ROMANIA
MINISTRY OF NATIONAL EDUCATION

THE ANNALS
OF
THE UNIVERSITY OF ORADEA

ECONOMIC SCIENCES
TOM XXVIII

1st ISSUE / JULY 2019

EDITURA UNIVERSITĂȚII DIN ORADEA

ISSN 1222-569X (printed format)
ISSN 1582-5450 (electronic format)

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FINANCIAL DEVELOPMENT AND INCLUSIVE RURAL FINANCIAL SYSTEM IN NIGERIA

ADEGBOYEGA R. Raymond[1], OYEDOKUN Godwin Emmanuel[2]
[1]Banking and Finance Department, Faculty of Administration and Management Sciences, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria
[2]Nasarawa State University, Keffi, Nigeria
dgbyga@gmail.com
godwinoye@yahoo.com

Abstract: *Currently, as a result of increase in population which has put high demand on rural financial institutions for credit and savings accessibility, the market for rural finance is facing a challenge of inadequate flow of funds. The large resources required to meet this demand call for the establishment of new rural financial institutions while the existing institutions require more funds to scale-up the activities and outreach. The enormous potentials of the rural sector make sound financial development to be of priority. The priority for sound financial development hinges on effective inclusive rural financial system because it is evident that large majority of the people live in rural areas in Nigeria and more so, do not have access to financial services. This informed the need to examine the relationship between financial development and inclusive rural financial system in Nigeria. The data collected from Central Bank of Nigeria and World Bank data base from 1981 to 2017 were subjected to Vector Error Correction Model (VECM), Johansen co-integration and impulse response function methods of analysis. The results of the Johansen co-integration test show three co-integration equations which indicate evidence of long run among the variables of the study. Also, the result of the VEC indicates that FID, RLDR and RUTP equations constitute the true cointegrating equations while the others are statistically flawed. In addition, post-estimation diagnostic test shows that there is no presence of first order serial autocorrelation in the model, absence of heteroscedasticity, and the model is not normally distributed. The study concluded that access to financial markets is still limited in the rural areas as a result of lack of inclusive rural financial system in Nigeria. Therefore, the study recommended among others that it is necessary to increase the efficiency of rural financial institutions which may promote inclusive rural financial system for effective financial development.*

Keywords: *Efficiency; Financial development; Financial services; Financial stability; Financial institutions; Inclusive rural financial system.*

JEL Classification: *G19; G21; R5.*

1. Introduction

Basically, population density is considered to be more important for financial development and inclusive rural financial system in developing countries. Ironically, it is also evident that large percentage of the people in developing countries lives in rural areas without access to financial services. Among other things, lack of finance is one of the fundamental problems hampering production, productivity and income of rural farm households. This necessitates many rural households and farm

enterprises in developing countries to obtain informal credit while the few that obtained credit and insurance from a wide array of rural financial intermediaries were actively monitored. The aim is to keep agents focused on their efforts to improve the chances that their financed projects do not fail and/or to reduce the possibility that project cash flows may be diverted to other purposes rather than meeting promised repayments.

Monitoring is used both as a substitute for, and in addition to, collateral guarantees and legal enforcement strategies. Hence, the nature of informal financial market, which is predominantly in rural areas and in most cases, outside the formal banking sector, with their activities not being captured in the financial aggregates, is posing concerns and challenges for the development of financial stability.

In Nigeria, before the introduction of rural banking, several farmers relied exclusively on informal financial market for their savings and credits activities. Even with the emergence of rural banking, it is still utilized by around 5 per cent of the rural population. Though, the precise size of informal financial market relative to the formal financial system is unknown, the informal financial market is still crucial given that it is principally the major source of financing for the poor and low income rural populace (Oloyede, 2008).

Given the nature of informal financial markets in Nigeria that is characteristic by small, unit-size, unconventional practices, lack of transparency of operations, a low capital base and limited services, their terms of engagement are often more stringent than those of formal institutions. They are however, widely patronized because of nearness and availability, promptness of service delivery and the existence of social ties between practitioners and their clients. Therefore, as part of the efforts to promote financial development, the Central Bank of Nigeria (CBN) has over the years, encouraged their integration with the formal financial system through awareness creation, appropriate policies, capacity building and training. The CBN is also enhancing their integration into the formal financial sector through the creation of appropriate linkages, for instance, the self-help linkages groups for agricultural financing.

