important for stock market development than finance related laws. More so, they contend that financial sector opening does not lead to trade openness, but that trade openness lead to financial openness and is a pre-condition for financial openness. Again, they assert that banking sector development is a precondition for stock market development especially in the less develops countries. Finally, they state that banking and stock market development are complementary in the sample of less develop countries. Caporale, Rault, Sova and Sova, (2015) investigate the relationship between financial development and economic growth in transition economy by estimating a dynamic panel model over the period 1994 -2007. The study found that the contribution of the financial sector to economic growth is limited owing to a lack of financial depth. Moreover, the Granger causality test indicates that causality runs from financial development to economic growth, but not in the opposite direction.

From the above peruse literature reviewed, doubt can be casted on the way countries' trade openness is measured on the one hand. The debate on the estimation methodology is still open on the other. It seems that scholars are ambiguous to generally to assume that trade openness is beneficial for all country in the world. While it is very clear that the gain from trade is highly unequal between industrial countries and poor countries. This prompt the question of segregation of countries into the panel of the wealthy and poor countries to enable re-examination of openness and growth nexus. It became a research fallacy while empirical evidence suggests that trade raises prosperity among nations, practical evidence shows virtually most countries in the world are busy fine turning trade restrictive measures in the form of tariff and quota with the thrust of protecting local industries. To this end this study will focus on Nigeria as one of the country that is battling with adversaries of outward looking policy owing to trade openness.





Where  $X_t$ ,  $T$  and  $\Delta$  respectively denotes a time series, a linear time trend and first difference operator,  $\gamma_0$  is a constant,  $\gamma_1$ ,  $a$  and  $d$  are the slope,  $k$  is representing the optimum number of lags on the dependent variable, and  $\varepsilon_t$  is white noise series. ADF was tested under the null hypothesis of non-stationary of all series against the alternative of stationary (Dickey and Fuller, (1979). The null hypothesis for testing non-stationarity is  $H_0: \alpha = 0$  meaning economic series are non-stationary. Cointegration relation for the underlying variables can be examined provided that the null hypothesis of non-stationary is established for the relevant series.

An assessment of whether there exist (or not) a long trend commingle into long-run equilibrium between variables was developed by Granger (1986). Two-way Cointegration test advocated by Engle and Granger (1987) requires that order of integration of level non-stationary [I (0)] variables be the same, such that the linear combination of these variables after ‘ $n$ ’ difference be integrated of order  $n$  denoted by  $n(1)$ . Unlike Engle and Granger (1987) cointegration procedure, Johansen and Juselius (1990) method is based on maximum likelihood method in that it allows for estimation of more than one cointegration vectors (Saher, 2011). This method also permits testing of hypotheses about the equilibrium relationships between the variables (Brooks, 2008). Johansen and Juselius procedure involved two test statistics for the number of cointegrating vectors. The null hypothesis in trace test ( $\lambda_{\text{trace}}$ ) is that the number of distinct cointegrating vectors is less than or equal to  $r$ , where  $r = 0$  to 2. In each case the null hypothesis is tested against the general alternative. The maximum eigenvalue test ( $\lambda_{\text{max}}$ ) is similar, except that the alternative hypothesis is explicit. The null hypothesis is that the number of cointegrating vectors is  $r$  against the alternative of  $r+1$  cointegrating vectors.

Causal relation between variables can be established through Granger (1969) causality procedure. This test states that, if past values of a variable  $Y$  significantly contribute to forecast the value of another variable  $X_{t+1}$  then  $Y$  is said to Granger cause  $X$  and vice versa. This pairwise estimation is not valid for cointegrated series, instead causality can be established in such case via Vector Error Correction Mechanism (Granger, 1986).

