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Financial Development and Liberalization, Trade Openness and Economic Growth in Nigeria Using Combined Cointegration Analysis

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Abstract

The study investigates the impact of financial development and liberalization with the incorporation of trade openness for the period 1970-2016. Bayer and Hanck combined cointegration approach and quantile regression, quantile type VECM and quantile Granger causality were employed for the estimation. The results revealed there is cointegration among the variable and their causal factors. The impact of capital account openness on growth of the economy is significant, but that of financial development and trade openness on growth of the economy is not significant. Therefore, it is necessary for policy makers to fine tune financial reform policies and programs to effect positive changes in the development of the Nigerian economy in order to deliver sustainable economic growth through the enormous capital inflows and improve financial services.

Keywords: *Financial development and liberalization, Capital account openness, Trade openness, Combined cointegration*

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Introduction

The distinguishing feature of a successful economy is to achieve rapid economic growth. This is because such economy stands the chance to enjoy a higher standard of living than others that grow slowly or that experience erratic growth rate. The gain from small increases in the rate of economic growth can be very substantial. The economy of Nigeria has experienced mixed growth in GDP per capita for the period 1970 to 2016. This is an indication that welfare gained had suffered within the period, as seen in Figure 1. Finance is argued to be a good determinant of economic growth (Schumpeter, 1921; McKinnon, 1973; and Shaw, 1973). However, some economists believed that finance is not relevant to economic growth that it merely follows the direction of the real sector (Robison, 1952). There is a two-way relationship between finance and economic growth such as supply leading and demand following phenomena. The supply leading is that financial development leads to development in the real sector, while demand following is that real sector growth leads to financial development Ono (2017).

There are few studies in Nigeria that capture the impact of finance on economic growth. The current literature clearly indicated that many developed and developing economies had explored the two channels of finance-growth nexus, such as money and capital markets. On the reverse, it is not the case in Nigeria as the emphasized has been on money market with less concern on the capital market. Additionally, none of the past studies focused on the issue of a polity on growth. Consequently, the study at hand dwells on the analytic thinking of sustainable growth in real GDP per capita of Nigeria in relation to financial development, capital account openness, trade openness as well as government consumption and political stability. It is rattling significant to measure the effects of these factors, then formulate better policies to ensure sustainable growth in per capita gross domestic product in Nigeria.

The paper is organized as follows; the next section covers the literature review that is important to the analysis of this study. The third section presents the data set and empirical strategies. The fourth and fifth section discusses and makes conclusion respectively.

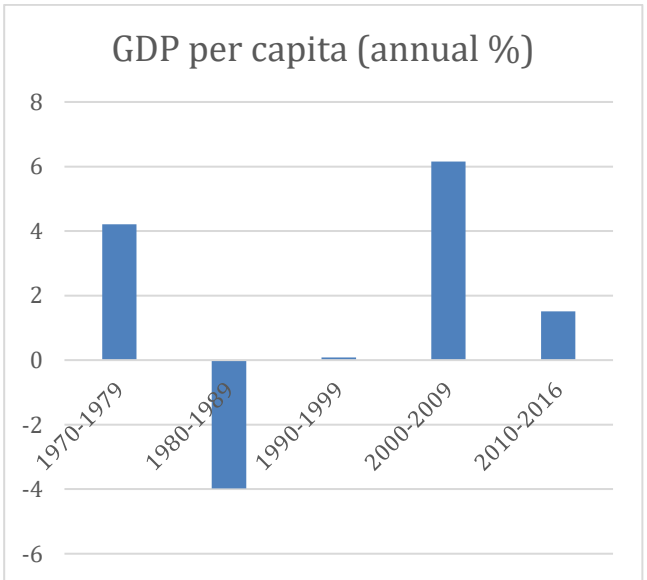

Figure 1.1 GDP per capita (annual growth rate %) from 1970-2016. Source: World Bank, 2017

