
Trade Openness, Governance and Economic Growth in Nigeria

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Abstract: *Trade openness has played a significant role in the growth of nations' economies. Given the great concern for growth in Nigeria, this study examined the effect of trade openness and governance on the economic growth of Nigeria using quarterly time-series data from 1996Q1 to 2020Q1. The study highlighted the role of governance in promoting long-term growth in Nigeria through trade openness. In this study, governance is proxied with three variants of good governance indicators such as; control of corruption, voice and accountability, political stability and the absence of violence. The study used the autoregressive distributive lagged technique to test the hypothesis. The estimated result showed that trade openness is a negative predictor of economic growth, political stability and the absence of violence have a positive impact on economic growth while the control of corruption has a positive effect on economic growth. Hence, the work recommends that the federal and state government should encourage the production of capital-intensive goods to reap the benefits of increased trade openness values and ranking.*

INTRODUCTION

After the Second World War, many less developed countries (LDCs) followed the path of Import Substitution Industrialization (ISI); and most of these countries export primary commodities in general and agricultural goods in particular. The import substitution industrialization strategy by the LDCs required increased imports of machinery and technology, and this demands more foreign exchange than the growth in export earnings. Consequently, the LDCs began to face a balance of payment deficit. To finance their deficit, the LDCs became increasingly dependent on developed countries (DCS). To avert economic crises and experience a high rate of growth, the LDCs were advised by the Bretton Woods institutions to open up their economies through liberalization of trade and economic policies (UNCTAD, 2016).

Openness to trade reflects countries' integration into the world economy. It is generally assumed that small countries are more integrated (because of their domestic market size) than large countries (Kovarova, 2017). However, trade openness is influenced also by a large number of other factors, such as the structure of the economy, the level of financial development, domestic and foreign direct investment, quality of institutions, human capital, trade policy, resource endowment, among others. Therefore, the identification of long-term trends in openness to the trade of sub-regional countries is better than a simple cross-country comparison common with openness-growth literature.

According to North (1991), institutions are the humanly devised constraints that structure and control political, economic, and social interactions amongst various economic agents. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct); and formal rules (constitutions, laws, property rights). They are a set of economic,

political, and social factors, rules, beliefs, values, and organizations that jointly motivate regularity in individual and social behavior. They are of three types viz; economic, political, and social.

It has been observed empirically that one of the causes of the limited growth effects of trade openness is the weakness of the government. Indeed, one strand of the literature on growth has argued for the predominance of governance in economic growth (Easterly and Levine, 2003; Dollar and Kraay, 2003; Rodrik, et al. 2004). Findings from empirical studies have concluded that governance is crucial for the success of economic reforms in developing countries (Acemoglu, et al. 2003). The evidence suggests that the failure of trade reforms to promote trade and growth in SSA countries is attributable to the poor quality of governance. While panel analyses (Ulasan, 2015; Zahanago, 2016) did not categorize West African sub-region but lumped them together under a broad title of sub-Saharan Africa" which does not take into consideration common sub-regional factors that may influence outcomes, even as outliers of better-performing economies and worse performing economies were not separated. The results reported in these studies are also clearly sensitive to the variables employed, for example, population instead of human capital and also the theoretical framework assumed, that is, bivariate models and ad-hoc production functions instead of an augmented neoclassical production function, and estimation techniques that fail to draw out individual country differences and similarities. In such a situation, the cross-sectional homogeneity assumption is likely to be violated given the heterogeneity of economies in terms of institutions, government policy, financial development, and other economic conditions. Hence, the need to conduct an empirical investigation of the effect of trade openness and governance on economic growth in Nigeria using time series data spanning from 1996 to 2021.

It is in the light of the above, that this study examines how the institutions in Nigeria can contribute meaningfully so that trade liberalization can have a noticeable effect on economic growth and increase the rate of investment that will boost the growth of aggregate output.

