Journal of Business Theory and Practice
ISSN 2372-9759 (Print) ISSN 2329-2644 (Online)
Vol. 3, No. 2, 2015
www.scholink.org/ojs/index.php/jbtp

Impact of Microfinancein Promoting Financial Inclusion in Nigeria

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Abstract

Despite the Central Bank of Nigeria's (CBN) initiatives to encourage banks to extend their services and facilities to rural areas, a high percentage of the rural dwellers still remain unbanked and as such, the initiatives appear not to promote financial inclusion services among the poor in Nigeria. As a result, small entrepreneurs often lack enabling financial environment to grow. The study undertakes an empirical analysis of the impact of microfinance in promoting financial inclusion in Nigeria between 1990 and 2014 using OLS regression method. Unit root test was conducted on the variables to examine their level of stationary to avoid spurious regression results. The findings showed that minimum deposit amount have a positive and significant relationship with saving. It was observed that access to microfinance minimum deposit amount has significant effect on savings account opened by rural dwellers. Microfinance interest rate was however found to have a negative and insignificant relationship with the rural dwellers loans and advances. Recommendations were made among which are that Government should facilitate microfinance branches close to the rural area, products and services accessible to a large segment of the potentially productive Nigeria population, who are currently not being served by the formal financial sector.

Keywords

financial inclusion, minimum deposit amount, savings account, microfinance, cbn, interest rate, loans and advances

1. Introduction

Over the recent years, it has become a common knowledge that many small businesses in Nigeria do not maximize their potential contribution towards the economic growth of the country due to lack of access to financing products and services. Existing literatures support the efficacy of Microfinance in stimulating economic growth especially in developing economies. The central idea behind creating Micro Finance Institutions (MFIs) is therefore to provide Micro, Small and Medium Enterprises MSMEseasy accessibility of to finance/fund, particularly those which cannot access bank loans. Microfinance banks serve as a means to empower the poor and provide valuable tool to assist the economic development process. Kolawole (2013) is of opinion that the promotion of micro enterprises in

developing countries is justified because of their abilities to foster economic development. Khan (2008) observed that Micro finance is the extension of financial services, notably small loans, to low income groups which can serve as a vehicle for financial inclusion. Khan (2008) concluded that Microfinance is a global strategy for fighting poverty, which is common in the emerging countries. Most often than not, microfinance organizations use high frequency repayments, where loan recipients are required to repay their loans in regular instalments, beginning soon after the loan, inculcating "fiscal discipline" among the borrowers (Kalpana, 2005).

Microfinance is not a new concept in Nigeria, it has been in existence in the form of "Esusu/Itutu/Adashi" —a rotating contributory savings scheme mostly seen among market traders. Nigerians have always tried to provide themselves with needed finances through informal microfinance approaches like Self-Help Groups (SHGs), Rotating Savings and Credit Associations (ROSCAs), Accumulating Credit and Savings Associations (ASCAs) and direct borrowings from friends and relations (CBN, 2005; Akpan, 2009; Okpara, 2009; Okpara, 2010). These approaches may have sufficed in the traditional society but the growth in the sophistication of the economy and the increasing incidence of poverty among citizens has revealed the shortcomings of this approach. The Central Bank of Nigeria (CBN) alluded to this when it pointed out that the informal financial institutions that attempt to provide microfinance services generally have limited outreach due primarily to paucity of loanable funds (CBN, 2005). In a bid to resolve this identified deficiency of the informal microfinance sector, the CBN in 2005 introduced a microfinance policy a prelude to the licensing of microfinance banks in Nigeria. According to this policy document, its aim is to provide a microfinance framework that would enhance the provision of diversified microfinance services on a long-term sustainable basis for the poor and low income groups, create a platform for the establishment of microfinance banks and improve CBN's regulatory/supervisory performance in ensuring monetary stability and liquidity management.

Microfinance banks were therefore established because of the failure of the existing microfinance institutions to adequately address the financing needs of the poor and low income groups (Acha, 2008). The CBN further justified its licensing of microfinance banks with the lack of institutional capacity and weak capital base of existing community banks, existence of huge un-served market and need for increased savings opportunity (CBN, 2005). Taking the issue of lack of capacity by existing financial institutions further the CBN pointed out that only 35% of Nigerians had access to financial services and that most of those without access to financial services dwell in the rural areas. There is therefore the need for developing economies to provide platforms for microfinance services on a sustainable basis for the economically active small businesses.

