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EFFECTS OF FINANCIAL INCLUSION ON THE ECONOMIC GROWTH OF NIGERIA (1982-2012)

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ABSTRACT: *Inclusive financial arrangement is becoming a policy issue in both developed and developing nations of the world as it has been perceived as a veritable tool for poverty alleviation and economic development. This paper examines the effects of financial inclusion on the economic growth of Nigeria (1982-2012). Data for the study are collected mainly from secondary sources such as Statistical Bulletins of the Central Bank of Nigeria (C.B.N.), Federal Office Of Statistics (F.O.S.) and World Bank. Employed data consist of such bank parametric as Branch Network, Loan to Rural Area, Demand Deposit, Liquidity Ratio, Capital adequacy, and Gross Domestic Product. Extracted data spanning about thirty-year period; 1982 to 2012 were related using the Ordinary Least Square (OLS) method (STATA 10). Tested hypothesis on Poverty Reduction found Loan to Rural Areas(LRA)Agric. Guaranty Fund (ACGSF)significant to Per Capital Income(PCI) (@5%)given t-stat2.82,p>t=4.85 while Financial Deepening(FDI) and Broad Money(FD2) also significantly influenced Economic Growth(Using GDP)with t-stats=3.61, 4.85 p>t=0.0013 and 0.000 respectively. Deposits From Rural Areas(DRA)as surrogate for financial inclusion is influenced by Loans to Rural Areas (LRA) and Small Scale Enterprise (LSSE)as surrogates for financial intermediation given t-stats=2.2 and2.9with p-values=0.03 and 0.007. The overall results of the regression analysis show that inclusive Bank financial activities greatly influenced poverty reduction(R^2=0.74) but marginally determined national economic growth and Financial Intermediation through enhanced Bank Branch Networks, Loan To Rural Areas, and Loan To Small Scale Enterprise given about 50% relatedness between variables on either sides of the equations. Policy recommendations are made on the basis of these findings.*

KEYWORD: Financial Inclusion, Economic Growth, Bank Branch Network, Loan to Rural Area, Liquidity Ratio, Agricultural Guarantee Scheme Fund.

INTRODUCTION

Financial inclusion refers to a process that ensures the ease of access, availability and usage of the formal financial system by all members of an economy. Martinez (2011) identified financial access as an important policy tool employed by government in fighting and stimulating growth given its ability to facilitate efficient allocation of productive resources, thus reducing the cost of capital. This process otherwise referred to as an inclusive financing system can significantly improve the day-to-day management of finances, as well as reduce the growth of informal sources of credit (such as money lenders), which are often found to be exploitative. An inclusive financial system is now widely recognized as a policy priority in many countries with initiatives coming from the financial regulators, the government and the

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banking industry. Legislative measures have also been initiated in some countries leading to such regulatory frameworks as the United States Community Reinvestment Act (1997), which requires banks to offer credit throughout their entire area of operation and prohibits them from targeting only the rich neighbourhoods. In France, the Law on Exclusion (1998) emphasises an individual's right to have a bank account ,while government of the United Kingdom constituted, a 'Financial Inclusion Task Force' in 2005 in order to monitor the development of financial inclusion. Regulations have also been enacted in developing nations such as the Reserve Bank of India Financial Inclusion initiative and the Central Bank of Nigeria (CBN) Micro-finance banking policy (2005). In South Africa, a low cost bank account called *Mzansi* was launched for financially excluded people in 2004 by the South African Banking institutions and Self-help Groups in order to extend financial services to the excluded. Many of these regulatory frameworks were designed as mediums for improving economic welfare of low income groups such as rural women being able to buy serving machine and establish small businesses artesian having access to wider financial services with capacity to increase or stabilise income and thus build resilience against economic shocks. Besides income benefits of a safe place to make deposits and access to affordable credit assistance, access to financial services through micro-savings and micro-credit has resulted in positive outcomes such as a reduction in child-labour and increases in agricultural productivity (Robinson, 2001).

In essence financial inclusion is complementary to economic growth as the two contribute toward poverty alleviation. For instance, Demirgue-Kunt, Beck and Honohan, (2008) (Johnson and Murdoch, 2008) Hannig and Jansen (2010) noted that financial sector development is a driver of economic growth which indirectly reduces poverty and inequality while appropriate financial services for the poor can improve their welfare Such inclusive financial system is therefore a veritable avenue for economic development and growth given its capacity to ensure improvement in the delivery of efficient services, creation of saving opportunities and facilitation of capital formation among the poor (Ahmed, 2006).

