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**An Analytical Review of Financial Intermediation in the Rural Areas of Nigeria**

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## **An analytical Review of Financial Intermediation in the Rural Areas of Nigeria**

### **Abstract**

*This study analyses financial intermediation in the rural financial sub-sector of Nigerian economy. In achieving the objective of the paper, we investigate the relationship between the total deposit mobilized and the total loan advanced by the formal bank branches located in the rural areas of Nigeria from 1982-2009. The study uses time series secondary data collected from various issues of the Central Bank of Nigeria (CBN) statistical Bulletin, the data was analysed using the Augmented Dickey Fuller unit root tests and Johansen cointegration tests allowing for using fully modified Ordinary Least Square (OLS) method. The study found that rural deposit has a significant positive influence on rural loans while the influence of interest rate is positive but not significant. The result of Pearson Product Moment Correlation revealed a fair correlation between deposits mobilised and credits allocated in rural areas of Nigeria. As such, 48% of the deposit mobilised is given out to rural customers as loan. The study concluded that formal bank branches in the rural areas have done fairly well in terms of credit creation although there is still room for expansion. However, limited presence of financial institutions in the rural areas is the major problem inhibiting financial intermediation in the rural areas of Nigeria. The study therefore recommend that the CBN should direct all rural banks to give out at least 60% of their deposit as loan to rural borrowers while, linkage banking should be used for the very remote communities where formal bank branches could not be located.*

**Keyword:** financial intermediation, rural area, linkage banking, loan, deposit, interest rate.

### **1. Introduction**

A well-functioning banking system plays a very important role in channelling resources to the best firms and investment projects. While large companies residing in cities tend to be well catered for, small entrepreneurs in rural areas often have to plough back their retained profit (if any) or rely on informal village money lender. The implication of lack of access to banking services in rural areas is severe; the issue of access affects the ability of economic agents to receive government transfers, or to make payments or to accumulate cash surpluses for planned expenses or emergencies (Beck and De la Torre, 2006; Ibrahim *et al*, 2012). Individuals who have no option but to carry cash are exposed to security risks (Basu,

2006). Undoubtedly, lack of facilities for mobilisation of saving and allocation of credit in rural areas may result to low-income economic agent resort to expensive short-term debt.

Lending in rural areas is surrounded by uncertainty about repayment; the rural poor tend to have irregular (volatile) income streams and expenditure patterns, perhaps they tend to be highly exposed to systemic risks such as crop failures or a fall in commodity prices and so may face real difficulties in servicing their loans. Therefore, banks have legitimate concerns while lending to a rural poor thereby perceiving such loans as risky (Aliero and Ibrahim, 2012; Basu, 2006). Accordingly, Ogujiuba *et al*, (2004) identified three factors responsible for the risk in rural lending. Firstly, unstable macro-economic environment manifested in terms of fluctuation in interest rate, inflation, unemployment etc. Secondly, lack of basic infrastructural facilities which comprises things like access to electricity, road network, potable water, clinic etc. Thirdly, they lack adequate securitized collateral to back them while negotiating loans with the rural financial institutions.

Attempts to reduce the gap in the provision of rural finance often focus on the supply side interventions, including government and donor-funded targeted credit programmes (Aleiro *et al*, 2010; Yaron *et al*, 1997). Several factors were identified as explanation for non-proliferation of financial institutions in rural areas of developing countries. Such factors include; high risks, poor collateral, low and unstable income, uncertainty, asymmetric information and high operating cost among others (Onumah, 2001; Ladipo, 2008; Ibrahim, 2008; Abbassi, *et al* 2009). Noting these problems Sani (2008) contends that, the Millennium Development Goals (MDGs) particularly the first goal, could hardly be met until when the rural areas of developing countries have gotten a dependable financial system that caters for their financial needs. The main objective of this paper is therefore to

examine the relationship between deposits mobilised and loans allocated by formal financial institutions in rural areas of Nigeria. To achieve this objective, the paper is divided into five sections including this introduction. Section two presents the nature of rural areas in Nigeria while section three presents the methodology of the study. Section four is the discussion of the results and the last section concludes the paper.

## **2. The Nature of Rural Areas of Nigeria**

The pathetic picture that the rural communities of Nigeria portrayed resulted from inequality created by unequal distribution of wealth whose source is the rural areas of the country. As such, majority of rural dwellers are living in helpless and hopeless state while few others residing in the urban areas are swimming in opulence and plenty (Babasanya, *et al.* 2008; Ibrahim, 2012).