LITERATURE REVIEW

Conceptual Clarifications

Trade Openness

Trade openness refers to the degree of dependence of an economy on international trade and financial flows (Romer, 1986). Trade openness is usually considered as the volume of a country's traded sectors concerning total output (Edwards, 1998). Trade openness measures the international competitiveness of a country in the global market (Gwartney, et al. 2001). Increased openness facilitates greater integration into global markets. Trade openness is interpreted to include import and export taxes, as well as explicit non-tariff distortions of trade, or in varying degrees of broadness, to cover such matters as exchange-rate policies, domestic taxes and subsidies, competition and other regulatory policies, education policies, the nature of the legal system, the form of government, and the general nature of institutions and culture (Baldwin, 2002). This theoretical definition is in line with several research studies, including Sachs and Warner (1995); Rodriguez & Rodrik (2001); and Wacziarg & Welch (2008).

Yannikaya (2003) simply defined trade openness as an economy's trade intensity. Yannikaya (2003) opined that this definition has changed over time from one extreme to another to the idea

of trade liberality. Pritchett (1996) defines trade openness as „that set of policies such that the level and pattern of trade (and prices) are near what they would be under free trade“. On the other hand, Krueger (1997) argued that trade openness can be attained by implementing policies that lower the biases against the exports sector, for instance subsidizing exports or encouraging exports schemes.

Economic Growth

Todaro (2000) defined economic growth as an increase in the national output of goods and services or an increase in the rate at which the annual output of goods and services grows in real terms. Economic growth is generally measured by the use of Gross Domestic Product (GDP), otherwise referred to as gross national income (GNI). The GDP is simply the monetary value of all the goods and services produced, within an economy over a specified time, usually one year. For this study, economic growth is considered as a measure of the real gross domestic product. Real gross domestic product is a macroeconomic measure of the value of economic output adjusted for price changes (that is, inflation or deflation). This adjustment transforms the money-value measure, nominal GDP, into an index for the quantity of total output. It is often referred to as „constant dollar GDP“, “constant-price” or “inflation-corrected GDP” (Todaro, 2000).

Theoretical Literature

Solow’s Economic Growth Theory

Robert Solow, an American economist, in his treatise, *A contribution to the theory of economic growth* published in 1956, expanded on the Harrod-Domar formulation by adding a second factor, labor, and introducing a third independent variable, technology to the growth equation. Solow postulates a continuous production function linking output to the inputs of capital and labour which are substitutable. Unlike the fixed-coefficient, constant-return-to- scale assumption of the Harrod-Domar model, Solow’s neoclassical growth model exhibited diminishing returns to labour and capital separately and constant returns to both factors jointly. Technological progress became the residual factor explaining long-term growth, and its level was assumed by Solow to be determined exogenously, that is, independently of all other factors.

Solow’s growth theory is a multi-factor productivity model which assumes only one commodity, output as a whole, whose rate of production is designated $Y(t)$. This output can unambiguously be referred to as the community’s real income. Part of each output produced at any given time is consumed and the rest is saved and invested. The fraction of output saved is constant so that the rate of saving is $sY(t)$. The country’s stock of capital $K(t)$ takes the form of an accumulation of the composite commodity. Net investment is then just the rate of increase of this capital stock dK/dt or K , so we have the basic identity at every instant of time:

$$K = sY \quad (1)$$

Output is produced with the help of two factors of production, capital, and labour, whose rate of input is $L(t)$. Technological possibilities are represented by a production function

$$Y = f(K, L) \quad (2)$$

Output is to be understood as net output after providing for the depreciation of capital. Constant return to scale is the natural assumption of Solow’s theory of growth. The production function is homogeneous of first degree, as it shows constant return to scale. This amounts to assuming that there is no scarce non-augmentable resource like land. The scarce-land case would lead to decreasing returns to scale in capital and labour and the model becomes more Ricardian (Solow,

1956). The Solow model is so straightforward. It does not include government, multiple goods, changes in employment, natural resources, geography, and social institutions, or globalization, which are the main features the model ignores. It is, however, this simplification that allows us to better understand the role of capital, labour, and knowledge in our study of economic growth.