$$\Delta \ln RGDP_t = \partial_{01} + \sum_{j=1}^n \partial_{11} \Delta \ln RGDP_{t-i} + \sum_{j=1}^n \partial_{12} \Delta \ln TO_{t-i} + \sum_{j=1}^n \partial_{13} \Delta \ln FO_{t-i} + \sum_{j=1}^n \partial_{14} \Delta \ln GEXP_{t-i} + \sum_{j=1}^n \partial_{15} \Delta \ln POP_{t-i} + ECT_{t-1} + \mu_{1t} \cdot A$$

$$\Delta \ln TO_t = \partial_{02} + \sum_{j=1}^n \partial_{21} \Delta \ln RGDP_{t-i} \sum_{j=1}^n \partial_{22} \Delta \ln TO_{t-i} + \sum_{j=1}^n \partial_{23} \Delta \ln FO_{t-i} + \sum_{j=1}^n \partial_{24} \Delta \ln GEXP_{t-i} \sum_{j=1}^n \partial_{25} \Delta \ln POP_{t-i} + ECT_{t-1} + \mu_{1t} \dots 5$$

$$\Delta \ln FO_t = \partial_{03} + \sum_{j=1}^n \partial_{31} \Delta \ln RGDP_{t-i} \sum_{j=1}^n \partial_{32} \Delta \ln TO_{t-i} + \sum_{j=1}^n \partial_{33} \Delta \ln FO_{t-i} + \sum_{j=1}^n \partial_{34} \Delta \ln GEXP_{t-i} \sum_{j=1}^n \partial_{35} \Delta \ln POP_{t-i} + ECT_{t-1} + \mu_{1t} \dots 6$$

$$\Delta \ln GEXP_t = \partial_{04} + \sum_{j=1}^n \partial_{41} \Delta \ln RGDP_{t-i} \sum_{j=1}^n \partial_{42} \Delta \ln TO_{t-i} + \sum_{j=1}^n \partial_{43} \Delta \ln FO_{t-i} + \sum_{j=1}^n \partial_{44} \Delta \ln GEXP_{t-i} \sum_{j=1}^n \partial_{45} \Delta \ln POP_{t-i} + ECT_{t-1} + \mu_{1t} \dots 7$$

$$\Delta \ln POP_t = \partial_{05} + \sum_{j=1}^n \partial_{51} \Delta \ln RGDP_{t-i} \sum_{j=1}^n \partial_{52} \Delta \ln TO_{t-i} + \sum_{j=1}^n \partial_{53} \Delta \ln FO_{t-i} + \sum_{j=1}^n \partial_{54} \Delta \ln GEXP_{t-i} \sum_{j=1}^n \partial_{55} \Delta \ln POP_{t-i} + ECT_{t-1} + \mu_{1t} \dots 8$$

The coefficients of Error Correction Terms (ECT) are expected to portray negative signs and it conveys the speed of adjustment for short-run to converge into long-run equilibria. After specifying VECM which modelled the parameters that lend credence for testing the short-run causality between the variables in question, then long-run coefficient was estimated by imposing weak restriction on the established VECM system as shown below:

$$\ln RGDP_t = \beta_{01} + \sum_{j=1}^n \beta_{11} \ln RGDP_{t-i} \sum_{j=1}^n \beta_{12} \ln TO_{t-i} + \sum_{j=1}^n \beta_{13} \ln FO_{t-i} + \sum_{j=1}^n \beta_{14} \ln GEXP_{t-i} \sum_{j=1}^n \beta_{15} \ln POP_{t-i} + \mu_{1t} \dots 9$$

$$\ln TO_t = \beta_{02} + \sum_{j=1}^n \beta_{21} \ln RGDP_{t-i} \sum_{j=1}^n \beta_{22} \ln TO_{t-i} + \sum_{j=1}^n \beta_{23} \ln FO_{t-i} + \sum_{j=1}^n \beta_{24} \ln GEXP_{t-i} \sum_{j=1}^n \beta_{25} \ln POP_{t-i} + \mu_{1t} \dots 10$$

$$\ln FO_t = \beta_{03} + \sum_{j=1}^n \beta_{31} \ln RGDP_{t-i} \sum_{j=1}^n \beta_{32} \ln TO_{t-i} + \sum_{j=1}^n \beta_{33} \ln FO_{t-i} + \sum_{j=1}^n \beta_{34} \ln GEXP_{t-i} \sum_{j=1}^n \beta_{35} \ln POP_{t-i} + \mu_{1t} \dots 11$$