"Financial inclusion may be defined as the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost" (Ibeachu, 2010). The essence of financial inclusion is in trying to ensure that a range of appropriate financial services is available to every individual and enabling them to understand and access those services. Apart from the regular form of financial intermediation, it may

include a basic no frills banking account for making and receiving payments, a savings product suited to the pattern of cash flows of a poor household, money transfer facilities, small loans and overdrafts for productive, personal and other purposes, insurance (life and non-life), etc. To achieve a rapid economic growth in developing economies, it is therefore necessary to ensure that economic growth performance is inclusive and sustained. This requires particular attention to specific portions of the population that have been historically excluded from the formal financial sector either because of their income level and volatility, gender, location, type of activity, or level of financial literacy (Demirgus-Kunt, 2013). In so doing, there is a need to harness the untapped potential of those individuals and businesses commonly excluded from the formal financial sector or underserved, and enable them to develop their capacity, strengthen their human and physical capital, engage in income-generating activities, and manage risks associated with their livelihoods. Financial inclusion does not imply that everyone will use all available financial services; rather everyone has the option to use them. A continuum of financial services needs to be made accessible to individuals as they improve their standard of living. More recently, financial inclusion has been defined by the World Bank (2015), as the absence of price and non-price barriers in the use of financial services.

Low and irregular income is often the primary cause of financial exclusion on both supply and demand sides. The reason is that it leads to lack of availability of suitable financial products, as well as lack of motivation for individual to open accounts due to inability of the individuals to save. Studies in the UK context have also found that the lowest income group is twice as likely to not be accessing financial services (Kempson, 2006). When saving occurs, safety and interest rate benefits may not be to an extent available in the formal system to encourage the poor ones to save in order to promote financial inclusion services. The lack of remittance products leads to money transfers being cumbersome and high risk. Lack of insurance products means lack of opportunities for risk management and wealth smoothening.

Financial exclusionis the literal opposite of inclusion but could also be termed in the deprivation to social, health and educational infrastructures. Knowledge of this helps economies and firms alike to understand the various opportunities for development. It allows policy makers to make better and accurate decisions. Ways of which this problem can be resolved is through the assessment of affordable banking services and free financial advice. According to the employees' forum on disability (2007), access to finance services like bank accounts, is a fundamental step towards the attainment of broader indicators of social and economic inclusion. According to McAtear (2008) financial exclusion of the poor in the UK is generally considered to mean a lack of access to banking services. It has been interpreted as being caused by the closure of bank branches and building society offices and thus ignores the possibility of informal-sector lending offering a substitute for bank services in remote areas. Regular banks tend not to lend to the poor because of the high cost per individual loan and lack of collateral. In India, micro finance overcomes these issues by lending to Self Help Groups (SHGs), i.e., groups of pooled borrowings, and Joint Liability Groups (JLGs), i.e., groups of pooled liability. Delivery

largely takes place through two mechanisms: the National Bank for Agriculture and Rural Development (NABARD) sponsored SHG Bank Linkage programme, where banks lend directly to SHGs and through Micro Finance Institutions (MFIs) lending to SHGs, JLGs, rural banks and individual clients. Taken together, the Banks-SHG programme and MFIs reached 76.7 million people in 2010-11, a 71% growth over 2006-07.-2 MFIs exist in various forms such as societies, trusts, co-operatives and Non-Banking Financial Companies (NBFCs). In terms of market share, NBFCs dominate the industry, accounting for an estimated 90% of loan volume in 2010-11. NBFC-MFIs are regulated by the Reserve Bank of India (RBI) Act, 1934. There is no statute regulating the rest of the microfinance industry consisting of societies, trusts and co-operatives.

In developing countries, the growth of MFIs which specifically target low income individuals are viewed as potentially useful for promotion of financial inclusion. The overarching focus of this study is therefore on recent CBN policy on financial inclusion with a purpose to analyse the impact of the policy in promoting financial inclusion in Nigeria. The research for instance, seeks to assess the impact of the policy on deposits made by economically active poor arising from provision of timely, diversified, affordable and dependable financial services; whether there has been creation of employment opportunities and increased productivity and household income of the active poor in the country from loans and advances obtained thereby enhancing their standard of living. To ease understanding, the paper is structured as follows: Section one is the introduction; Section two focuses on theoretical underpinnings, and empirical literature; while section three addresses methodology and data analysis of the study; Section four summarizes and concludes the study.

2. Literature Review

2.1 Review of Related Empirical Literature

Summary of some recent related empirical literature in Nigeria on the subject which was reviewed to provide evidence of studies on related areas is presented in Table 1.

Table 1. Summary of Empirical Literature

S/N	YEAR	TOPIC	OBJECTIVE	ANALYTICAL TOOL	FINDINGS/CONCLUSION
1	2013	The impact of microfinance on rural transformation in Nigeria.	The objective of this study was to examine how microfinance bank in rural areas has impacted on transforming the lives of individuals in the society.	Descriptive research.	The findings of the study shows that micro-finance has impacted positively on the rural poor by providing loans and advances for agriculture, investment opportunities, savings mobilization and credit delivery.
2	2012	The impact of Microfinance bank on standard of living of hairdressers in Oshodi-Isolo local	To examine how Microfinance bank in Oshodi-Isoloimpacted on the business of hairdressers in the local Government	Spearman's rank correlation coefficient	The study revealed that due to the existence and help of Microfinance bank, Poverty has reduced a little bit among the hairdressers