Empirical Literature

Egbulonu and Ezeocha (2018) examined the relationship between trade openness and economic growth in Nigeria from the period 1990 – to 2015 using the Granger causality tests and autoregressive distributed lag approach. The results of the Granger causality test indicated unidirectional causality from GDP to FDI, trade openness to FDI, gross fixed capital formation to trade openness and exchange rate to gross fixed capital formation. The results indicated a long-run relationship between trade openness, FDI and gross fixed capital formation, and economic growth. The results also indicated a positive relationship between trade openness and economic growth, and a negative relationship between gross fixed capital formation and economic growth.

Keho (2017) examined the impact of trade openness on economic growth for Cote d'Ivoire over the period 1965 – to 2014 in a multivariate framework including capital stock, labour, and trade openness as regressors. The study used the autoregressive distributed lag bounds test for cointegration and the Toda Yamamoto Granger causality tests. The results indicated that trade openness has positive effects on economic growth both in the short-run and long-run. Evidence from the results also indicated bidirectional causality between capital formation and trade openness in promoting economic growth in Cote d'Ivoire. The study, therefore, recommended an increased reduction in trade barriers by simplifying procedures and controls, promoting investments in capital-intensive sectors, and developing human capital.

Zahanogo (2017) investigated how trade openness affects economic growth in 42 Sub-Saharan African countries (including Cote d'Ivoire, Ghana, and Nigeria) using a dynamic model with data covering 1980 to 2012. The study employed the Pooled Mean Group (PMG) estimation technique for the heterogeneous panels. The empirical evidence indicated that a threshold exists below which greater trade openness has beneficial effects on economic growth and above which the trade effect on growth declines, and the evidence is robust to alternative trade openness measures.

Abdebary (2018) examined governance matters and economic growth: Beyond the Egyptian revolution. He examines the interdependence of inclusive governance, and economic and social inclusion, through empirically assessing the relationship between governance indicators and economic growth in Egypt. The study applied a vector error correction model (VECM) to assess the causal relationship between the two key variables, using Worldwide Governance

METHODOLOGY

Model Specification

The study will adopt the empirical framework of the augmented neo classical growth theory as suggested by Mankiw, et al (1992) (henceforth MRW) which is an extension of the Solow(1956)framework to present a variant model that considered human capital as additional variable to capital and labour. Abstracting from all details and focusing on the simplest case with three factors of production, we have

$$\alpha, H, A L \tag{3}$$

$$Y_{ti} = 1 - \alpha - 1 - \alpha\beta$$

Where, Y_{ti} is output in time t in country i , K_{ti} is capital in country i , H_{ti} is the stock of human capital in country i , A_{ti} is technology in country i , and L_{ti} is amount of labour in country I , α and β are the production elasticities. We assume that $\alpha + \beta < 1$, which means there is decreasing returns to capital. If $\alpha + \beta = 1$, there is constant returns to scale in these producible factors.

This study considered such variables as economic characteristics (real GDP, level of foreign direct investment, exchange rate and trade openness) and institutional qualities (voices and accountability, political stability, and absence of violence, and control of corruption. Drawing from the Mankiw (1992,) framework, our augmented production function is:

$$RGDP = f(TOP, FDI, VAA, PSA, COC, EXR) \tag{4}$$

Where all other variables are as defined in equation (3.1) TOP is the openness index (exports plus imports as a percentage of GDP) at time t in the country FDI , is the net inflow of FDI at time t in the country and EXR is the official exchange rate at time t in the country. The institutional framework of a country may be considered as the rule of the game that changes very slowly over time and differs substantially across countries but remains fairly stable over time.