Another strategy of integrating the informal financial market in Nigeria is the design and implementation of the financial inclusion strategy by the CBN which was launched in October 2012 with the aim of increasing the number of Nigerians to be included in the formal sector from 30.0 per cent as at 2010 to 70.0 per cent by the year 2020. Generally the accessibility of a good financial service is considered as one of the engines of economic development. But the major problem in Nigeria still remains lack of adequate access to financial services in the rural areas.

In the light of above the main aim of this paper is to identify the problems deterring the effectiveness of the rural financial market in Nigeria and proffer policy implication that will promote its inclusiveness. In this fast growing field of empirical and theoretical research evidence has shown that majority of the studies examined the nexus between financial development and economic growth or rural finance while none linked the relationship with inclusive rural financial system so, there is need to carry out this study.

The remaining part of this paper contains section two which is literature review, section three is methodology, section four presents' findings and section five is conclusion and recommendation.

2. Literature Review

2.1. Theoretical Review

Theoretically, financial development is centered on financial structuralist view presented by Gurley and Shaw (1955), Goldsmith (1969), and Hicks (1969) which argues that development of a financial system is crucially important in stimulating economic growth especially in the rural areas because under-developed financial systems retard economic growth. More so, financial institutions and intermediation matter in the endogenous growth models developed by Arrow (1962). Thus, policies to foster financial development should be aimed at promoting the inclusive rural financial systems by creating more financial institutions and promoting greater variety of financial products and services to generate a positive effect on the saving–investment process. Although, Modigliani and Miller (1958) observed that with perfect markets, informational symmetry, and no transaction costs, real economic decisions are independent of the financial structure. However, rural financial markets are characterized by asymmetric information; agricultural financial markets in particular are subject to (local) monopoly, have high transaction (screening and monitoring) costs and, therefore, the neoclassical models do not reflect the realities in these markets. The problems in the rural markets are aggravated due to the special environment which deters inclusive rural financial system to thrive. Rural financial system environment are affected by specific conditions of rural areas, such as lower population density; lower number of rural bank branches, low level of savings, seasonality and lumpiness of agricultural cash flows and larger loan defaults among others. As a result, Hoff and Stiglitz (1996) propose three competing theories of the rural credit markets in developing countries. Hypothetically, the first theory postulates that in the informal market the village moneylenders are monopolists because they charge higher rate of interest rate to maximize profits. This market is highly complicated because there are often saturated with high transaction costs of switching lenders. The second theory assumption is that the rural credit market can only be perfectly competitive with market clearing equilibrium, where high interest rates indicate high risk of borrowers. Also, there is credit rationing in the rural market because some of the loan applicants may receive a loan and others do not even though they paid a higher interest rate (Stiglitz and Weiss, 1981). The third theory is a typical reflection of rural market because the assumption is that the informal credit market is characterized by uncertainty, high transaction costs, and information asymmetry, which typically leads to moral hazard and adverse selection., In this market the lenders use indirect (passive) or direct (active) screening mechanisms to reveal the quality (risk level) of borrowers in order to overcome informational asymmetry. Indirect screening, therefore, often leads to credit rationing a combination of price and quantity of credit that is below the market clearing level. The mechanisms for direct screening include geography, kinship, and inter-linkages with other markets to solve the problems of information, incentives and enforcement. So, the market will be monopolistically competitive. For rural financial system to be inclusive there is need for deeper financial markets with greater breadth and efficiency of intermediation for the expansion of financial transactions through markets at a pace that exceeds the growth of non-financial activities.

2.2. Conceptual Review

One of the greatest challenges confronting financial authorities in developing countries is ability to devise appropriate financial development strategies that will capture the financial services requirements of farmers and small and medium entrepreneurs who constitute about 70 percent of the population. The absence of efficiently operating rural financial markets in Nigeria has become a serious constraint on sustainable rural development. Financial development is a multidimensional concept and constitutes a potentially important mechanism for long run financial growth of rural areas.

Fundamentally, for sustainable growth and development the financial empowerment of the rural areas is vital, being the repository of the predominantly poor in society. So, inclusive financial system is one that serves all clients not just the relatively well-off. This means reaching out to poor and low-income clients and providing them with affordable financial services tailored to their needs in rural areas (Helms 2006; United Nations 2006; Chen and Jiao 2009).