		government area (LGA) of Lagos State as a Poverty eradication strategy among the society.	and to also examine the impact of Microfinance on asset acquisition and savings of hairdressers in that LGA.	analysis	association in Oshodi-IsoloLGA.
3	(2010)	Impact of the role played by Micro Finance Banks MFBs) in promoting the growth of SMEs in Nigeria	To examine the role of microfinance bank in promoting the growth of SMEs Nigeria.	Regressio n analysis	The study revealed that MFBs have contributed to the promotion of small and medium enterprises growth in Nigeria.
4	(2010)	The impact of microfinance on poverty in Nigeria.	Identification of critical factors that cause poverty in Nigeria and the investigation of the extent to which microfinance institutions have helped in the alleviation of poverty.	Regressio n analysis	The result of the analysis identifies five factors: low profit, prices of commodities are too high, hard economic times, lack of finance to start or expend their business, and business not doing well, as critical factors causing poverty.
5	(2011)	The effectiveness of microfinance banks in alleviation of poverty in Kwara State, Nigeria.		T-test and Analysis Variance (ANOVA) .	Results reveal that microfinance has significant role to play in the economy, as it helps reduce poverty by providing financial services to the active poor, helps in generating employment and also provide small loans to grow small businesses.

Various literature reviewed provide indication that several studies have been conducted in related areas of our study. However, the focus of previous studies has been on the history and importance of microfinance in Nigeria economy in promoting financial inclusion using different methods of analysis. This study on assessment of the impact of microfinance in promoting financial inclusion in Nigeria provides an assessment of the recent Central Bank of Nigeria (CBN) policies geared towards enhancing financial inclusion. With a critical focus at recent CBN policies on financial inclusion, this research seeks to find out whether there has been increase in deposit made by economically active poor arising from provision of timely, diversified, affordable and dependable financial services; whether there has been creation of employment opportunities and increased productivity and household income of the active poor in the country from loans and advances obtained thereby enhancing their standard of living.

2.2 Background of Microfinance in Nigeria

Microfinance is a concept through which financial services are provided for entrepreneurs and small businesses lacking access to banking and related services due to their income status. It is provided either through joint-liability group or individual-based lending. It reflects both the provision of microcredit and micro savings to low-income people but more than that microfinance services incorporates microcredit (small loans), micro savings (small deposits), micro insurance, funds transfer, pensions and payments services and other ancillary products targeted at low-income clients (Otero, 1999). Their clients include micro and small microenterprises, traders, street vendors, small farmers, service providers such as (hairdressers, tailors, seamstresses, shoe-cobblers, bus and taxi drivers),

artisans and small producers such as blacksmiths. A microfinance bank as described by the CBN microfinance policy refers to; "any company licensed to carry on the business of providing microfinance services, such as savings, loan, domestic fund transfer, and other financial services that are needed by the economically active poor, micro, small, and medium enterprises to conduct or expand their businesses as defined by these guidelines" (CBN, 2005).

Hariharan and Marktanner (2012) defined financial inclusion as access to formal financial services such as credit, savings and insurance opportunities. They stated that lack of financial inclusion is a multifaceted socio-economic phenomenon that results from various factors such as geography, culture, history, religion, socio-economic inequality, structure of the economy and economic policy. They however noted that financial inclusion is a huge source of economic growth and development, adding that it is a strong and significant correlate of a country's total factor productivity and, therefore, possess the ability to create capital, The two main issues in financial inclusion are the access to financial service and it usage by the people. Access to financial services and use of financial services are not the same when examined in the context of financial inclusion because some people may have the financial services available to them and they can indeed patronise the banks and other non-bank financial institution, but they refuse to patronise them. This is different from those who wish to be integrated into the financial system but they cannot do so because the providers are not within their reach.

The findings of Uma et al. (2013) provide a clear support for the above as they found that it took a fortnight for 87% of their respondents for their accounts to function after the submission of the completed bank account opening application forms. 80% visited their banks just once in a month while 50% keep their money at home rather than the bank. Access to formal financial services or financial inclusion in developing economies is critical to economic growth and reduction in inequality among citizens of a nation. Financial power that is derived where access to finance is possible could create a partition between the rich and the poor, educated and illiterate, and urban and rural dwellers because those with formal financial access have unlimited access to enhance their financial power with varied options from the formal finance providers. According to the Central Bank of Nigeria (2012), between 2008 and 2010, the percentage of adults that are formally banked rose from 21% to 30%, while those that were totally excluded from financial inclusion reduced from 53% to 46%. Those served by the informal financial providers dropped to 17% from 24%. Data as at 2010 on access to formal financial services across some countries reveal mixed results. 2% are formally served in Zambia, 12% in Rwanda, 13% in Tanzania, 22% in Ghana, 34% in Uganda, 36% in Nigeria, Kenya is 52%, and 59% in South Africa. Mobile payment users as percentage of adult population in Malaysia is 60%, Kenya 40%, South Africa 46%, Brazil 43%, Indonesia 40%, Mexico 25% and Nigeria 0%. Malaysia has 2,063 savings accounts per 1,000 people, while Nigeria has 461, Mexico 1.096, South Africa 839, Indonesia 505 and Kenya 381 per 1,000 people. The use of formal savings accounts in some African countries is: Kenya 36%, Ghana 25%, Rwanda 26%, Nigeria 26%, South Africa 20%, Uganda 17%, Zambia 10%, and Tanzania 7%. These data on Nigeria shows improvement in financial inclusion but the effect is yet