In this study, the dependent variable is economic growth measured by the real gross domestic product (RGDP), while the independent/explanatory variables established from literature to have some desired effect on economic growth due to trade liberalization include: the trade openness index (total trade/GDP) TOP , voices, and accountability (VAA), political stability and absence of violence (PSA), control of corruption (COC), while exchange rate (EXR) is a check variable. Translating this theory into the empirical specification, the general formulation of equation (2) can be explicitly written in an econometric form. The benchmark model specification is:

$$RGDP = \beta_0 + \beta_1 TOP + \beta_2 FDI + \beta_3 VAA + \beta_4 COC + \beta_5 PSA + \beta_6 EXR + \mu \dots \tag{5}$$

Where:

RGDP= real gross domestic product (RGDP)

OPNES=the degree of openness (sum of total exports and total imports to the GDP)

INV=rate of investment (gross fixed capital formation)

HK=human capital (%of gross secondary school enrollment ratio)

FDI=the foreign direct investment net inflow

EXR=real exchange rate

μ =stochastic error term

β_0 =Intercept

ln = logarithm operator

The subscript i, t is time t in country i . β_i 's ($i=1,2,3,4&5$), are the parameter to be estimated that measures the rate of change in the explanatory variables. The *a priori* expectations are algebraically summarized as; $\beta_1, \beta_2, \beta_3, \beta_4 \& \beta_5 > 0$, this implies that all the independent variables are expected to be positively related to the dependent variable (RGDP).

$$RGDP = \beta_0 + \beta_1 TOP + \beta_3 VAA + \beta_4 COC + \beta_5 PSA + \beta_6 EXR + \mu \quad (6)$$

Where:

RGDP = Real gross domestic product proxy for economic growth

TOP= Trade Openness

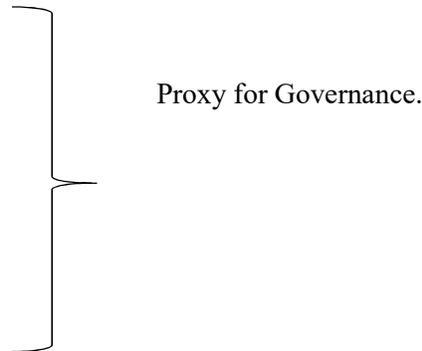
GOE = Government effectiveness

COC = Control of corruption

ROL = Rule of law

EXR = Exchange rate (control variable)

μ = Error term



The research followed three step procedure with time series data sourced from the Central Bank of Nigeria Statistical bulletin and world development indicator, a publication of the world bank covering the period spanning 1996 to 2021. The justification for the use of autoregressive distributed lag (ARDL) method of analysis is premised on the presence of variables with different order of integrations.

Analysis and interpretation

Descriptive Statistics

	LNRGDP	TOP	COC	ROL	GOE	EXR
Mean	258206.8	49.86165	9.720826	7.061495	27.12769	146.7728
Median	162596.0	54.21500	10.90047	5.238095	27.69953	132.4850
Maximum	556286.1	81.81000	19.41748	26.59575	35.46798	325.0000
Minimum	24100.54	21.12000	0.000000	2.415459	7.000000	21.88000
Std. Dev.	211392.7	19.10576	4.977995	5.073535	7.041364	67.99085
Skewness	0.276049	-0.299148	-0.419807	0.101115	-0.351385	0.280724
Kurtosis	1.321648	1.657523	2.276912	3.828760	3.514519	3.076470
Jarque-Bera	12.61679	8.730819	4.962392	13.06192	3.794880	1.297661
Probability	0.071821	0.052709	0.083643	0.078417	0.087141	0.522657
Sum	25046058	4836.580	942.9202	684.9650	2631.386	14236.96
Sum Sq. Dev.	4.29E+12	35042.89	2378.922	2471.113	4759.757	443784.5
Observations	97	97	97	97	97	97