Inclusive rural financial system aim is to either eliminate structural or functional imbalances in the rural financial system (Hayek 1945, 1948; Shaw 1973; Li et al 2008). Therefore, it must be conducive to overcoming information symmetry; reduce the financing plight of farm households and SMEs due to lack of collateral, increase accessibility to financial resources for farm households; and able to improve financial efficiency by way of market-oriented models.

Financial services in the rural economy must be delivered on a sustainable basis to ensure that services are available in the long term. However, financial services frequently need to be accompanied by non-financial services such as financial education, business development and agricultural extension services, or linkages to local health organizations to empower rural areas to benefit from access to finance. If not empowered, access to finance can put vulnerable populations at even higher risk and lead to over-indebtedness.

Although informal financing has a certain advantage in the acquisition of information, this advantage is limited to a relatively fixed number of customers within a small area, and the requirements for geography, popularity and kinship-based relationships are comparatively harsh (Feng, He and Du, 2006). With more diversified transactions, this advantage would be lost.

For low- and middle-income groups in rural areas to have access to financial services and to increase the supply of rural finance, it is essential to build an inclusive financial system and to foster a competitive rural financial market (Helms 2006; United Nations 2006; Li et al. 2008; Wang 2009).

Based on the identified gaps in rural finance, the ILO suggests focusing on supporting knowledge creation and innovation in rural financial service delivery, increasing the managerial and technical capacity of financial service providers to serve rural and remote areas, and providing an enabling environment, in order to unlock the considerable economic potential of rural areas and benefit rural populations. The choice of policy options should be guided by the vision of a competitive financial market with a multitude of players that provide appropriate and demand-driven products and services.

2.3. Empirical Studies

Empirical studies on financial development and inclusive rural financial system dynamics are not only scanty in number but restricted in scope in terms of the measure of financial development. Majority of the studies on financial development were linked with financial inclusion. Han (2008) found that the efficiency representing the level of financial development had very important influence on economic growth by establishing the optimization model. Nie (2009) used multiple linear regression analysis to find the relationship between rural financial development and economic growth in Heilongjiang province. Yu (2011) used 1978–2010 annual data to investigate the relationship between rural financial development and rural economic growth using vector autoregressive (VAR) model. Ding Zhiguo (2012) analyzed the mutual influence between rural finance and rural economic development and observed the Chinese rural credit structure imbalance. Huang (2013) pointed out that the innovation of rural finance helped to improve rural financial services, but the rural financial reform still lagged behind the economic development of agriculture and rural areas. Allen, et al. (2013) examined financial development and financial inclusion gaps and found that population density is considerably more important for financial development and inclusion in Africa than elsewhere. Due to limited number of studies between financial development and inclusive rural financial system in Nigeria, it becomes imperative to carry out the study of this nature.

3. Methodology

The data collected from Central Bank of Nigeria and World Bank data base between 1981 and 2017 were analyzed by Vector Error Correction Model (VECM), co-integration and impulse response function methods. The variables of the study are financial development (FID), which is proxy by % of commercial banks private credit to GDP (CBPC_GDP), while the efficiency of inclusive rural financial system is measured by number of rural bank branches to total banks (NRBB), rural bank loans to deposit ratio (RBLDR), ratio of agricultural loan to total loan (AGRICL_TL) and ratio of rural population to total population (RUTP).

3.1 Model Specification

In line theoretical framework in this study, we follow the endogenous growth model which emphasized the relevance of financial intermediation and its important role in improving efficiency of rural financial markets. So, this informed the financial development as dependent variable to be incorporated into the model (Greenwood and Jovanovic, 1990; King and Levine, 1993; Pagano, 1993). Arrow's (1962) endogenous growth model in a simplified form can be written as

$$Yi = A(K)\, F(Ki, Li) \qquad (1)$$

Where Yi denotes output of firm i, Ki donates its stock of capital, Li, denotes its stock of labour, K without a subscript denotes the aggregated stock of capital and A is the technology factor.