$$\ln GEXP_t = \beta_{04} + \sum_{j=1}^n \beta_{41} \ln RGDP_{t-i} \sum_{j=1}^n \beta_{42} \ln TO_{t-i} + \sum_{j=1}^n \beta_{43} \ln FO_{t-i} + \sum_{j=1}^n \beta_{44} \ln GEXP_{t-i} \sum_{j=1}^n \beta_{45} \ln POP_{t-i} + \mu_{1t} \dots 12$$

$$\ln POP_t = \beta_{05} + \sum_{j=1}^n \beta_{51} \ln RGDP_{t-i} \sum_{j=1}^n \beta_{52} \ln TO_{t-i} + \sum_{j=1}^n \beta_{53} \ln FO_{t-i} + \sum_{j=1}^n \beta_{54} \ln GEXP_{t-i} \sum_{j=1}^n \beta_{55} \ln POP_{t-i} + \mu_{1t} \dots 13$$

Weak exogeneity test in which the null hypothesis is  $H_0: \beta_j = 0$ . This test measures the significance of error coefficient estimation and thus present the evidence of long-run causality (Fukuda, 2012)

## RESULTS AND DISCUSSION

This section begins with the result of Augmented Dickey Fuller unit root test and is presented in Table 1 as follows:

**Table 1:** ADF Unit root test results

Series	Level	Difference
RGDP	0.22	-4.743***
TRDOP	-2.395	-8.007***
FIOP	-1.349	-4.857***
POP	0.342	-3.689**
GOVEXP	2.585	-3.679**

\*\*\* & \*\* denotes rejection of the null hypothesis of the unit root presence at the 1% and 5% level respectively

Source: Author's computation, 2015

It could be discerned from the result that all the variables were not stationary at their respective levels based on ADF test at the 1 % level of significance. However, unit root hypotheses for the differenced series were rejected. Therefore, the series were suitable for JJ's cointegration analysis.

Table 2: Johansen Cointegration Results

Hypotheses	Max Statistics	5% critical value	Prob. **	Eigenvalue	Trace Statistics	5% critical value	Prob.**
None *	61.32408	33.87687	0	0.861681	113.1094	69.81889	0
At most 1 *	19.0796	27.58434	0.4084	0.459614	51.78535	47.85613	0.0204
At most 2	17.00308	21.13162	0.1719	0.422176	32.70574	29.79707	0.0225
At most 3	12.29667	14.2646	0.1	0.327442	15.70266	15.49471	0.0465

Max and trace tests indicates 1 and 4 cointegrating eqn(s) at the 0.05 level respectively.

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation, 2015

The JJ cointegration test was run based on four basic hypotheses upon which max statistics and trace statistics were the rule of thumb for choice regarding the rejection or

otherwise of the result. The selections of the orders of lags in the model is very important and was done by selecting minimum value of Schwartz Information Criteria (SIC). The result of the JJ cointegration test presented in Table (2) shows the existence of one cointegration equations at the 5% level of significance for max statistics and four integration equation at the 5% level of significance for trace statistics, meaning that there is long-run relation among the variables of the study interest. The cointegration equation is given below:

$$RGDP = 38.17TRDOP - 86.65FIOP - 4.15POP + 3.82GOVEX$$

The obtained equation shows a positive relationship between real gross domestic product and trade openness which means as real gross domestic product increases the trade openness which is the degrees to which country permit trade, also increases. The coefficient of financial openness indicated negative relationship between real gross domestic product and financial openness in Nigeria economy. Also the equation above shows an inverse relationship between the real gross domestic product and population, which means as population is increasing, it will have a negative effect on real GDP. There is also a positive relationship between real GDP and government expenditure which shows that as real GDP increases, government expenditures also increases.