The mean value or the average of the real gross domestic product RGDP, TOP, COC, ROL, GOE, and EXR in Nigeria is 25806.8, 49.86165, 9.720826, 7.061495, 27.12769, 146.7728 while the median values are 162596.0, 54.21500, 10.90047, 5.238095, 27.69953, 132.4850. The maximum and minimum values are 556286.1, 81.81000, 19.41748, 26.59575, 35.46798, 325.0000 and 24100.54, 21.12000, 0.000000, 2.415459, 7.000000, 21.88000 respectively. It can be inferred that LNRGDP, ROL, and EXR with the skewness values of 0.276049, 0.101115, and 0.280724 indicate the presence of a long right tails series while TOP, COC, and GOE with skewness values of -0.299148, -0.419807 and -0.351385 illustrates a long left tails series. The kurtosis values of 2.276912, 3.828760, 3.514519 and 3.076470 for COC, ROL, GOE, and EXR are leptokurtic while LNRGDP, TOP, and COC with 1.321648, 1.657523 are platikurtic. Finally, the Jacque-Bera statistic and its associate probability values indicate that the series in question followed the normal distribution

Stationarity Test Result (PP)					
Variables	Level		First Diff.		Order
	T-Stat.	Crit. Value 5%	T-Stat.	Critical Value 5%	
LnRGDP	-0.646282	-2.893589	-2.883701	-1.944404	1(1)
COC	-1.696598	-2.893589	-2.700273	-1.944404	1(1)
EXR	0.511958	-2.893589	2.745230	-1.944574	1(1)
RQT	-3.516608	-2.895109	-	-	1(0)
TOP	-0.651072	-2.895109	-2.352099	-1.944574	1(1)
GOE	-2.786608	-2.893589	-2.539855	-1.9444404	1(1)

According to the test statistics, the model contained a series of several different orders of integration. After first differencing, RGDP, COC, EXR, TOP, and GOE became stationary at the first difference, although ROL remained stationary at the level. Because the ROL is stationary at the level, it means that the political stability and absence of violence series in Nigeria is mean reverting, but others are not. This supports the use of the well-known autoregressive distributed lag (ARDL) model. Pesaran and Smith (2001) propounded the ARDL model in an attempt to estimate dynamic models. The ARDL bounds co-integration test allows researchers to determine whether or not the series in the model have a long-run cointegrating relationship. In the event of one, the researcher determines their long- and short-run causalities to evaluate the hypotheses.

Bounds Cointegration Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.64056	10%	1.99	2.94
K	6	5%	2.27	3.28

Asymptotic:
n=1000

		2.5%	2.55	3.61
		1%	2.88	3.99
			Finite Sample: n=35	
Actual Sample Size	23	10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326
			Finite Sample: n=30	
		10%	2.334	3.515
		5%	2.794	4.148
		1%	3.976	5.691

The table above shows the bounds cointegration test for estimating the association between trade openness, governance, and economic growth in Nigeria, using data from the central bank of Nigeria statistical bulletin for the period 1996Q1 to 2020Q1. The presence of a long-run link between the series is indicated by the fact that the f-statistics value of 10.64056 is greater than the upper bounds criteria value of 3.28 at 5%. Given the prevalence of convergence, it is expected that the researcher will explore the long- and short-term effects of the cointegrating relationship.

Short-Run and ECM Result

Included observations: 23

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficien t	Std. Error	t-Statistic	Prob.
D(LNRGDP(-1))	0.265510	0.040886	6.493958	0.0229
D(TOP)	-2458.412	230.4807	-10.66645	0.0087
D(TOP(-1))	-3561.011	246.8041	-14.42849	0.0048
D(COC)	1739.887	608.4026	2.859762	0.1036
D(COC(-1))	-11704.41	784.8188	-14.91352	0.0045
D(ROL)	-7950.825	825.3441	-9.633346	0.0106
D(ROL(-1))	15720.19	1014.601	15.49396	0.0041
D(GOE)	2347.116	557.6885	4.208651	0.0021
D(GOE(-1))	11580.92	798.4529	14.50420	0.0047
D(EXR)	-23.98900	71.90975	-0.333599	0.7704
D(EXR(-1))	429.2475	103.4912	4.147673	0.0535
CointEq(-1)*	-0.652270	0.030772	-19.57193	0.0026
R-squared	0.819436	Mean dependent var	23077.56	