For the purpose of this study the adopted and modified endogenous growth model can be rewritten and specified as follows:

$$FIDi = f(NRBB, RBLDR, AGRIC\_TL, RUTP) \qquad (2)$$

The functional relationship between financial development and inclusive rural financial system for estimation purpose is based on the modified model of Allen, et al. (2013) and specified as follows:

$$FID_t = a_o + b_1NRBBt + b_2RBLDR_t + b_3AGRICL\_TL_t + b_4RUTP_t + e4t + f5t + \varepsilon t \quad (3)$$

3.2. Estimation Technique

The estimation technique used in this study is Vector error correction (VEC) model of a VAR model containing co-integration relationship for non-stationary time series data. It is stated as follow:

$$\Delta y_t = aecm_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-1} + \varepsilon_t, \quad (4)$$
$$t = 1,2,\ldots\ldots\ldots,T$$

A VAR model with a mechanism of error correction model (ECM) is formulated as:

$$\Delta FID = \psi + \sum_{t=1}^{m} h_i \Delta\, FID_{t-1} + \sum_{j=i}^{m} \lambda_j \Delta NRBB_{t-j} + \sum_{p=1}^{m} \phi \Delta BLDR_{t-p}$$
$$+ \sum_{q=1}^{m} \varphi\ AGRICL\_TL_{t-q} + \sum_{z=1}^{m} \delta RUTP_{\,t-z} + aecm_{t-1} + \varepsilon_t \quad (5)$$

where,

$aecm_{t-1} = \beta' y_{t-1}$ is the error correction term, reflecting the long-term equilibrium relationship between variables directly. *a* reflects the adjustment speed back to the equilibrium when the variable coefficient vector is deviating from the long-term equilibrium state.

The VECM model is specified as

$$\Delta lnFID_t = \alpha_0 + \sum_{i=1}^{n} \beta_{1i} \Delta h\ (FID)_{t-i} + \sum_{i=1}^{n} \beta_{2i} h(NRBB)_{t-i} + \sum_{i=1}^{n} \beta_{3i} h(RBLD)_{t-i}$$

$$+ \sum_{i=1}^{n} \beta_{3i} h(AGRCL\_TL)_{t-i} + \sum_{i=1}^{n} \beta_{4i} h(RUTP)_{t-i}\, \lambda e_{t-i} + e \quad (6)$$

The model helps to avoid short run loss of information. Error correction term helps to correct the proportion of disequilibrium in the next period and is represented by coefficient of λ if the variables are co integrated.

4. Analysis of the Results

4.1. Unit Root Test

The unit root test results in table 1 below show that the Augmented Dickey Fuller (ADF) statistical values are greater than the critical values at 5% level of significant and all of the variables are stationary at first difference. Therefore, the hypothesis of non-stationary was therefore rejected.

Table1: Unit Root Test

Variables	ADF Test statistics	5% critical level	Order of integration
FID	-5.347650	-4.243644	I(1)
NRBB	-6.669293	-4.243644	I(1)
RBLD	-5.513779	-4.284580	I(1)
AGRICL_TL	-6.573952	-4.252879	I(1)
RUTP	-6.804931	-4.243644	I(1)

Source: Author's Computation, 2018

4.2. Lag Order Selection

In the table 2 below in order to determine the optimal lag length the study used Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), Hannan-Quinn Information Criterion (HQ) and the Final Prediction Error (FPE) to test for the lag order. It was noted that, of all these criteria, Akaike Information Criterion (AIC) indicated optimal lag length of one.

Table 2: Results of Vag Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-583.6358	NA	7.51e+08	34.62564	34.85010	34.70219
1	-441.5999	233.9415*	782661.9*	27.74117*	29.08796*	28.20047*
2	-416.6867	33.70617	871034.6	27.74628	30.21539	28.58831
3	-395.5112	22.42104	1445894.	27.97125	31.56269	29.19603

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion ; SC: Schwarz information criterion ; HQ: Hannan-Quinn information criterion
Source: Author's Computation, 2018

4.3. Johansen Cointegration Test

Since the results of the Johansen co-integration test shown in table 3 indicate three co-integration equations only for trace statistic, therefore, there is a long run relationship among the variables. In addition, normalized co-integrating test was carried out to determine the long relationship.