Agriculture is the mainstay of rural community especially before the oil boom of 1970s; farming is virtually subsistence in nature. Perhaps commercial agriculture was largely absent, this is partly because most people dwelling in rural areas are poor, characterized by low income, large family size, lack of education, low savings and investment, lack of access to credit facilities and use of crude farm production technologies, which resulted to poor economic base, untold hardship, miserable living condition, joblessness, high death rate, etc. (Olayide, *et al* 1980). There is no doubt, the rural communities of Nigeria are endowed with avalanche of natural resources and in a bid to harness them, the government had opened up these areas through many project aimed at developing as well as transforming the economic and social life of the rural people. Yet the journey seems unending. This led Sancho (1996) to described rural poor in a rather more

pathetic form. According to him, they lack an adequate level of education and cannot satisfy their basic health needs. While Olayemi (1995) typifies the rural poor as those who have no (or limited) access to basic necessities of life such as food, clothing, decent shelter, unable to meet social and economic obligations, they also lack skills and gainful employment, have few (if any) economic assets, and sometimes lack self-esteem.

A stylized fact about rural Nigerians is that they lack regular source of income and their population is sparsely distributed. Human development indicators shows that modal rural income is below ₦10, 000 per annum, over 50% of them do not have formal education qualifications, average rural family size is between 5 and 7 and over 51% of rural dwellers feel dissatisfied with their present level of living (Ekong, 1977; Ibrahim, 2011). Moreover, a critical assessment of the rural economy confirms agriculture, involving basic food production and other subsistence farming practices as the most predominant and most viable source of income for rural people. This is further underscored by the fact that in most developing countries of the world, including Nigeria, over 80% of the total agricultural produce was derived from subsistence farming activities. Ironically, rural farmers are simply not paid enough for their produce, whereas price for basic farming tools and other essential inputs are constantly rising beyond their reach. (Babasanya, *et al* 2008). The low income level of rural farmers stem from the global instability of the demand for agricultural output as well as the rising costs of agricultural input compelling rural farmers to operate purely on subsistence level which metamorphosed into low investment, low productivity and low income (Beck, Levine and Loayza, 2000).

Another feature of rural areas in Nigeria which also adversely affect financial intermediation in the area is inadequate infrastructural and basic facilities (Dike, 1997).

Poor road network limits not only movement of people and agricultural output to the cities but also affect banks commitment to operate in rural areas (Odejide, 1997). The problem is more severe in terms of electricity, most rural areas in Nigeria lack convenient source of electricity (Babasanya, *et al*, 2008). However, this problem is common even in the cities, but the obstacle is more pronounced in the villages. Only very few rural dwellers can afford generators, this impacted negatively on economic activities in rural Nigeria. Although in recent decades, Nigeria recorded a considerable progress in the provision of health services, most of these benefits have been captured by well-off, this is because the health programmes have not been properly managed to target rural poor (Ibrahim, 2012; Dike, 1997). As such, many villages in the country lack clinics and hospitals, the few fortunate villages with clinic lack adequate health personnel for consultation (Aliero & Ibrahim, 2012; Hemmer, 1994).

More than 80% of all rural dwellers in Nigeria do not have access to institutional banking services (Egwuatu, 2008). This is because they do not have collateral to secure loans from formal financial institutions. Besides, the technical backstopping needed for creativity and enhanced productivity is absent. Since there are a few financial institutions to serve them, these poor enterprises and households rely largely on informal sources such as family, friends and village money lenders for their financial needs. A key characteristic of rural finance is that the stock of bank credit to the rural poor is very low compared with the situation in the urban areas (Sacerdoti, 2005).

### **3. Methodology**

A time series data of deposit, loans of rural commercial banks branches and interest rate for 27 years (1982-2009) was generated from various issues of the Statistical Bulletin of the

CBN. We first checked the time series property of the variables using Augmented Dickey Fuller (ADF) (1979) unit root test for stationarity. This test is based on the following regression model:

$$\Delta Y_t = \beta_0 + \beta_1 T + \alpha Y_{t-1} + \sum_{j=1}^k d_j \Delta Y_{t-j} + \varepsilon_t \quad (1)$$

Where  $Y_t$ ,  $T$  and  $\Delta$  respectively confers a time series, a linear time trend and first difference operator,  $\beta_0$  is a constant,  $k$  is representing the optimum number of lags on the dependent variable, and  $\varepsilon_t$  is random error term. The null hypothesis for testing non-stationary is  $H_0: \alpha = 0$  meaning economic series are non-stationary. If the hypothesis of non-stationary is established for the underlying variables, it is desirable and important that the time series data are examined for cointegration.