Literature review

Orji, Ogbuabor and Anthony-Orji (2015) in Nigeria using time series data from 1981-2012 found that financial liberalization is

significantly to economic growth. But Orji, Anthony-Orji and Mba (2015) in another study for the period 1986-2011 in Nigeria found that financial liberalization is not significant to economic growth. However, financial development is significant. This indicates that financial liberalization can indirectly influence economic growth through financial development. Nike (2014) from 1987-2012 in a time series study in Nigeria found that the degree of openness of the inflow of portfolio investment cause economic growth in Nigeria, but financial development does not. In another perspective, Onanuga (2016) found in Nigeria that economic growth causes the financial development and financial openness is positively related to financial development. Nevertheless, trade openness is negatively related to financial development. He finally indicates that for the economy to gain there must be simultaneous openness of both trade and finance. If either is opened without the other it would be detrimental to economic growth. In another way, trade openness will not benefit the developing countries as they lack enough product that will compete in the international trade. But capital account openness will bring down the negative effect of the trade openness. This is because multinational firms will cease the chance to invest in the emerging economies as a result of their excess capacities. Interestingly, Owusu and Odhiambo (2014) in their study from 1969-2008 found that both financial liberalization and financial development are positively related to economic growth in Nigeria. But still, in the opposite Adeniyi, Oyinlola, Omisakin, and Egwaikhide (2015) study revealed the contrary, that there is a weak relationship between financial development and economic growth in Nigeria.

The economy of Nigeria is mainly an agrarian economy. The sector is not really supported by the industrial sector. This is because the farm implements are imported. For example, fertilizer, herbicide, tractors and many others implemented are imported. The manufacturing sector does not support the agricultural sector in processing their product in term of agro-allied industries. Most of the manufacture consumer product is imported. In fact, virtually everything that requires secondary production is imported. For instance, electronics, cars and many plants and machinery are imported. To worsen the situation financial institutions hardly support individual to acquire the durable goods. This is because it is uncommon for one to secure loans to buy a car or build houses. The mortgage financial institutions are either not in existence or very inefficient. The commercial bank credits are also lacking. Their customer finds it difficult to get investment and consumption loans. This is clear when the month is in the middle after salary payment. Many workers cannot smoothen their consumption. There is no credit card that workers can draw from to meet their consumption, thus, suffer so much before the next salary payment. In the situation like that it is difficult for financial development to impact on economic growth.

Menyah, Nazlioglu and Wolde-rufael (2014) corroborated the above assertion that financial developments do not have any significant impact on economic growth. Bezemer (2016) also agrees that financial development impact on economic growth is not as it is in theory as its effect is not really spurring economic growth. Gossel and Biekpe (2014) found that in South Africa export does not import led growth and economic growth drives foreign direct investment. Mireku, Agyei and Domeher (2017) found in Ghana that financial openness and financial development are negatively related to output volatility, but trade openness is positive to output volatility. Makhetha-Kosi, Mishi and Ngonyama (2017) revealed that in South Africa stock market development and gross domestic product is positive and significant to the inflow of portfolio and foreign direct investment. Polat, et al (2014) found in South Africa that real gross domestic product per capita, capital stock and trade openness have bidirectional causality. Moyo, Roux and Roux (2018) on the contrary in South Africa found that trade openness is having weak relationship with gross domestic product growth. Nevertheless, Uddin, Sjö and Shahbaz (2013) found a significant relationship between financial development and economic growth. While Keho (2017) in Cote D'Ivoire asserted that trade openness is significant to economic growth. Ono (2017) established a bidirectional relationship between financial development and gross domestic product in Russia. Naveed and Mahmood (2017) in Pakistan revealed that financial liberalization has strong relationships with economic growth.

Ahmed (2016) in Sub-Sahara Africa countries study uncovered that financial development has a good positive relationship with economic growth. But financial integration has a negative relationship with economic growth, however, financial development and financial integration have a positive relationship with each other. This means financial integration has an indirect impact on economic growth through financial development. Furthermore, trade openness and financial integration strengthened financial development, but not one of them. The institutions in the forms of property right, transparent legal system, investors' friendly laws and education boost growth. But inflation and government expenditure do not. Assefa and Mollick (2017) in Africa, however, found that foreign direct investment and portfolio investment are positively related to economic growth.

Huang and Ji (2017) in a cross countries study of sixty middle income countries found that a democratic system of government is paramount for sustainable economic growth through financial liberalization. However, trade openness has not. Yang and Liu (2016) in another perspective revealed that trade openness has a positive relationship with economic growth. But financial development and liberalization as well as polity have a weak relationship to grow in fifty-six emerging and developed economies. Elkhuizen, et al (2017) in a study of eighty-two countries revealed financial liberalization policies do not influence economic growth where there is weak democracy and poor political constraint. But social capital can substitute them for effective financial liberalization policies. Karnane and Quinn (2017) indicated that political instability is not good for continuing growth of the economy. Okafor (2017) in a study among ECOWAS countries discovered that political instability, corruption, lack of voice and lack of government effectiveness affect sustainable growth in the region. Gong and Rao (2016) supported this view by asserting that coup proxy by political instability is very detrimental to the growth of real GDP per capita.