Table3: Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.521294	75.76145	69.81889	0.0155
At most 1 *	0.43111	49.97802	47.85613	0.0312
At most 2 *	0.347257	30.23544	29.79707	0.0445

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values
Source: Author's Compilation, 2018

4.4. Normalized Cointegration Test

The results in table 4 show that number of rural bank branches (NRBB) exhibits a negative relationship with the financial development (FID). This is an indication that an increase in the number of rural bank branches retards financial development in Nigeria. The insignificant of this variable limits the effects of Central Bank of Nigeria rural banking policy in Nigeria. Also, there is an inverse relationship between rural loan deposit ratio (RLDR) and financial development (FID), which shows that an increase in RLDR decreases FID in Nigeria and it is insignificant. It implies that increase in RLDR may not promote FID and limit the effectiveness of CBN credit policy, especially agricultural credit in Nigeria. In addition, agricultural loan to total loan (AGRIC_TL) has an inverse relationship with FID but has significant effect on FID. This shows that AGRIC_TL is very important in the growth of financial development. More so, the results show that increase in rural population (RUTP)

leads to increase in financial development (FID). Although, it is insignificant but it's indicate the need for the expansion of rural banking system that will promote effective inclusive rural financial system. In conclusion, since the banking credit to the private sector is less than 70 percent of GDP then the country has a relatively low developed financial system.

Table 4: Normalized Cointegration Test

Variables	Coefficient	Standard Error	T value
NRBB	-0.375901	0.251603	-1.494025
RLDR	-0.031133	0.017490	-1.780055
AGRIC_TL	-0.582304	0.266784	-2.182682*
RUTP	0.472543	0.301124	1.569261
C	1.110129	14.82519	0.074881

Source: Author's Compilation, 2018

4.5. Vector Error Correction Estimates (VEC) Results

The true cointegrating equations indicated are shown in the result of the Vector Error Correction (VEC) in table 5 below. The result of the VEC indicates that FID, RLDR and RUTP equations constitute the true cointegrating equations. The others are statistically flawed.

Table 5: Vector Error Correction Estimates Standard errors in () & t-statistics in [ ]

Cointegrating Eq:	CointEq1				
FD(-1)	1.000000				
AGRIC_TL(-1)	0.236406 (0.29316) [0.80640]				
NRBB(-1)	0.196070 (0.25879) [0.75764]				
RLDR(-1)	0.125914 (0.02556) [4.92660]				
RUTP(-1)	0.451391 (0.32162) [1.40349]				
C	-59.80939				
Error Correction:	D(FID)	D(AGRIC_TL)	D(NRBB)	D(RLDR)	D(RUTP)
CointEq1	-0.606432	0.234373	0.138791	-7.138270	-0.001593
	(0.26190)	(0.11122)	(0.12791)	(2.75608)	(0.01449)
	[-2.31547]	[2.10734]	[1.08508]	[-2.59001]	[-0.10994]

Source: Author' Computation, 2018

4.6. VEC Model and Granger Causality

The short run causality among the variables using Granger causality/Block Exogeneity Wald tests based on VEC model was performed. The test results in table 6 show that there is existence of a unidirectional causal relationship between NRBB and RUTP in the short-run. This shows that increase in the number of rural bank branches encourages rural people to patronize banks which may lead to the acceleration of financial development.

Table 6: VEC Granger Causality/Block Exogeneity Wald Tests

Dependent variable: D(NRBB)			
Excluded	Chi-sq	df	Prob.
D(FD)	2.493664	2	0.2874
D(AGRIC_TL)	3.471248	2	0.1763
D(RLDR)	0.801862	2	0.6697
D(RUTP)	27.97535*	2	0.0000
All	36.54885	8	0.0000

* significant at 1% level, ** significant at 5% level, *** significant at 10% level
Source: Author's Computation, 2018

4.7. Post-estimation Diagnostic Test

The results in table 7 and figure 1 below show how the model was examined for normality, serial correlation, heteroskedasticity and stability tests. The VAR Residual Serial Correlation LM Tests was employed in this study to check for the presence or otherwise of first order serial autocorrelation in the model using 1 period lag. Since the probability value of 0.5600 is greater than 5%, hence, we accept the null hypothesis (Ho), therefore, we conclude that there is no presence of first order serial autocorrelation in the model or the residuals are not serially-correlated. Also, since the probabilities of chi. square statistics of 0.3808 is higher than 0.05, this indicates the absence of heteroscedasticity, therefore, the errors are homoscedastic. In addition, since the Jargue-Bera probability statistics is below 5% level of significance, then the model is not normally distributed. More so, the Inverse Roots of AR Characteristic Polynomial of figure 1 reveals the stability condition of the model or the series considered. It could be observed from the graph that none of the roots lies outside the unit circle, thus this means that VAR satisfies the stability condition.