Two or more variables are said to be cointegrated if they share common trends i.e. they have long run equilibrium relationships (Aqeel and Butt, 2001). There are various methods of detecting these long relations between variables. Engle and Granger's (1987) approach for cointegration is simple and popular for its certain agreeable attributes. However, it did not permit the testing of hypotheses on the cointegrating relationships themselves, but the Johansen setup does permit the testing of hypotheses about the equilibrium relationships between the variables (Brooks, 2008). Other advantage of the Johansen's procedure is that several co-integration relationships can be estimated and it fully captures the underlying time series properties of the data (Saher, 2011).

Johansen (1988) cointegration technique is based on the vector autoregressive (VAR) models; it involved two test statistics for the number of cointegrating vectors: the trace ( $\lambda_{\text{trace}}$ ) and the maximum value statistics ( $\lambda_{\text{max}}$ ). In the trace test, the null hypothesis is that the number of distinct cointegrating vectors is less than or equal to  $r$ , where  $r = 0$  to  $2$ . In



each case the null hypothesis is tested against the general alternative. The maximum eigenvalue test is similar, except that the alternative hypothesis is explicit. The null hypothesis is that the number of cointegrating vectors is  $r$  against the alternative of  $r+1$  cointegrating vectors.

If the variables are cointegrated of the same order then Ordinary Least Square (OLS) model is Best Linear Unbiased Estimator (BLUE) in predicting the parameter of the model.

The model is given below:

$$R_{loan_t} = \beta_0 + \beta_1 R_{depo_t} + \beta_2 inrate_t + \varepsilon_t \quad (2)$$

Where:

$R_{loan_t}$	=	loans advanced to rural people
$R_{depo_t}$	=	Deposits of rural people
$inrate_t$	=	Interest rate
$B$	=	Parameters
$\varepsilon_t$	=	Error term

The model expresses the relationship among loans and deposit of rural dwellers as well as general rate of interest.

#### 4. Discussion of Results

Table 1 below presents the figures of deposit and loans of rural bank branches as well as interest rate from 1982 to 2009. It could be seen from the Table that from 1982 – 1992 an average of 25% of the total deposit mobilised was given out as loans. Similarly between 1993 and 2002, the average loan allocated to rural borrowers was 35.93%, while it was 62.31% for the period between 2003 and 2009. On the whole one would see that there has been improvement in the volume of credit that the rural banks were creating from 1982 to 2009. However, a year by year analysis will reveal specific problems that the system suffers at various times, for example 1984 was the worst year where only 17.38% was given out as loans. The year 2006 was the best where 102.02% was given out as loan; this is as a result of the Microfinance Banks participation in the economy, more especially in the rural financial market.

**Table 1: Deposits and Loan of Rural Branches of Commercial Banks**

<b>Year</b>	<b>Deposits<sub>a</sub></b>	<b>Loans<sub>b</sub></b>	<b>Percent<sub>ab</sub></b>	<b>Interest rare</b>
1982	111.7	35.9	24.32	10
1983	131.2	44.2	25.20	12.5
1984	276.6	58.2	17.38	9.25
1985	311.4	114.9	26.95	10.5
1986	873.5	373.6	30.00	17.5
1987	1,229.2	492.8	28.62	16.5
1988	1,378.4	659.9	32.38	26.8
1989	5,722.0	3,721.1	39.41	25.5
1990	8,360.1	4,730.8	36.14	20.01
1991	10,580.7	5,962.1	36.04	29.8
1992	4,612.2	1,895.3	29.12	36.09
1993	19,542.3	10,910.4	35.83	21
1994	4,855.2	1,602.2	24.81	21.18
1995	8,807.1	8,659.3	49.58	12.5
1996	12,442.0	4,411.2	26.17	19.74
1997	19,047.6	11,158.6	36.94	13.54
1998	18,513.8	11,852.7	39.03	18.29
1999	15,860.5	7,498.1	32.10	21.32
2000	20,640.9	11,150.3	35.07	17.98
2001	16,875.9	12,341.0	42.23	18.29
2002	14,861.6	8,942.2	37.57	20.1
2003	20,551.8	11,251.9	35.38	24.4
2004	64,490.0	34,118.5	34.60	20.48
2005	18,461.9	16,105.5	46.60	19.15
2006	3,118.6	24,274.6	102.02	23.65
2007	3,082.3	27,263.5	89.84	25.76
2008	178,243.3	168,368.2	48.56	22.83
2009	24,102.0	91,844.0	79.21	25.22

Source: CBN Statistical Bullion (Various Issues) (Deposit and Loans are in Naira Million),  
<sup>ab</sup> authors computation, 2011