to be seen on the economy as many businesses are transacted on "cash and carry" basis in both formal and informal sectors. However, if financial inclusion is widening in Nigeria which enable transactions to be done using different financial products, services and platforms in different sectors of the economy, it will reduce the cost of cash management by the government because cash get defaced on time as a result of consistent use by numerous people within a short period. This will also strengthen the local currency and promote a sound financial system in the economy (Mbutor & Uba, 2013).

3. Methodology

The research employs Ordinary Least Square (OLS) method of log-linear multiple regression analysis to examine the effectiveness of cashless banking policies on return on assets of banks. Before carrying out the regression analysis, stationary test using Unit Root test was carried out on each of the variables to avoid spurious regression results. The estimation is conducted using the econometric computer software package, E-Views version 7.0. Data used for this study were obtained basically from secondary sources. The data was collected from Fact books from Central Bank of Nigerian, Fact fish and World Bank. The relevant variables comprise of Minimum Deposit Amount (MDA), Savings (SAV), Loans and Advances (LA) and Microfinance Interest Rate (MIR) services of Banks. Annual series spanning 1990 to 2014 were adopted. This is to ensure enough data points to cater for loss of degree of freedom. This period is believed to be long enough to capture the long-run relationship among the return on minimum deposit amount and savings, and loans and advances and interest rate of the bank.

3.1 Model Specification

Taking inference from the empirical findings and theories, to examine the relationship between microfinance and rural dwellers in promoting financial inclusion, this study adopted the Joint Liability theory on microfinance model framework proposed by Babagana (2010). The model is expressed as:

$$SAV = f(MDA) \text{----------1}$$

$$L\&A = f(IR) \text{----------2}$$

Thus, linear equation (1 and 2), we obtain:

$$SAV = \beta_0 + \beta_1 MDA + \mu \text{----------3}$$

$$L\&A = \beta_0 + \beta_2 IR + \mu \text{----------4}$$

Where;

β_0 =The intercept or autonomous parameter estimate;

β_1, β_2 =Parameter estimate representing the coefficient of MDA and IR respectively;

L&A=Representing loans and advances;

IR=Representing the Interest rate;

SAV=Representing savings accounts;

MDA=Representing Minimum Deposit Amount;

μ =Error term (or stochastic term).

3.1.1 Apriori Sign Expectation and Decision Making Criteria

This refers to the expected relationship between and or among the dependent or independent variables of the model as determined by the postulations of economic theory. The result or parameter estimates of the models will be interpreted on the basis of the supposed signs of the parameters as established by economic theory, put differently, the parameter estimates of the model will be checked to find out whether they conform to the postulations of economic theory.

We then differentiate partially with respect to of each variable to obtain *apriorisign* expectation of equation (3 and 4);ð

$$\frac{\partial SAV}{\partial MDR} = \beta_1 > 0 \text{----------} 5$$

$$\frac{\partial L\&A}{\partial IR} = \beta_2 < 0 \text{----------} 6$$

On the *apriori* expectations, positive β_1 depicts a direct relationship between SAV and MDA; while the negative β_2 shows an inverse relationship between L&A and IR; it shows that on *apriori* basis, the SAV increases due to an increase in MDA; while L&A decreases due to an increase in IR.

4. Discussion and Analysis

4.1 Data Presentation

Table 2. Present Data Collected from CBN Statistical Bulletin, Factfish.com, and World Bank. These Data Include the Daily Usage of MDA, SAV, LA, and MIR, Ranging on Annual Series Spanning from 1990 to 2014

Year	LA	MDA	SAV	IR
1990	102	18.50	18.80	25.50
1991	185	14.50	14.29	20.01
1992	206	17.50	16.10	29.80
1993	351.3	26.00	16.66	18.32
1994	705.7	13.50	13.50	21.00
1995	972.2	13.50	12.61	20.18
1996	3587.3	13.50	11.69	19.74
1997	1445.3	13.50	4.80	13.54
1998	5090	14.31	5.49	18.29
1999	5789.5	18.00	5.33	21.32
2000	5900	13.50	5.29	17.98

2001	7572.3	14.31	5.49	18.29
2002	20400	19.00	4.15	24.85
2003	15462.9	15.75	4.11	20.71
2004	20552.5	15.00	4.19	19.18
2005	32374.5	13.00	3.83	17.95
2006	42302.1	12.25	3.14	17.26
2007	40844.3	8.75	3.55	16.94
2008	42260.7	9.81	2.84	15.14
2009	46824	7.44	2.68	18.99
2010	44542.3	6.13	2.21	17.59
2011	52428.4	9.19	1.41	16.02
2012	82368.4	12.00	1.70	16.79
2013	105690	11.58	1.69	15.8
2014	123272	11.66	2.69	16.7

Source. CBN Statistical Bulletin (2013), factfish.com (2015), World Bank (2013) Presenting the information in Table 2 in Figure 1 is graphically shown below.