Table 7: Normality, Serial correlation, Heteroskedasticity and Stability Tests

Serial Correlation LM Tests: 23.30041(0.5600); Heteroskedasticity Tests: 306.8146(0.3808); Normality Tests (Jarque-Bera): 605.8516(0.0000)

Source: Author's Computation, 2018

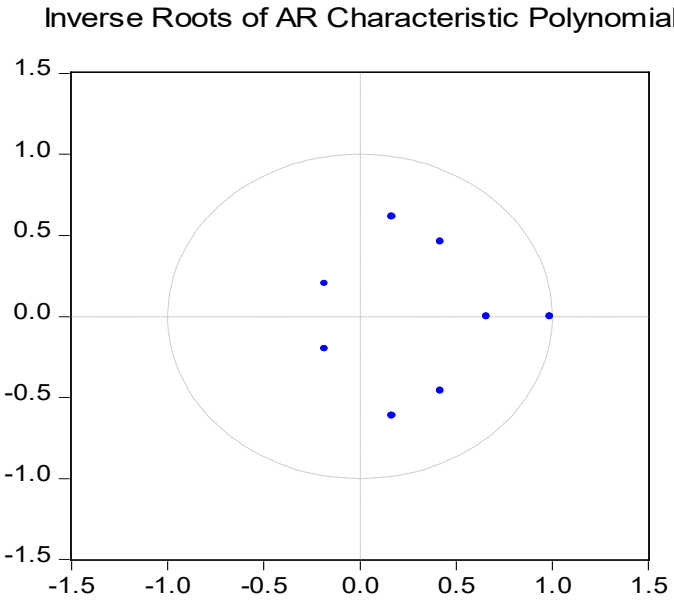

Figure 1: Inverse Roots of AR Characteristic Polynomial
Source: Author's Computation, 2018

4.8. Forecast error variance decompositions (FEVD)

The results presented in tables 8a to e are based on the VAR system ordered as Chelosky ordering of FID, AGRIC_TL, NRBB, RLDR and RUTP.

4.8.1. Variance Decomposition of FID

The results in table 8(a) show how much of financial development (FID) own shock is explained by movements in its own variance and the other variables. In the first year, FID own shock is explained by 100 percent but reduced to 75.79 percent in the tenth period horizon. In explaining the shocks in FID, AGRIC_TL is more important than NRBB, RLDR and RUTP both in the short-run and long-run because as FID decreases towards the last horizon AGRIC_TL increases.

Table 8a: Results of Variance Decomposition of FID

Period	S.E.	FID	AGRIC_TL	NRBB	RLDR	RUTP
1	4.712598	100.0000	0.000000	0.000000	0.000000	0.000000
2	5.932744	93.39888	2.512079	3.015713	0.338435	0.734896
3	6.232420	86.29787	8.664228	3.683416	0.321104	1.033384
4	6.534427	80.73587	14.67614	3.350833	0.292124	0.945035
5	6.819988	77.61041	18.07172	3.146632	0.282259	0.888971
6	6.933041	76.48655	19.19593	3.044866	0.372656	0.900005
7	6.959076	76.07831	19.53335	3.047299	0.447420	0.893626
8	6.966748	75.91089	19.66894	3.059651	0.462382	0.898139
9	6.972411	75.79259	19.78429	3.058855	0.461903	0.902356
10	6.977571	75.68052	19.89957	3.055601	0.461276	0.903024

Source: Author's Compilation, 2018

4.8.2. Variance Decomposition of AGRIC_TL

The results in table 8(b) show that in the first year, AGRIC_TL own shock is explained by 99.8 percent but reduced to 85.07 percent in the last horizon which is the tenth year. NRBB is more important in explaining the shocks of AGRIC_TL but both continue decreasing towards the last period horizon.