However, the relationship of financial liberalization policies and economic growth has been widely discussed, but the effect of political stability is not well captured especially in Nigeria. The political stability used in this study is the persistence of government policies and programs. Similarly, the sample size and variables vary, especially the capital account openness to be used in the study is unique.

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Data, Model Specification and Empirical Strategy

In Table 1, the data source and description are presented.

Table 1: Data sources and variable descriptions

Variables	Descriptions	Data source
RGDP	Represents the nominal GDP divided by GDP deflator multiply by 100. The product divided by the entire population.	World Development Indicators (2017)
COP	This represents capital account openness measures in US currency is the sum of total foreign assets and total foreign liabilities (% of GDP)	External Wealth of Nations Mark II Database.
FD	It represents financial development index. It is a proxy of broad money, domestic credit to the private sector, domestic credit to the private sector by banks, domestic credit provided by financial sector all (% of GDP), using Principal Component Analysis to develop the index.	World Development Indicators (2017)
TOP	It measures the countries volume of export and import as measured in US currency (% of GDP).	World Development Indicators (2017)
GEX	It stands for government expenditure on final goods and services, excluding military expenditure (% of GDP)	World Development Indicators (2017)
PST	It is the political stability index, measures the durability of government executive leader's policies from past regimes	Marshall et al. (2016) polity IV database.

The relationship between real GDP per capita, capital account openness, financial development, trade openness, government expenditure and political stability can be tested by using the linear equation:

$$lnRGDP = \beta_0 + \beta_1 lnCOP + \beta_2 lnFD + \beta_3 lnTOP + \beta_4 lnGEX + \beta_5 lnPST + \pi \quad (1)$$

Where ln RGDP the natural log of real GDP per capita, which is the dependent variable. The independent variables are ln COP, the natural log of capital account openness, ln FD the natural log of financial development, ln TOP, the natural log of trade openness, ln GEX the natural log of government expenditure, and ln PST the natural log of political stability. The π is the stochastic error term.

In a sequential manner the empirical strategy starts with the test of stationarity, the cointegration analysis and long run and short run impacts of the determinants of continuous economic growth. The test of stationarity was done on all variables to ascertain that they are integrated in order $I(0)$ or $I(1)$ or a mixture of both, but not $I(2)$ (Subramaniam, et al, 2016). Dickey and Fuller (1979) test of stationarity, Augmented Dickey-Fuller was employed. In order to improve the assurance of stationarity of the variables and avoid the limitations of the assumption that the error term was independent with constant variance in ADF test. The Phillips and Perron (1988) test of non-augmented DF was employed also. The unit root test robustness were higher with Zivot and Andrews (1992) that can detect the existence of an unknown single break in the deterministic trend of the series.

The Koenker and Xiao's (2004) quantile regression was employed, assuming $RGDP_t$ serves as the dependent variable and FD_t serves as the independent variable, and the conditional quantile regression function τ^{th} can be expressed as follows:

$$Q_{RGDP}(\tau \backslash FD) = \inf\{b \backslash F_{RGDP}(b \backslash FD) \geq \tau\} = \sum_K \beta_K(\tau) FD_K = \chi^1 \beta(\tau) \quad (2)$$

Where $F_{RGDP}(b \backslash FD)$ is a conditional distribution function of $RGDP_t$ and FD_t series and the $\beta(\tau)$ stands for the dependence relationship between both the regressed series with specified quantiles (τ). Lin and Benjamin (2017), stated that the estimated β (τ) for each quantile can be estimated by the minimization of the weighted deviation between the series estimated as seen in Eq. (3):

$$\beta(\tau) = argmin \sum_{t=1}^{T} \left(\tau - 1_{\{yt < \chi_t' \beta(\tau)\}}\right) \quad (3)$$

Allowing the coefficient to vary across quantile (τ), the study extends the existing literature by estimating the $\beta_K^{(\tau)}$ for a range of τ = 0.25, 0.50 and 0.75. The study aims to indicate the different effects of the independent variables on the dependent variable across the quantile, thus, the quantile regression can be specified as follows:

$$Q_{RGDP_t}(\tau \backslash X) = \alpha_0^{(\tau)} + \alpha_1^{(\tau)} COP_t + \alpha_2^{(\tau)} FD_t + \alpha_3^{(\tau)} TOP_t + \alpha_4^{(\tau)} GEX_t + \alpha_5^{(\tau)} PST + \epsilon_t^{(\tau)} \quad (4)$$