4.1.2 Graphical Representation of Data

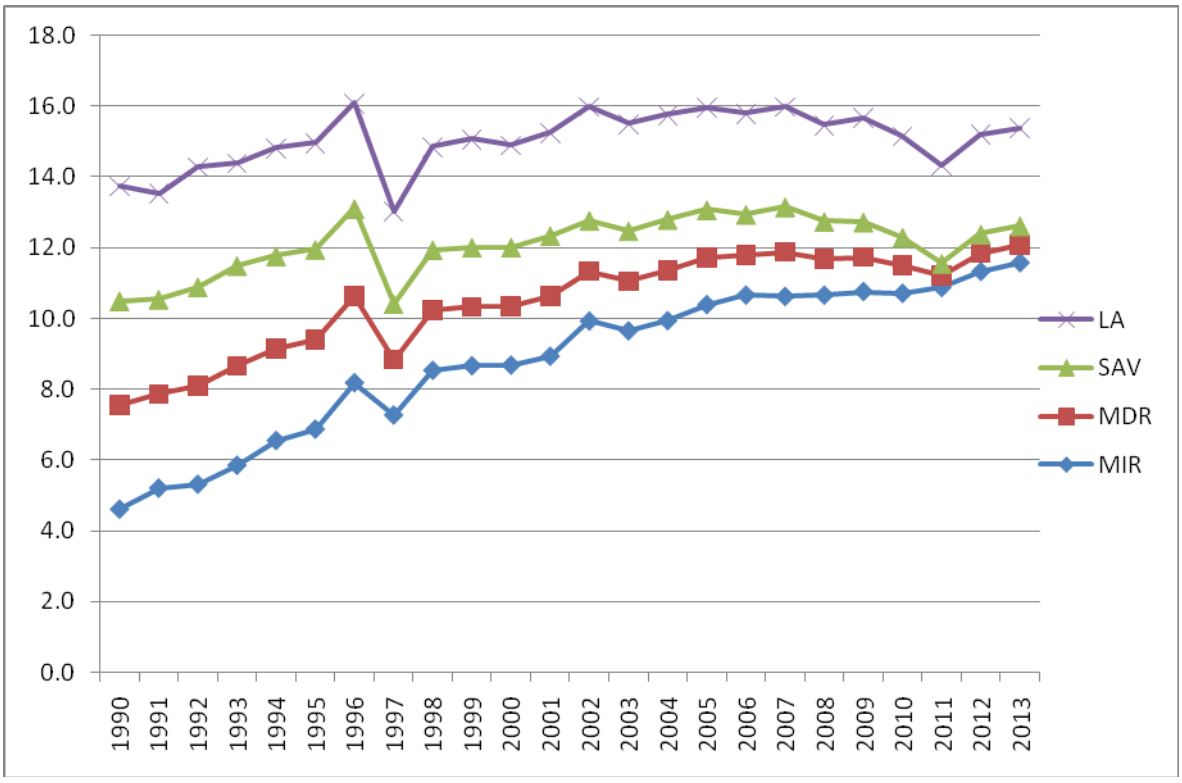

Figure 1. Relationship between Microfinance Loans and Advances (LA), Minimum Deposit Amount (MDA), Savings Rates (SAV) and Micro Finance Interest Rates (MIR), 1990-2013

From Figure 1 above, it could be observed that the Loans and Advances (LA) were found to have been growing from 1990 until 1996. Shortly after year 1996 the Loans and Advances dropped to about 1445.3 million in 1997 from initial 3587.3 million of 1996. However on a relative scale, the Loans and Advances was noticed to increase gradually afterwards and remained stable between 2003 and 2008. Overall, the loans and advances have been on the increase on a marginal scale seemingly as the year progresses. The pattern at which the loans and advances grew and fell was equally noticed for other variables such as MDA, Savings rates, MDR and IR as shown in Figure 1. The similarity of pattern in fluctuation was witnessed because; all the variables were seen to be interrelated and influencing one another.

1) Descriptive statistics

This test is necessary for checking whether the variables have normal distribution. The normality statistics for the variables: Loans and Advances (LA), Minimum Deposit Amount (MDA), Micro finance Interest Rates (MIR), Savings Rates (SAV), are as shown in Table 2. The mean for LA, MDA, MIR, and SAV are all different. This indicates that the variables exhibit significant variation in terms of magnitude, suggesting that estimation of the variables in levels will not introduce some bias in the results. The Jarque-Bera statistics for all the variables are significant as all their probability values are all less than 0.05; hence we reject the null hypothesis and conclude that the series are normally distributed (or have a normal distribution).