Table 8b: Variance Decomposition of AGRIC_TL:

Period RUTP	S.E.	FID	AGRIC_TL	NRBB	RLDR
1	2.507712	0.101783	99.89822	0.000000	0.000000	0.000000
2	3.126490	0.892519	86.44040	8.947258	2.858913	0.860914
3	3.479718	0.736884	83.54654	9.462932	3.195990	3.057652
4	3.707152	1.584263	84.19584	8.498254	2.950416	2.771223
5	3.901932	2.381886	84.74399	7.671654	2.671719	2.530751
6	4.019248	2.871736	84.88464	7.261145	2.597263	2.385219
7	4.088183	3.068357	84.89506	7.064521	2.608982	2.363082
8	4.130070	3.150422	84.92842	6.940238	2.602186	2.378738
9	4.160036	3.171828	85.00375	6.841859	2.573899	2.408668
10	4.182903	3.178353	85.07266	6.767358	2.549740	2.431890

Source: Author's Compilation, 2018

4.8.3. Variance Decomposition of NRBB

The results in table 8(c) show that in the first year, NRBB own shock is explained by 96.63 percent but reduced to 43.03 percent in the last period horizon. RUTP plays more important role in forecasting and accelerating NRBB.

Table 8c: Results of Variance Decomposition of NRBB

Period RUTP	S.E.	FID	AGRIC_TL	NRBB	RLDR
1	2.701957	3.252017	0.113399	96.63458	0.000000	0.000000
2	3.874771	10.99550	2.316025	59.36632	0.001373	27.32078
3	3.968288	11.96109	2.573282	57.26915	0.095809	28.10066
4	4.102069	11.83065	7.822304	53.59463	0.090130	26.66229
5	4.221013	11.24826	12.73244	50.70439	0.103668	25.21124
6	4.328753	10.76502	16.57369	48.25890	0.136746	24.26565
7	4.418856	10.69803	19.32696	46.31290	0.165364	23.49675
8	4.491372	10.67243	21.38200	44.83542	0.172328	22.93783
9	4.543776	10.58118	22.85856	43.81191	0.176399	22.57195
10	4.584715	10.45350	23.96732	43.03559	0.179025	22.36457

Source: Author's Compilation, 2018

4.8.4. Variance Decomposition of RLDR

In table 8(d) below the RLDR displayed a similar pattern to AGRIC_TL where its own shocks also account for a disproportionate share of the total variation. The contribution of its own shock is 99.24 percent in the first period and falls to 79.95 percent in the tenth period horizon. The contribution of the other 4 variables is marginal with FID accounting for 10.35 percent of the variation in the tenth period.

Table 8d: Variance Decomposition of RLDR

Period	S.E.	FID	AGRIC_TL	NRBB	RLDR
RUTP					
1	52.15614	0.556666	0.197150	0.000496	99.24569	0.000000
2	57.32404	3.302972	0.417075	0.215776	93.69831	2.365862
3	60.88164	7.035363	1.646437	1.475562	87.74447	2.098167
4	63.02940	6.597111	3.499830	2.289566	84.85701	2.756480
5	64.13515	8.573758	4.347040	2.219812	81.97581	2.883580
6	64.91799	10.06816	4.248440	2.250634	80.60640	2.826369
7	65.04076	10.20056	4.353430	2.244989	80.38072	2.820298
8	65.11393	10.22504	4.483273	2.247273	80.21907	2.825344
9	65.19475	10.32561	4.549136	2.241761	80.04152	2.841976
10	65.23113	10.35283	4.596151	2.246727	79.95231	2.851982

Choleky Ordering: FD AGRIC_TL NRBB RLDR RUTP
Source: Author's Compilation, 2018

4.8.5. Variance Decomposition of RUTP

The contribution of RUTP to its own shock is 94.15 percent in the first period and falls to 38.88 percent in the tenth period horizon. The contribution of the other 4 variables is marginal but AGRIC_TL accounting for 54.5 percent of the variation is evident that it is more important in determining RUTP.

Table 8e: Results of Variance Decomposition of RUTP

Period	S.E.	FID	AGRIC_TL	NRBB	RLDR
RUTP					
1	0.272132	0.736523	0.019283	4.097627	0.997255	94.14931
2	0.330553	0.864506	3.414243	10.14580	1.771273	83.80418
3	0.404974	0.591685	13.88543	12.24676	2.433954	70.84217
4	0.463074	0.487535	23.03550	11.05748	2.087976	63.33151
5	0.530135	0.372324	30.71203	9.364500	1.651763	57.89939
6	0.597892	0.357034	37.38890	8.125079	1.335888	52.79310
7	0.668166	0.416123	43.13198	7.198825	1.109233	48.14384
8	0.736888	0.504004	47.84760	6.435805	0.930966	44.28162
9	0.804282	0.588299	51.56125	5.790338	0.788377	41.27174
10	0.869959	0.666629	54.51764	5.263104	0.676959	38.87567

Source: Author's Compilation, 2018

4.9. Impulse Response Function Analysis

The Impulse Response function which is normally used to detect interaction among variables simulates over time the effect of a one-time shock in one equation on itself and on other equations in the entire equation system. The estimated generalized impulse response functions (IRFs) results are summarized in figure 2 below. From the graph results of impulse response, financial development responds both positive and negative way depending on time period, due to the shock of NRBB, AGRIC_TL, RLDR and RUTP.