The time series are cointegrated in Econometrics analysis, if two or more series are individually integrated, but some combination of them has a lower order of integration linearly. Engle and Granger (1987) contributed and give strong tools when the time series data are of limited length as most economic data set are characterized. Another test is by Johansen (1995) which is more applicable because it allows more than one cointegration relationship than Engle and Granger test. Phillips and Ouliaris (1990) is another major approach of cointegration test. Other approaches are the Error Correction Model (ECM) F test based (Boswijk, 1994), and the ECM t test based on Bannerjee, Dolado and Mestre (1998)

In order to improve on that a special way of getting a joint test-statistics for the null of no-cointegration according to Engle and Granger, Johansen, Peter Boswijk, and Banerjee test, was developed by Bayer and Hanck (2013). This approach allows for combination of others to provide a conclusive finding, which will be applied in this study. The combination of the individual computed p-value following Fisher's formula is as follows:

$$EG - JOH = 2[\ln(PEG) + (PJOH)] \quad (5)$$

$$EG - JOH - BO - BDM = -2[\ln(peg) + (pjoh) + (PBO) + (PBDM) \quad (6)$$

Where: PEG, PJOH, PBO and PBDM are the p values of individual test of cointegration respectively. The assumption is if the critical values are lower than the Fisher's statistics estimated the null hypothesis is rejected of no cointegration.

After the long run relationship and the lag order selection the test of causality by the use of the error correction representation as below:

$$(1-L)\begin{bmatrix} lnRGDP \\ lnCOP \\ lnFD \\ lnTOP \\ lnGEX \\ lnPST \end{bmatrix} = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \\ \beta_5 \\ \beta_6 \end{bmatrix} + \sum_{i=1}^{p} (1-L) \begin{bmatrix} \beta_{11i} & \beta_{12i} & \beta_{13i} & \beta_{14i} & \beta_{15i} & \beta_{16i} \\ \beta_{21i} & \beta_{22i} & \beta_{23i} & \beta_{24i} & \beta_{25i} & \beta_{26i} \\ \beta_{31i} & \beta_{32i} & \beta_{33i} & \beta_{34i} & \beta_{35i} & \beta_{36i} \\ \beta_{41i} & \beta_{42i} & \beta_{43i} & \beta_{44i} & \beta_{45i} & \beta_{46i} \\ \beta_{51i} & \beta_{52i} & \beta_{53i} & \beta_{54i} & \beta_{55i} & \beta_{56i} \\ \beta_{61i} & \beta_{62i} & \beta_{63i} & \beta_{64i} & \beta_{65i} & \beta_{66i} \end{bmatrix} * \begin{bmatrix} lnRGDP_{t-1} \\ lnCOP_{t-1} \\ lnFD_{t-1} \\ lnTOP_{t-1} \\ lnGEX_{t-1} \\ lnPST_{t-1} \end{bmatrix} + \begin{bmatrix} \beta_1 \\ \beta_2 \\ \beta_3 \\ \beta_4 \\ \beta_5 \\ \beta_6 \end{bmatrix} ECT_{t-1} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{1t} \\ \varepsilon_{1t} \\ \varepsilon_{1t} \\ \varepsilon_{1t} \\ \varepsilon_{1t} \end{bmatrix} \quad (7)$$

Where, (1 - L) is the lag operator and ECT_{t-1} stands for the lagged of the residual of the long run relationship to be obtained. The ε_{1t}, ε_{2t}, ε_{3t}, ε_{4t}, ε_{5t}, ε_{6t} and ε_{7t} are all error term with the assumption that they are (N, σ). The requirement of long run causality is that the t-statistics should be significant at the coefficient of ECT_{t-1}. The short run causality is when the F-statistics on the first difference of the variables is significant. The joint significance of the ECT_{t-1} and the estimate of lagged independent variables indicate the estimate of joint long-run and short-run causal relationship.