Table 3. Summary of Normality Statistics

	LA	MDA	MIR	SAV
Mean	24081.51	13.77119	19.21598	6.896900
Median	11517.60	13.50000	18.30625	4.492500
Maximum	105689.6	26.00000	29.80000	18.80000
Minimum	102.0000	6.125000	13.54250	1.410541
Std.Dev.	28360.77	4.218255	3.544055	5.465063
Skewness	1.320090	0.715393	1.262441	0.949164
Kurtosis	4.210445	4.374826	4.830062	2.384580
Jarque-Bera	8.435730	3.937293	9.724161	3.982390
Probability	0.014730	0.039646	0.007734	0.036532
Sum	577956.3	330.5086	461.1835	165.5256
Sum Sq. Dev.	1.85E+10	409.2546	288.8876	686.9389
Observations	24	24	24	24

2) Unit root test

Macroeconomic time series data are generally characterized by stochastic trend which can be removed by differencing. Unit root test therefore is a test of stationarity or non-stationarity of series data used in the model. This is to find out if the relationship between economic variables is spurious or nonsensical. This test is conducted by adding the lagged values of the dependent variable so that the error term is serially uncorrelated. Thus, the study used or adopted Augmented Dickey-Fuller (ADF) Techniques to test and verify the unit root property of the series and stationarity of the model.

The ADF tests here consist of estimating the following regression:

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \Delta Y_{t-1} + \varepsilon_t \text{ ---------1}$$

Where:

$\Delta Y_t = Y_t - Y_{t-1}$

$\Delta =$ First difference operator

$\Delta Y_{t-1} = Y_{t-1} - Y_{t-2}$

$\delta = \rho - 1$

$\varepsilon_t =$ White noise error term

$\rho =$ Rho $-1 \le \rho \le 1$

The t value of the coefficient of Y_{t-1} (that is δ) in the equation 1 above follows the $r(tau)$ statistic.

The acceptance of the null hypothesis that shows the presence of unit root or non-stationarity follows that if $r(tau)$ calculated statistic is less than the critical r values of tabulated, then we conclude that the times series variable involved is not stationary. Therefore, to examine the existence of stochastic non-stationarity in the series, the research establishes the order of integration of individual time series through the unit root tests. The tests of the stationarity of the variables adopted were Augmented Dickey Fuller (ADF) test. The variables tested are: LA, MDA, MIR and SAV and are presented in Table 4 below;

Table 4. Summary of Unit Root Test Results

Variables	ADF Test Statistic(at first difference)	Order of Integration
SAV	-6.097434(-4.440739)*	*I(1)*
IR	-3.965454(-3.673616)**	*I(0)*
MDA	-3.653371(-3.622033)**	*I(0)*
LA	-4.003974(-3.710482)**	*I(1)*

Note. MacKinnon critical values for the rejection of hypothesis of unit root are in parenthesis in Columns 1 and 2 and the tests include intercept with trend; * *significant at 1%; ** significant at 5%;***significant at 10; Mackinnon critical.*

From the Table 4 above, it was discovered that IR and MDA were found stationary levels. That is the ADF test statistic of 3.965454 and -3.653371 are greater than the tabulated values of -3.673616 and -3.622033 respectively at 10% level of significance. However, LA and SAV were found stationary at first difference as seen in Table 3. It shows that their respective ADF test statistics of -4.003974 and -6.097434 are greater than the critical values of -3.710482 and -4.440739 respectively at 5% and 1%. These stationary variables were subsequently used for further analysis in computing and analysing of our results.

The next specification test that shall be computed is the co-integration test of these variables.

3) Co-integration Estimate

If two or more time series are not stationary, it is important to test whether there is a linear combination of them that is stationary. Economically, variables are co-integrated if they have a long term, or equilibrium relationship between them. It is a pretest to avoid spurious regression situations. Since the variables were found stationary at first difference (that is at order 1(I)), it was safe for us to employ and proceed with Johansen co-integration test.

Table 5. Summary of Co-Integration Estimates

Date: 06/13/15Time: 16:45

Sample (adjusted): 1992 2014

Included observations: 22 after adjustments

Trend assumption: Linear deterministic trend

Series: LA MDA IRSAV

Lags interval (in first differences): 1 to 1

Unrestricted Co-integration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.597023	36.87063	47.85613	0.3537
At most 1	0.410278	16.87539	12.79707	0.0493
At most 2	0.199541	25.257101	15.49471	0.0009
At most 3	0.016256	0.360567	3.841466	0.5482

Trace test indicates two co-integration at the 0.05 level;

* denotes rejection of the hypothesis at the 0.05 level;

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

Unrestricted C0-integration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.597023	19.99525	27.58434	0.3415

At most 1	0.410278	22.61829	21.13162	0.0056
At most 2	0.199541	17.896534	14.26460	0.0049
At most 3	0.016256	0.360567	3.841466	0.5482

Max-eigenvalue test indicates two co-integration at the 0.05 level;

* denotes rejection of the hypothesis at the 0.05 level;

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

From the co-integrated result in Table 5, the trace test indicates two co-integrating equation at 5% level. More so, the Max-eigenvalue test equally confirms that there are two co-integrating equation at 5% level. Thus, the model shows that there exists a long-run equilibrium relationships among the four variables used in the analysis. It shows that the variables move together in the long run.