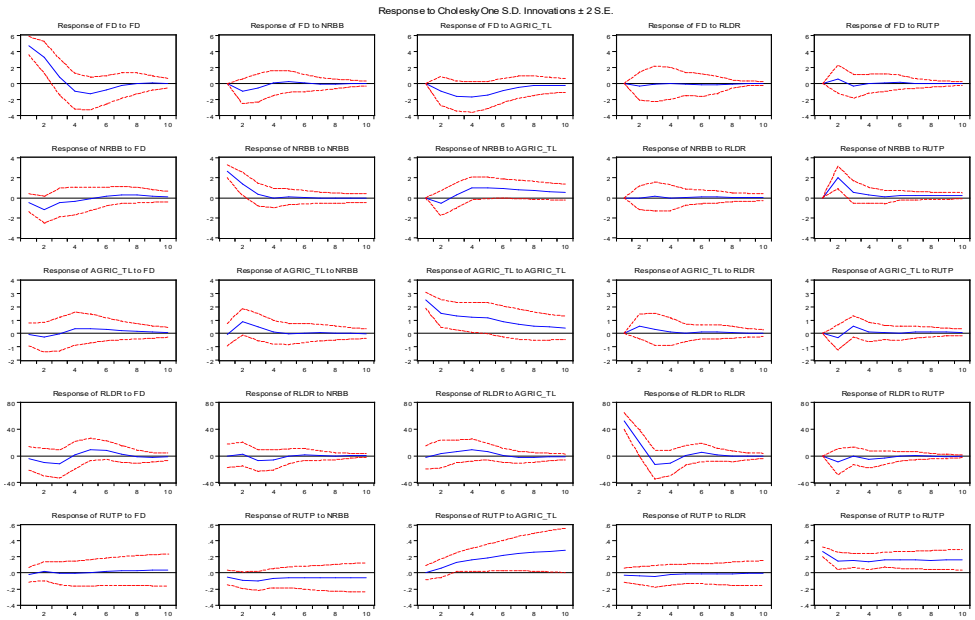

Figure 2: Generalized Impulse Response Functions Graphs for FID, NRBB, AGRIC_TL, RLDR and RUT
Source: Author's Computation, 2018

5. Conclusion and Recommendations

5.1. Conclusion

In Nigeria the slow pace of financial development has made the activities of rural financial system not so encouraging because the current rural financial institutions are unable to meet the multi-layered and diverse demands for rural financial services. The analysis demonstrates that there is a long run relationship among the variables. Also, the VEC results indicate that FID, RLDR and RUTP equations constitute the true cointegrating equations. The variance decomposition results show that the predominant sources of financial development variation are due largely to "own shocks" and other variables' innovations. However the results show only small marginal contribution of RUTP to FID and even negative contributions of NRBB, RLDR and AGRIC_TL to FID due to small number of rural bank branches, low level of rural deposits which also discourage bank lending mostly agriculture credit. The Granger causality test shows that there is short-run uni-directional causal relationship between NRBB and RUTP. The study concluded that access to financial markets is still limited in the rural areas as a result of lack of inclusive rural financial system in Nigeria. The policy implication of this finding is that for sound financial development attention must be given to the level of development of the inclusive rural financial system as it may boost the capital accumulation efficiency and/or increase the level of savings and thus investment, as suggested by McKinnon (1973) and Shaw (1967).

5.2. Recommendations

In the light of the above findings, the following recommendations are made:

- Attention should be given to the complementary and coordinated development of financial reforms so that an inclusive financial system can be attained in rural Nigeria.
- Increase the capacity of a range of financial service providers to serve rural and remote areas.
- There is need for Central Bank of Nigeria to encourage capital formation as well as the supply of credit facilities through formal financial institutions in the rural areas.

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