Table 2 Descriptive Statistics

Var	Mea	Med	Max	Min	S. d	ske	kur	J-be
Lnrgdp	9.69	8.37	12.9	7.28	2.20	0.37	1.39	6.**
Lncop	-0.45	-0.5	0.59	-1.2	0.53	0.41	1.94	3.51
Fd	4.E11	-0.2	6.25	-3.0	1.82	1.08	5.04	17.*
Lntop	3.78	3.86	4.40	2.98	0.39	-0.5	2.20	3.35
Lngex	2.29	2.32	2.88	1.58	0.40	-0.2	1.55	4.53
lnpst	1.48	1.79	2.71	0.00	0.93	-0.5	1.87	4.***

The figure in parenthesis is the probability values

Results and Discussion

The real GDP per capita, financial development and political stability series are not normality distributed as the Jacqur-Bera probability indicated. Similarly, the standard deviation of real GDP and financial development is high, indicating they are risky and volatile. According to Wellalage and Locke (2014), if the skewness value is equal to 0, the distribution of the data is symmetric and if the kurtosis value is less than 2, then the tails of the data are thin. Therefore, the kurtosis value of financial development is greater than 2 and the skewness is not close to 0. This suggests that it has extreme value. Likewise, real GDP per capita, capital account openness and political stability are skewed to the right to confirm the absence of normalcy in the series in favour of the few rich.

Table 3: Correlation of Nigeria

Cor	rgdp	cop	fd	top	gex	pst
Rgdp	1					
Cop	-0.30	1				
Fd	-0.25	0.28	1			
Top	-0.46	0.20	0.10	1		
Gex	0.64	-0.59	0.02	-0.27	1	
pst	-0.18	-0.12	-0.1	0.22	-0.05	1

The correlation of economic growth with finances, trade openness and political stability is negative, but positive with government spending. On the financial dimensions: capital account openness with financial development and trade openness, it shows positive correlation. The bad side of it, is that capital account openness with government expenditure correlation is negative. The increase in government spending, lower capital account openness. The situation in Nigeria is indicated that finances have little or no impact on growth as the economy is largely move by government spending.

The ADF and PP test of unit root result are given in Table 4. The results indicated that the variables are integrated at $I(0)$ and $I(1)$ in the case of ADF, whereas for PP they are all in order $I(1)$. In the unit root test with the unknown singular break of ZA, the results revealed that all the series reject the null hypothesis at $I(1)$.

Table 4: ADF, PP and ZA unit root test with single unknown break

Var	ADF		PP		ZA	
	At level	Δ	At level	Δ	Level	Δ
Lnrgdp	-1.3	-4.21*	-1.07	-4.30*	-3.22	5.88*
	(0.87)	(0.00)	(0.92)	(0.00)	(2004)	(1981)
Lncop	-1.98	-5.85*	-1.98	-5.83*	-4.01	-6.15*
	(0.60)	(0.00)	(0.60)	(0.00)	(1983)	(1990)
Fd	-3.3***	-6.14*	-2.56	-11.7*	-3.83	-6.24*
	(0.07)	(0.00)	(0.30)	(0.00)	(1980)	(1997)
Lntop	-1.59	-8.82*	-1.52	-8.76*	-2.17	-10.42*
	(0.78)	(0.00)	(0.81)	(0.00)	(1989)	(1987)
Lngex	-2.81	-7.43*	-2.96	-7.46*	-3.76	-8.11*
	(0.20)	(0.00)	(0.15)	(0.00)	(1994)	(1992)
Lnpst	-2.51	-6.34*	-2.71	-6.38*	*	-6.58*
	(0.32)	(0.00)	(0.24)	(0.00)		(1986)

Note: Δ, * and *** mean first difference, 1 and 10 percent level of significance respectively, and the P-value in parenthesis.

Table 5: Lag length selection

L	LogL	LR	FPE	AIC	SC	HQ
0	-275.	NA	0.019	13.09	13.339	13.184
1	-74.567	336.5*	9.2e-06*	5.42*	7.142*	6.056*
2	-49.927	34.382	1.74e-05	5.950	9.144	7.128
3	-23.735	29.237	3.61e-05	6.406	11.075	8.128
4	27.644	43.016	3.24e-05	5.691	11.835	7.9566

* Indicates lag order selected by the criterion LR Sequential modified LR test statistic (each test at the 5 % level), FPE Final prediction error, AIC Akaike information criterion, SC Schwarz information criterion, HQ Hannan-Quinn information criterion. Thus, lag 1 is the optimal lag order.