Adjusted R-squared	0.724177	S.D. dependent var	39732.45
S.E. of regression	6384.849	Akaike info criterion	20.64036
Sum squared resid	3.67E+08	Schwarz criterion	21.33154
Log likelihood	-223.3642	Hannan-Quinn criter.	20.81419
Durbin-Watson stat	3.039361		

The value of 0.819436 indicates that the model is well-fitted, while the modified value of 0.724177 indicates that 72 percent of the change in RGDP is due to the combined effect of the series in the model, while the remaining 28% is being determined externally or in the error term. The Error Correction Term (ECM) is represented by a negative sign (-) and is statistically significant at 5%. In the short run, the historical disequilibrium caused by the aforementioned relationship will be corrected at a rate of 65% quarterly. As a result, it will take one year and five months to restore equilibrium if the result of this estimation will be used to make policy in Nigeria. In the short run, the trade openness coefficient is -2458.412, thus showing that it is a negative predictor of real gross domestic product (a proxy for economic growth) in the short run, and it is statistically significant given the probability value of 0.0087 is less than the 5% threshold. As a result, a rise in trade openness will result in a drop in the Real Gross Domestic Product of 2458.412 if all other factors remain constant (a proxy for economic growth in Nigeria). This presentation contradicts theoretical expectations, as economic theory predicts that trade openness will raise investment and enhance the economy, particularly in developing countries with a large number of business opportunities and little capital formation. Investors throughout the world have poor impressions of Nigeria because of instability and corruption in practically every sector of the economy, which could partly explain the anomaly. As a result, the variation in the actual gross domestic product over time could be due to feedback of trust.

On the other hand, the lag value of control of corruption (COC(-1)) harms real gross domestic product and is statistically significant at 5%. As a result, an increase in the lag value of the control of corruption index in Nigeria will result in a 11704.42 unit decrease in the real gross domestic product (RGDP). The coefficient of rule of law is 0.7950.825 and it is statistically significant since the probability value of 0.0106 is less than the 5% threshold. This implies that promoting rule of law tends to reduce economic growth in the short run. this assertion does not conform with theoretical apriori and this could be caused by a maladjusted legal framework and justice racketing in the Nigeria judiciary. On the other hand, the previous values of rule of law had a positive influence on economic growth and it is statistically significant since the probability value of (ROL(-1)) is less than 0.05. therefore, the past values of rule of law in Nigeria promote economic growth by 15720.19 in line with economic theory. The inherent contradiction above indicates that the effectiveness of rule of law is temporal in Nigeria and its fluctuating dispositions are premised on various factors. The coefficient of government effectiveness (GOE) has a positive effect on the real gross domestic product (RGDP) in the short run, and it is statistically significant given the fact that the probability value of 0.0021 is less than the 5% threshold. As a result, improvement in the effectiveness of the government will boost economic growth by 2347.116 units in Nigeria. while the past realization or its lag value also had a positive effect on economic growth.

Long-Run Result

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficien t	Std. Error	t-Statistic	Prob.

TOP	1957.828	2883.090	0.679073	0.5671
COC	13883.69	3929.436	3.533254	0.0316
ROL	-38293.42	11153.97	-3.433165	0.0454
GOE	-7942.549	7480.103	-1.061824	0.3996
EXR	1281.475	1116.809	1.147443	0.3699
C	662525.0	208670.9	3.174976	0.0865

The evidence above shows that, the coefficient of control of corruption has a positive effect on economic growth and that, it is statistically significant. This implies that an increase in policies that controls corruption will stimulate economic growth in the long run. this outcome is in line with the theoretical expectation of the researcher. On the other hand, the coefficient of -38293.42 of rule of law has a negative influence on a real gross domestic product in the long run, and it is statistically significant at 5% since the probability of 0.0464 is lower than the 5 percent limit. As a result, an improvement in rule of law will lead to a decline in economic growth, contrary to the apriori expectations. In Nigeria, this causality could be attributed to institutional failure and justice rackety in the judiciary. The judiciary and the Nigerian police have institutionalized corruption thereby subverting the delivery of justice to the citizens of the country and beyond.