4) Model evaluation and test of hypothesis

The two hypotheses formulated in this study were tested using student t-statistics. The level of significance for the study is 5%, for a two tailed test. The decision rule is that we shall accept the null hypothesis if the critical/t-value (±1.96) is greater than the calculated value, otherwise reject the null hypothesis. That is, using the student *t*-test (*t*-statistic), we say that a variable is statistically significant if t^* (*t*-calculated) is greater than the tabulated value of ±1.96 under 95% (or 5%) confidence levels and it is statistically insignificant if the t^* is less than the tabulated value of ±1.96 under 95% (or 5%) confidence levels. Thus:

H_0: β_0 =0(Null hypothesis)

H_1: $\beta_1 \neq 0$(Alternative hypothesis)

4.4.1Hypotheses One

H_{01}: Access to microfinance minimum deposit amount has nosignificant effect on saving account opened by rural dwellers.

Model one: $SAV = \beta_0 + \beta_1 MDR + \mu ----------1$

1) Regression result savings and MDA

Dependent Variable: LOG (SAV)

Table 6. Summary of Least Square Estimates

Date: 06/13/15Time: 20:54

Sample: 1990 2014

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.021365	0.432042	-0.049451	0.9610
MDA	0.120554	0.030051	4.011663	0.0006
R-squared	0.522473	Mean dependent var	1.638810	

Adjusted R-squared	0.396221	S.D. dependent var	0.782376
S.E. of regression	0.607931	Akaike info criterion	1.922146
Sum squared resid	8.130772	Schwarz criterion	2.020317
Log likelihood	-21.06575	Hannan-Quinn criter.	1.948191
F-statistic	16.09344	Durbin-Watson stat	2.157207
Prob(F-statistic)	0.000586		

$$SAV = -0.02 + 0.12MDA --------------------2$$

SEE =0.430.03

$t*$=-0.044.01

$F*$=16.09; Prob. (F-statistic) =0.000586

$R^2 = 0.5224; Adj.R^2 = 0.3962$

$DW = 2.15$

1) Test of Hypothesis one: H_{01}

From the regression result in Table 6, the calculated t-value for MDA (for SAV model) is 4.01 and the tabulated value is ±1.96. Since the t-calculated is greater than the t-tabulated (4.01 > 1.96) it thus falls in the rejection region and hence, we reject the first null hypothesis ($H0_1$).

The conclusion here is that *Access to microfinance minimum deposit amount has significant effect on saving account opened by rural dwellers*

2) The F-statistic

The F-statistics which is used to examine the overall significance of regression model equally showed that the result is significant, as indicated by a very high value of the *F*-statistic, 16.09 and it is significant at the 5.0 per cent level. That is, the F-statistic value of 0.000586 is less than 0.05.

3) The R^2 (R-square)

The coefficient of determination (R-square), used to measure the goodness of fit of the estimated model, indicates that the model is reasonably fit in prediction. The R^2 (R-square) value of 0.5224 shows that the MDA has a very good impact on SAV. It indicates that about 52.24 per cent of the variation in SAV is explained by MDA, while the remaining unaccounted variation of 47.76 percent is captured by the white noise error term

4) Serial correlation

Durbin Watson (DW) statistic was used to test for the presence of serial correlation or autocorrelation among the error terms.

The null hypothesis is:

$H_0 : \rho = 0$ That is, the $\mu's$ are not auto-correlated with first order scheme. This hypothesis is tested against the alternative hypothesis;

$H_1 : \rho \neq 0$ That is, the $\mu's$ areauto-correlated with a first-order scheme.

Therefore, if there is no autocorrelation, $\rho = 0$ and $DW \approx 2$.

The model also indicates that there is no autocorrelation among the variables as indicated by Durbin Watson (DW) statistic of 2.15. This shows that the estimates are unbiased and can be relied upon for policy decisions.

3.2 Hypothesis Two

H_{02}: Microfinance interest rate has negative effect on loans and advances obtained by rural dwellers.