Table 6: the results of Bayer and Hanck cointegration analysis

Estimated model	EG-JOH	EG-JOH-BO-BDM	Coint
$RGDP = f(COP, FD, TOP, GEX, PST)$	9.74***	10.3010	√
$COP = f(RGDP, FD, TOP, GEX, PST)$	9.75***	11.3927	√
$FD = f(COP, RGDP, TOP, GEX, PST)$	10.0***	10.5601	√
$TOP = f(COP, FD, RGDP, GEX, PST)$	9.84***	14.6198	√
$GEX = f(COP, FD, TOP, RGDP, PST)$	10.5**	20.17**	√
$PST = f(COP, FD, TOP, RGDP, GEX)$	10.6**	20.95**	√
Significance level	Critical values	Critical values	
1 %	15.701	29.85	
5%	10.419	19.888	
10%	8.242	15.804	

Note: ** and *** represent significant at 5% and 10% respectively.

Table 6 presents the combined cointegration test results according to Fisher-statistics for EG–JOH tests, for the RGDP, COP, FD and TOP, which are greater than 10% critical values. This indicates the rejection of the null hypothesis of no cointegration between variables. But for GEX and PST both EG–JOH and EG–JOH–BO–BDM is greater than 10% critical values indicating the rejection of the null hypothesis of no cointegration between variables. The findings revealed that there is a cointegration between RGDP, COP, FD, TOP and GEX as well as PST and their determinants. This implies that the long run relationship exists between financial development, capital account and trade openness, as well as government expenditure and political stability for economic growth.

Table 7: Quantile regression results

Variable	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	OLS
Lncop	1.907***	1.6216	1.5686**	1.1152**
	(0.0592)	(0.1647)	(0.0175)	(0.0478)
Fd	-0.26***	-0.397**	-0.479**	-0.3921*
	(0.0832)	(0.0146)	(0.0110)	(0.0040)
Lntop	-2.5484*	-1.6722	0.4256	-1.509**
	(0.0002)	(0.1003)	(0.6037)	(0.0142)
Lngex	4.4455*	4.7418*	5.1974*	3.9482*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Lnpst	0.2467	0.0766	-0.2750	-0.2127
	(0.5247)	(0.8942)	(0.4148)	(0.3889)
Constant	8.7791*	5.5008	-1.6270	7.1678**
	(0.0068)	(0.2353)	(0.6128)	(0.0172)

Note: *, **, *** represents 1, 5, and 10% respectively

Capital account openness stimulates growth in all quantile with the exception of quantile 50th. This is in accord with the results of Muibi (2012) who found capital inflow having a positive and substantial relationship with growth in Nigeria. However, the financial development and trade openness are not significant. This can be due to low financial inclusion in Nigeria as argued by Ngwu (2015) that a high percentage of adult individuals in Nigeria do not have bank account neither any means of enjoying financial services as most of the bank branches still exist in the urban centres only. Similarly, a majority of Nigerian workers do not enjoy financial services in terms of credit cards that can smooth their consumption. There are inadequate financial services in hire purchases, mortgage finance and much more. An average Nigerian rarely secures or not interested in bank credit to acquire landed properties, plant and machinery, or motor vehicles. This is because the loan conditions are stringent. Adeniyi et al. (2015) in agreement with that do not find financial development, stimulating economic growth in Nigeria, but Orji, Ogbuabor, et al, (2015) using domestic financial liberalization index found that it spurs growth. Government expenditure, however, stimulates growth at all quantiles. But political stability impedes growth.

The coefficients of the quantile, for capital account openness are positive and significant as it is disclosed in the slope from the 25 percent to the 75 percent quantile although it shows some downward motion, but nevertheless substantial. Whereas the financial development quantile coefficients are negative, but not significantly different from the OLS coefficient. The trade openness quantile coefficients are sloping up. On the other hand, government expenditure is positive and shows upward trending. The quantile coefficients of political stability are not substantial differences from the OLS, and they are sloping down.

Table 8: Quantile Type ECM regression results

Variable	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	OLS
Constant	-0.1137	-0.0842	0.0299	-0.0174
	(0.3271)	(0.4856)	(0.8046)	(0.8275)
Dlnrgdp	0.6018**	0.6281	0.2749	0.4253*
	(0.0262)	(0.0514)	(0.1779)	(0.0047)
Dlncop	0.1180	-0..0927	-0.1002	-0.0737
	(0.3271)	(0.5284)	(0.5263)	(0.5446)
Dfd	0.0003	0.0133	0.0172	0.0120
	(0.9922)	(0.7380)	(0.6763)	(0.7096)
Dlntop	0.0027	0.0018	0.0022	0.0034
	(0.3851)	(0.6541)	(0.5263)	(0.2759)
Dlngex	-0.308***	-0.1884	-0.1278	-0.2635
	(0.0930)	(0.3914)	(0.5020)	(0.1495)
Dlnpst	0.0145	-0.0145	-0.0201	-0.0196
	(0.8130)	(0.8251)	(0.7548)	(0.6620)
ECM	-0.0715**	-0.0016	0.0619	-0.05***
	(0.0403)	(0.9744)	(0.2432)	(0.0984)