Granger Causality Result

Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
TOP does not Granger Cause LNRGDP	95	0.50794	0.6034
LNRGDP does not Granger Cause TOP		10.6225	7.E-05
COC does not Granger Cause LNRGDP	95	1.50433	0.2277
LNRGDP does not Granger Cause COC		0.84819	0.4316
PSA does not Granger Cause LNRGDP	95	0.87944	0.4186
LNRGDP does not Granger Cause PSA		0.35686	0.7009
VAA does not Granger Cause LNRGDP	95	0.64382	0.5277
LNRGDP does not Granger Cause VAA		1.59943	0.2077
EXR does not Granger Cause LNRGDP	95	0.50519	0.6051
LNRGDP does not Granger Cause EXR		2.18622	0.1183

The granger causality output was generated to test hypotheses, which focus on the presence of a significant relationship between trade liberalization, institutional qualities, and economic growth in Nigeria. The evidence suggests that there is a granger causality between LNRGDP and TOP. This means that real gross domestic product (RGDP) granger causes trade openness by 10.6225 quarterly. This type of feedback effect could be explained by the fact that long-term growth in the real gross domestic product

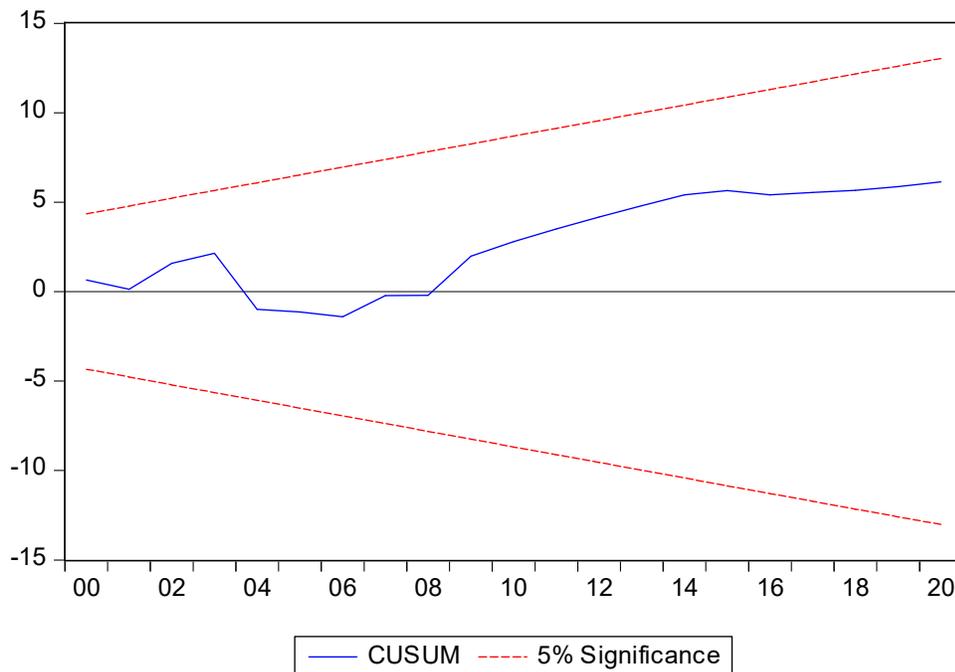
(RGDP) stimulates the savings-investment connection. This implies the existence of a long-run association between trade openness proxy of trade liberalization and economic growth in Nigeria.