**Table2: Result of unit root tests**

Variable	Augmented Dickey-Fuller (ADF) Test	
	Levels	First Difference
Ruloan	-2.310	-5.321*
Rudepo	-1.813	-4.563*
Intrate	-2.623	-5.432*

\* indicate significance at 1%

Source: Data analysis, 2011 using stata 9.1

The degree of integration of each variable involved is determined using the Augmented Dickey Fuller unit root test and the result is presented in Table 2 above. It could be discerned from the Table that variables are not stationary at their level form and so unit root test are rejected. However, the test rejects the null hypothesis of non-stationary for the all variables when used in the first difference. This shows that all series are stationary in the first difference and integrated of order one. Therefore we used the difference values of the variable to estimate the cointegration regression and the result of the cointegration is presented in the Table 3.

**Table 3: Johansen Co-integration Results**

Model	$\lambda_{\max}$ statistics		$\lambda_{\text{trace}}$ statistics	
	r=0	r=1	r=0	r=1
Ruloan,Rudepo, intrate	38.179**	20.011**	59.186**	21.721**
Ruloan,intrate	40.341**	22.232**	60.212**	23.453**
**5% critical value	20.64	15.11	20.97	14.07

Source: Data analysis, 2011 using stata 9.1

The results of the Johansen (1988) maximum likelihood tests for  $\lambda_{\max}$  (maximum statistics) and the  $\lambda_{\text{trace}}$  (Trace test statistics) was presented in Table 3 above. Various lag lengths are tried and the lag structures are chosen by the Akaike Information Criterion (AIC) and Schwartz Information Criteria (SIC). They suggest 1 lag for the model. Both the trace and maximum eigenvalue test results reveal the existence of two unique cointegrating vectors between test variables thereby paving the way for applying OLS.

**Table 4: Summary of OLS Regression**

<b>Variable</b>	<b>Coefficient</b>
_Rudepo	0.89 (9.01) *
_intrate	179 (0.34)
R <sup>2</sup>	0.79.
F	46.08*

\* Indicate significance at 1 percent probability level  
t-ratios in parenthesis

Source: Data analysis, 2011 using stata 9.1

The result of the regression between rural loans, rural deposits and interest rate is presented in Table 4. The result indicated that the differenced value of rural deposit is significant at 1% level of significance. Meaning that there is a significant positive relationship between deposits mobilised and loans advanced to rural Nigerians by commercial bank branches in the rural areas. Whereas, interest rate has an insignificant positive influence on allocation of loan in rural areas of Nigeria, although this finding refuted economic theory of loan which asserts a negative relationship between rate of interest and loan advancement. This reverse in the trend in rural Nigeria might emanates as a results of the fact that informal rural money lenders were charging rate of interest exorbitantly above the rate charging by rural commercial banks branches. As such rural dwellers may find more profitable to borrow from the letter.

The R<sup>2</sup> value is 0.79 it indicating that 79% variance of formal loan in rural areas of Nigeria is jointly explained by deposit mobilised in the area and general rate of interest charged by banks in the country. The F-statistics which is the measure of the adequacy of the model is significant at 1% level of significance. This indicated that the model is adequate and has good fit.

**Table 5: correlation between rural loan and rural deposit**

Ruloan	Ruloan	Rudeposit
	1	0.48 (0.001)*
Rudeposit	0.48 (0.001)*	1

Note: the results show the bivariate correlation between deposit mobilisation and loan advanced by the rural financial institutions in Nigeria. \* denotes the correlation is significant at the 0.01 level.

However, the correlation between rural deposits and loans is fairly average, it shows that approximately 48% of the deposits mobilized in rural Nigeria go to rural dwellers as loans, while approximately 52% either is retained in banks or is loaned out to the entrepreneurs in the urban areas. This may lead to capital flight and further worsen the issue of access to finance in rural Nigeria. Besides, there is a CBN directive that all commercial rural banks branches should utilize at least 50% of deposits mobilized from rural areas for the creation of loans to rural borrowers (Ibrahim and Aliero, 2012; Umoh and Ibanga, 1997).

## 5. Conclusion

This study found that loans in rural areas are determined by deposits that rural banks mobilised in the area. The study therefore, concluded that formal bank branches in the rural areas have done fairly well in terms of credit creation although there is still room for expansion. However, the inadequate presence of financial institutions in the rural areas is the major problem inhibiting rural financial intermediation in Nigeria. The study therefore recommended that the CBN should direct all rural banks to give out at least 60% of their deposit as loan to rural borrowers. Secondly, linkage banking should be adopted for the very rural communities where formal bank branches could not be located.

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