The quantile type VECM model in Table 8 shows, the government spending is not significant to economic growth. This means in the short run government expenditure crowds out private sector investment. However, the coefficient of ECM is negative and significant at 25th quantile and the OLS estimates. This indicates that in case of any short run shock in the economy, there will be equilibrium in the long run at

the speed of merely 7 and 5 percent at the 25th quantile and OLS respectively. This is quite infinitesimal for an economy to depend on as the speed is very low.

Table 9: Quantile Granger causality test result

Causality	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	OLS
$lnrgdp \rightarrow lncop$	3.7659***	2.0017	6.1294**	4.1608**
	(0.0592)	(0.1647)	(0.0175)	(0.0478)
$lnrgdp \leftarrow lncop$	0.3573	3.3548***	5.6178**	4.1608
	(0.5533)	(0.0743)	(0.0226)	(0.0478)
$lnrgdp \rightarrow fd$	3.1524***	6.5091**	7.0952**	9.3204*
	(0.0832)	(0.0146)	(0.0110)	(0.0040)
$lnrgdp \leftarrow fd$	1.03656	5.7669**	2.2302	8.8901*
	(0.3146)	(0.0209)	(0.1430)	(0.0048)
$lnrgdp \rightarrow lntop$	16.8219*	2.8263	0.2736	6.5606**
	(0.0002)	(0.1003)	(0.6037)	(0.0142)
$lnrgdp \leftarrow lntop$	0.7331	0.4062	1.8188	1.0309
	(0.3969)	(0.5274)	(0.1849)	(0.3159)
$lnrgdp \rightarrow lngex$	21.2679*	22.0764*	50.2367*	31.8962*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$lnrgdp \leftarrow lngex$	2.3637	21.2547*	14.1579*	27.9032*
	(0.1319)	(0.0000)	(0.0005)	(0.0000)
$lnrgdp \rightarrow lnpst$	0.4117	0.0179	0.6788	0.7585
	(0.5247)	(0.8942)	(0.4148)	(0.3889)
$lnrgdp \leftarrow lnpst$	0.0474	2.1517	2.3084	0.5047
	(0.8288)	(0.1500)	(0.1364)	(0.4814)

In the Granger causality results in Table 9, there is a feedback effect between real GDP per capita and capital account openness at 75th quantile, all other quantile it is only unidirectional. At 25th quantile and the OLS estimate, the causality is from real GDP per capita, whereas at 50th quantile it is from capital account openness. This indicates that much is desired for capital account openness to stimulate growth in Nigeria.

In the same way financial development and growth have bi-directional causality in 50th quantile and the OLS estimate. This might be because of the financial inclusion policy of 2012. In the 25th quantile and OLS estimate it is demand following phenomena. The direction of causality between trade openness and growth is from the real sector at 25th quantile and OLS estimate. The trade liberalization does not stimulate growth. The impact of international trade in Nigeria is bad and it requires attention. Government expenditure and growth has bi-directional causality at all quantile with the exception of 25th quantile that the causality is only from the real sector to government expenditure. This means Nigeria is still a public sector led economic. The political stability and real sector do not cause each other. The political environment in Nigeria needed to be fine-tuned to ensure that it supports the real sector for growth.

Conclusion

This paper studies the relationship between financial development and liberalization on economic growth by adding trade openness in the case of Nigeria over the period 1970-2016. The combined cointegration test of Bayer and Hanck was used to investigate the presence of cointegration. The empirical evidence confirms that there is a long run relationship between capital account openness, financial development, trade openness and economic growth.

Capital account openness has significant impact on economic growth. Thus, it is plausible to elucidate that Nigeria stands to benefit more if they can improve on their domestic financial market, trade policies and political system. This is because financial development has proven not to impact on the growth of the economy. Similarly, there is political instability in Nigeria as the coefficient impedes growth, the same result is found in the case of trade openness. Government expenditure, however, stimulates growth in Nigeria. The economy of Nigeria is the desire of most of the foreign investors because of the large market as a result of its large population size which is approximately at 200 million.