Model two: $L\ \&\ A = \beta_0 + \beta_2 MIR + \mu ----------3$

Table 7. Summary of Least Square Estimates

Regression Result on L&A and IR

Dependent Variable: LOG (LA)

Date: 06/13/15Time: 21:02

Sample: 1990 2014

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.22435	2.079188	7.322257	0.0000
IR	-0.333091	2.106479	-1.128216	0.4549
R-squared	0.307866	Mean dependent var	8.823686	
Adjusted R-squared	0.276405	S.D. dependent var	2.127562	
		Akaike info		
S.E. of regression	1.809797	criterion	4.103962	
Sum squared resid	72.05807	Schwarz criterion	4.202133	
		Hannan-Quinn		
Log likelihood	-47.24755	criter.	4.130007	
F-statistic	9.785736	Durbin-Watson stat	2.226069	
Prob(F-statistic)	0.004891			

$$L\ \&\ A = 15.22 - 0.33IR ----------4$$

SEE =2.072.10

t^*=7.32-1.12

F^*=9.78; Prob. (F-statistic) =0.004891

$R^2 = 0.3078; Adj.R^2 = 0.2764$

$DW = 2.22$

1) Test of Hypotheses two: H_{02}

From table 7, the calculated t-value for MIR is given as -1.12 (L&A model) and the tabulated value is given as ±1.96, under 95% confidence levels. Since the calculated t-value is less than the tabulated

value (-1.12<-1.96), we therefore, accept the null hypothesis ($H0_2$). We conclude that *Microfinance interest rate has negative effect on loans and advances obtained by rural dwellers*.

2) The F-statistic

Also, by examining the overall fit and significance of the L&A model, it can be observed that the model does have a good fit, as indicated by the relatively high value of the *F*-statistic, 9.78 and it is significant at the 5.0 per cent level. That is, the F-statistic value of 0.004891 is less than 0.05 probability levels.

3) The R^2 (R-square)

More so, the R^2 (R-square) value of 0.3078 however shows that the model does not have a good fit. It indicates that about 30.78 per cent of the variation in L&A is explained by IR, while a greater percentage of the remaining 69.22 percent is captured by the error term.

4) Serial correlation

Durbin Watson (DW) statistic was also used to test for the presence of serial correlation or autocorrelation among the error terms.

The null hypothesis is:

$H_0 : \rho = 0$ That is, the $\mu's$ are not auto-correlated with first order scheme. This hypothesis is tested against the alternative hypothesis;

$H_1 : \rho \neq 0$ That is, the $\mu's$ areauto-correlated with a first-order scheme.

Therefore, if there is no autocorrelation, $\rho = 0$ and $DW \approx 2$.

Durbin Watson (DW) statistics which is also used to test for the presence of autocorrelation indicates that there is no autocorrelation among the variables as captured by (DW) statistic of 2.22. This shows that the estimates are unbiased and can also be relied upon for policy decisions.

4.3 Discussion of Results

From equation 2 above, it was observed that minimum deposit amount have a positive and significant relationship with saving. It shows that the higher the MDA, the higher the SAV. It was observed from the analysis also that access to microfinance minimum deposit amount has significant effect on saving account opened by rural dwellers(rural dwellers means ways of life that are traditionally oriented, linked with, but separate from urban centres, combining market activities with subsistence production Belshew (1965, P. 39)). The function thus shows that a 1 per cent change in MDA, on the average, had increased SAV by 0.12% between 1990 and 2014.

However, from equation 4, the microfinance interest rate was found to have a negative and insignificant relationship with the loans and advances. This is inconformity with our apriori expectation. It shows that the higher the IR, the lower the amount of loans and advances collected by rural dwellers for investment activities. The function thus indicates that a 1 per cent change or increase in IR had reduced loan advancements by 0.33% between 1990 and 2014. Therefore, there is the need to adequately ensure that interest charged on loans and advances obtained by rural dwellers are drastically reduced for increased in SMEs growth in Nigeria.

5. Summary and Conclusion

The result of this paper revealed that Micro-Finance Banks contribute significantly to the promotion of growth of Small and Medium Enterprises (SMEs) and hence the important role performed by these enterprises cannot be over emphasized, it was established that there is general consensus that microfinance has promoting financial inclusion in Nigeria basically in providing loan to active small business. However, the accompanying increase in productivity is not always adequate with the level of economic development attained, but there is no doubt that SMEs need assistance through Micro-Finance Banks to become sustainable and competitive. The promotion of SMEs has been carried out by subsiding credits, providing preference treatment and targeting locations and small business.

Some recommendations which would situate microfinance in promoting financial inclusion in the Nigerian are: (i) Regulatory and other statutory bodies should monitor the interest rate on loans and advances to make it accessible to micro client, including the economically active poor; (ii) Government should tactically influence microfinance branches to be close to rural area, make their products and services accessible to a large segment of the potentially productive Nigeria population who are currently not being served by the formal financial sector. This will result in increase in individual household income, thereby enhancing the family's access to better diet, improved shelter, education and health care; (iii) The federal government through the Apex bank Central Bank of Nigeria (CBN) should ensure that microfinance banks loans are extended to the poor without the rigors of collaterals required in the conventional banking loans**.**

Our analysis revealed that, the access to microfinance minimum deposit amount has significant effect on saving account opened by rural dwellers. The result also showed that the Microfinance interest rate has negative effect on loans and advances obtained by rural dwellers. It is safe to conclude that financial inclusion is indeed a worthy venture to the microfinance sector, the government and even to customers. It is therefore only right that rural dwellers join forces to ensure that financial inclusion services stays for good in Nigeria.

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