Once cointegration relation is established, then the direction of causation both in short-run and long-run can be simultaneously established using Multivariate Granger causality test. Table 3 shows the short run causal relationship among the variables using VECM causality test. The VECM causality test shows that, there is unidirectional causal relationship between trade openness and real GDP, which means trade openness causes real GDP. No causal relationship between real GDP and financial openness. The result also indicates that population cause real GDP without a response and there is no causal relationship between government expenditure and real GDP. Bidirectional causality existed between trade openness and financial openness, population and trade openness, trade openness and government expenditure. Unidirectional causality existed between financial openness and population. No causal relationship between financial openness and government expenditure and finally government expenditure granger cause population without response.

Table 3: Short run causality

Dependent variables	Independent variables					
	$\Delta\text{RGDP}_{-1}$	$\Delta\text{TRDOP}_{-1}$	$\Delta\text{FIOP}_{-1}$	$\Delta\text{POP}_{-1}$	$\Delta\text{GOVEXP}_{-1}$	$\text{ECT}_{t-1}$
					1	
$\Delta\text{RGDP}$	-	-0.132** (-2.370)	0.002 (1.545)	147.099* (-1.867)	1681 (0.152)	0.87*** (4.341)
$\Delta\text{TRDOP}$	0.611 (0.710)	-	0.014** (2.477)	- 686.212** (-2.301)	-107.8 (-0.445)	-29.88 (-0.481)
$\Delta\text{FIOP}$	-33.177 (-1.063)	-10.291*** (-3.6621)	-	-1.691** (-2.2216)	1.530 (1.015)	-2.358 (-0.682)
$\Delta\text{POP}$	-9.580 (-0.481)	-4.510 (-0.924)	3.820*** (2.970)	-	-18949** (-1.972)	1.00*** (-0.714)
$\Delta\text{GOVEXP}$	1.900 (0.529)	-2.090** (-2.374)	-8.620 (-0.371)	-3.760 (-0.302)	-	1.00*** (5.311)

\*\*\*, \*\* & \* represent significance at the 1%, 5% and 10% level respectively. t-statistics in parenthesis

The result in Table 4 shows that real GDP Granger cause trade openness without feedback while real GDP and financial openness were independent from each other in the long run. Unidirectional causal relationship exists running from trade openness to financial openness and finally population growth Granger cause government expenditure without feedback.

Table 4: Short run causality

Dependent variables	Independent variables				
	RGDP	TRDOP	FIOP	POP	GOVEXP
RGDP	-	0.586 (0.746)	3.335 (0.189)	2.099 (0.350)	0.833 (0.659)
TRDOP	7.326* (0.025)	-	2.083 (0.353)	10.571*** (0.005)	7.043* (0.029)
FIOP	4.310 (0.115)	7.693* (0.021)	-	8.915** (0.012)	2.972 (0.226)
POP	3.491 (0.175)	44.617*** (0.000)	4.899* (0.086)	-	0.830 (0.660)
GOVEXP	4.693* (0.096)	0.314 (0.855)	3.472 (0.176)	12.263*** (0.002)	-

\*\*\*, \*\* & \* represent significance at the 1%, 5% and 10% level respectively. t-statistics in parenthesis  
p-value in parenthesis

### CONCLUSION

This study examined the relationship between economic openness and economic growth. Annual time series data was generated covering a period of 32 years (1980 – 2012). And JJ cointegration approach was applied which shows the evidence of long run relationship among the variables of study. The paper indicated a positive relation between real GDP and trade openness. It also revealed a negative relation between real GDP and financial openness which means that financial openness retarded real GDP in Nigeria possibly due high incidence of money laundering and perennial forex crisis. It can be concluded that economic openness could only enhance the performance of Nigerian economy if the country is able solve the syndrome of Dutch-disease by looking inward that would pave way to look outward with diversified export.

### *Policy Implication*

- Outward looking policies should be vigorously pursued as it would enable Nigeria to become active player in global economy. However, ease of doing business must be enhanced to spur the local entrepreneurship and ensure a competitiveness in the economy.
- for the country to maximise the benefits accruable from openness policy, payment mechanism must be strengthened so as to have easy, reliable and safe channels of settling transactions made.

Concerted efforts must be made in form of capacity building in order to boost the contribution of human factor towards the development of Nigerian economy.

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