The error correction term is significant, indicating that the economy is prone to long run equilibrium in the event of short run shocks this is simply because of the effect of the high capital inflow. The Nigerian economy needed to capitalize on it by ensuring that capital inflows improve competition, crowding-in domestic investment, and transfer technology into the economy that will yield sustainable growth.

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Appendix

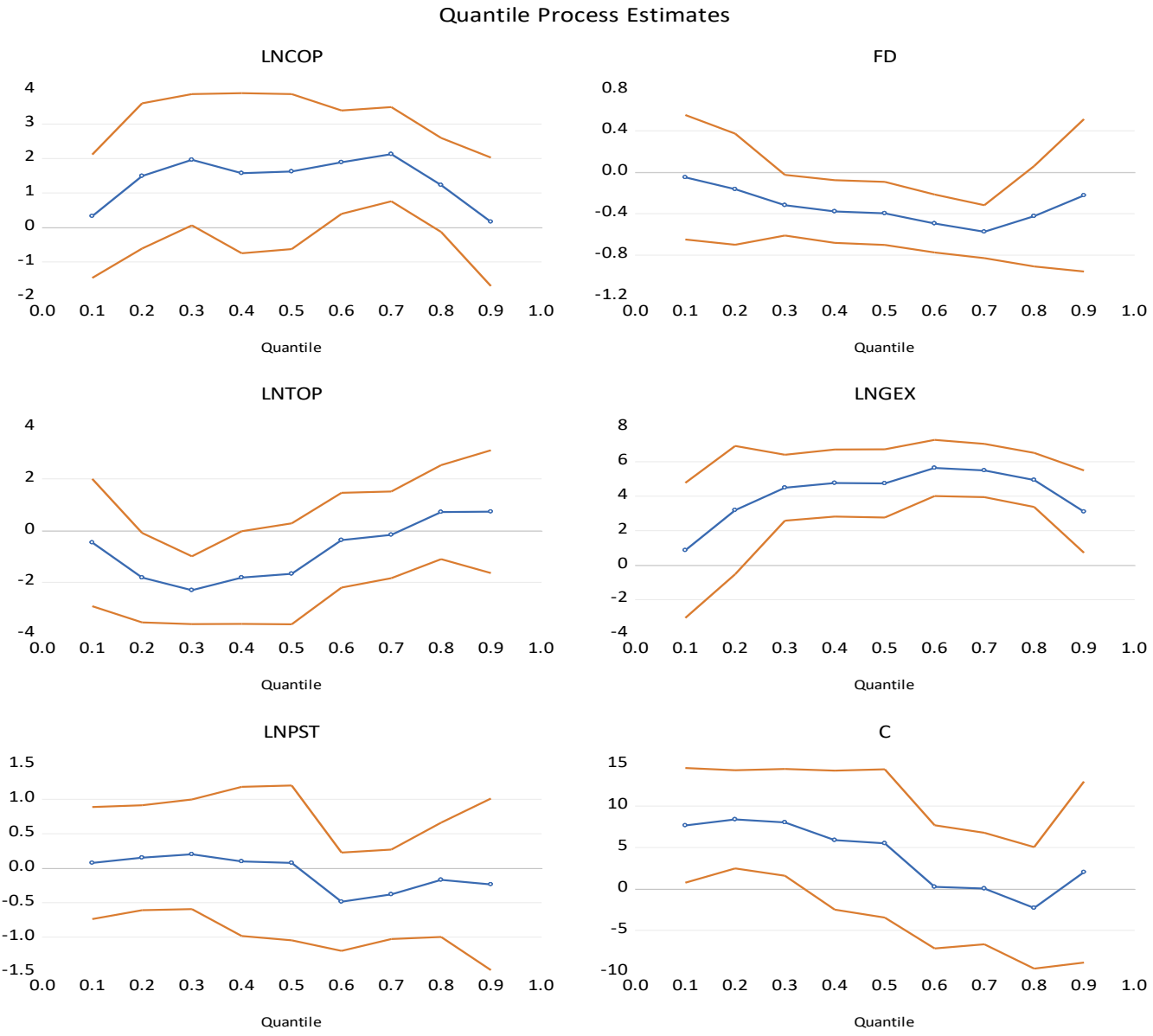

Fig. 1. Quantile coefficient