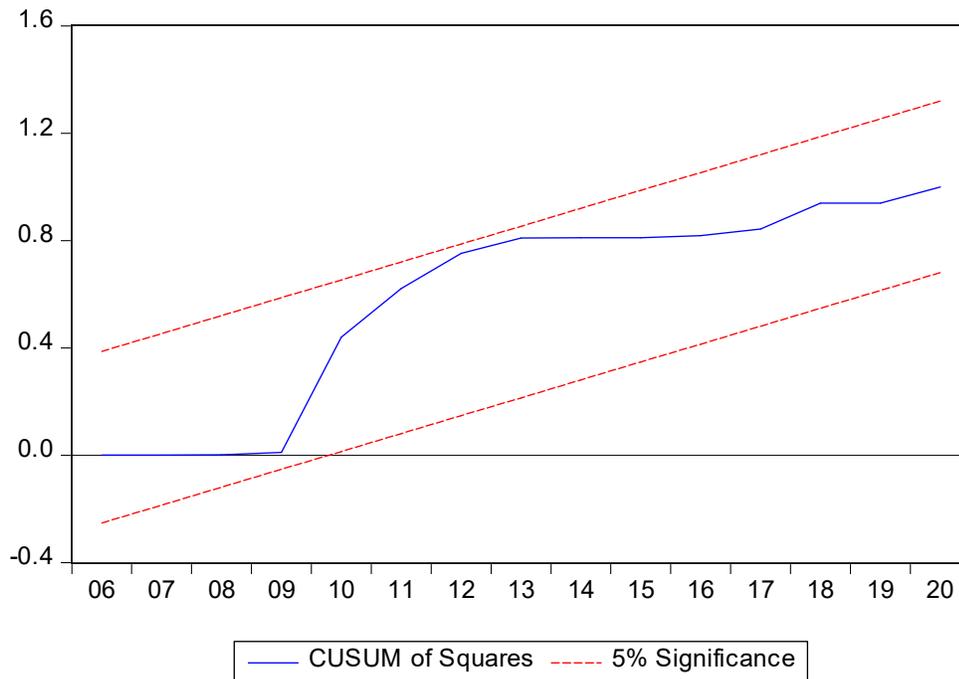
Secondly, there is a bi-directional causality going from political stability and the absence of violence (PSA) to the control of corruption (COC) index of institutional qualities and vice versa. Voice and accountability Granger causes political stability and the absence of violence, whereas political stability and the absence of violence cause an exchange rate of 3.81996 quarterly.

Post Estimation Result

s/n	Test	F-State	Prob-value	Obs-Rq	Prob-Value
1	Normality test	Jb(0.263820)	2.664977		
2	Serial correlation test	0.009986	0.9901		
3	Heteroscedasticity test	0.185694	0.9865	14.94942	0.7793

The evidence above indicates that the residual of the series followed a normal distribution. This is premised on the fact that the probability of 0.263820 and the Jarque-Bera statistic value of 2.664977 are more than the threshold of 0.05 limit. On the other hand, the F- statistics value of 0.185694 and probability values of 0.9865 as well as the Obs* R-square value of 14.94942 and 0.7793 indicate the absence of heteroskedasticity. This is shown in the Breusch-Pagan-Godfrey heteroskedasticity test. Evidence from the Breusch-Godfrey Serial Correlation LM Test indicates that there is no trace of serial correlation in the estimation. This exposition is premised on the fact that the F-statistic value of 0.009986 and its associated probability values of 0.9901 are far more than the 0.05 limit. Finally, the cusum and cusum of the square test indicated that the estimation falls within the specified interval.





Conclusion

It can be inferred from the study on the effect of trade openness and governance on economic growth in Nigeria that an increase in foreign direct investment leads to a reduction in economic growth. Also, governance in the form of the control of corruption promotes economic growth while political stability and the absence of violence reduce economic growth in Nigeria.

Recommendations

- Nigeria's federal and state governments should encourage the production of capital-intensive goods to reap the benefits of increased trade openness value and ranking.
- The institution of governance should be strengthened to generate further growth in Nigeria.
- The economic and financial crime commission should be strengthened through a legislative mechanism to fight corruption without political interference.

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