Furthermore, academic literatures abound on the nexus between financial development and economic growth (Odedokun, 1989; Ayadi *et al*, 2008; Ighodaro and Oriaki, 2011). Emphasis of these studies focus on the relationship between financial aggregates, financial sector development and economic growth. Studies on the likely impacts of financial inclusion as means for including the 'excluded' poor in the scheme for economic development and growth are relatively scarce and the extent to which an enhanced bank intermediation activities can support economic development in the Nigerian case as not been exhaustively addressed. This study is an attempt to bridge the gap in this essential area and thus complement existing researches designed to achieve adequate financial inclusion by the CBN. The aim of the study is to undertake an in-depth review of the effect of financial inclusion on Nigerian economic growth in the thirty (30) year period 1982-2012. Specific focus of the paper is to examine the effects of financial inclusion on Nigerian bank intermediation activities, poverty reduction as well as provide an explanation of the nature of predictive relationship between elements of financial inclusion and Nigerian economic growth. The study also evaluates effectiveness of policies aimed at encouraging financial inclusion in commercial banks in about thirty year period of Nigerian banking history 1982-2012.A priori expectations of the study are presented in the hypotheses stated below:

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H_{01}: There is no significant relationship between financial inclusion and poverty eradication in Nigeria over the thirty one year study period (1980-2010).

H_{o2}: There is no significant relationship between financial inclusion, economic growth and development in Nigeria in the study period.

H_{o3}: Commercial banks intermediation activities have not induced financial inclusion in Nigeria within the study period.

The present section constitutes an introduction. The next two sections (i.e. sections two and three) review relevant literatures and present methodology for the study. Sections four and five present and analyse collected data as well as provide summary, conclusion and recommendations.

REVIEW OF RELATED LITERATURE

Concepts and Definitions

Previous researches on financial exclusion define it among others as those processes that serve to prevent certain social groups and individuals from gaining access to the formal financial system (Leyshon and Thrift, 1995), Hannig & Jensen (2010) B.I.S. (2010) or as the inability of some societal groups within an economy to access the financial system (Caro *et al*, 2005). Similarly, Conroy (2005) identified the process that prevents the poor and the disadvantaged social groups from gaining access to formal financial systems of their countries as a form of financial exclusion, while Mohan (2006) opined that lack of access by certain segments of the society to appropriate, low-cost, fair and safe financial products and services from mainstream providers are measures of financial exclusion. On the other hand, a Government Committee on Financial Inclusion in India defines inclusion as the process of ensuring access to financial services as well as timely and adequate credit where needed by groups at an affordable cost (Rangarajan Committee, 2008) and Nirupam et al (2009). Development economic literatures on the nature of relationship between financial deepening and economic growth as well as strategies and models to achieve their complementarities abound in the advanced economies. However the need to examine the nature of predictive relationship between financial inclusion and economic development is recent attraction among researchers especially in the developing countries. Generally the simplest way to measure financial access is through the number of functional bank accounts held by individuals. With regard to this, Chain *et al* (2009) and CGAP (2009) observed that between 2.1 billion and 2.7 billion adults, or 72 per cent of the adult population in developing countries do not even have a basic bank account. Sureshander (2003) even argued that merely having a bank account may not be a good indicator of financial inclusion, rather that the ideal definition should focus on people who want to access financial services but are often denied the same due to one incapacitation or the other.

While several definitions of financial inclusion exist with focus on the extent of individuals' involvement in banking activities, it may sometimes be necessary to point out that financial inclusion involves more than mere banker-customer relationship. Chakraborty (2011) defines financial inclusion as the process of ensuring access to appropriate financial product and services needed by vulnerable groups such as weaker societal sections and low income

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groups at an affordable cost in a fair and transparent manner by mainstream institutional players, thus making an inclusive financing arrangement critical aspects in the context of economic growth and development of any economy.

An alternative definition of Financial Inclusion is the perception which views inclusion as a progression inculcating some elements of hierarchy of needs with higher levels of financial inclusion achieved as more needs are fulfilled. This perception views Inclusive financing as an "hierarchy of financial needs" syndrome that starts by promoting non-cash methods of bill payment, advancing business through borrowing and fund investment Amit Jain, and Gidget in Master Card Advisors; (2012). The hierarchy of needs as presented in Figure 2.1 begins with the most basic foundational needs such as securing a bank account for savings, making payment for transaction physical/electronic bill payment, and moving to more complex needs like borrowing, fund investment, and purchasing an insurance policy through a bank.

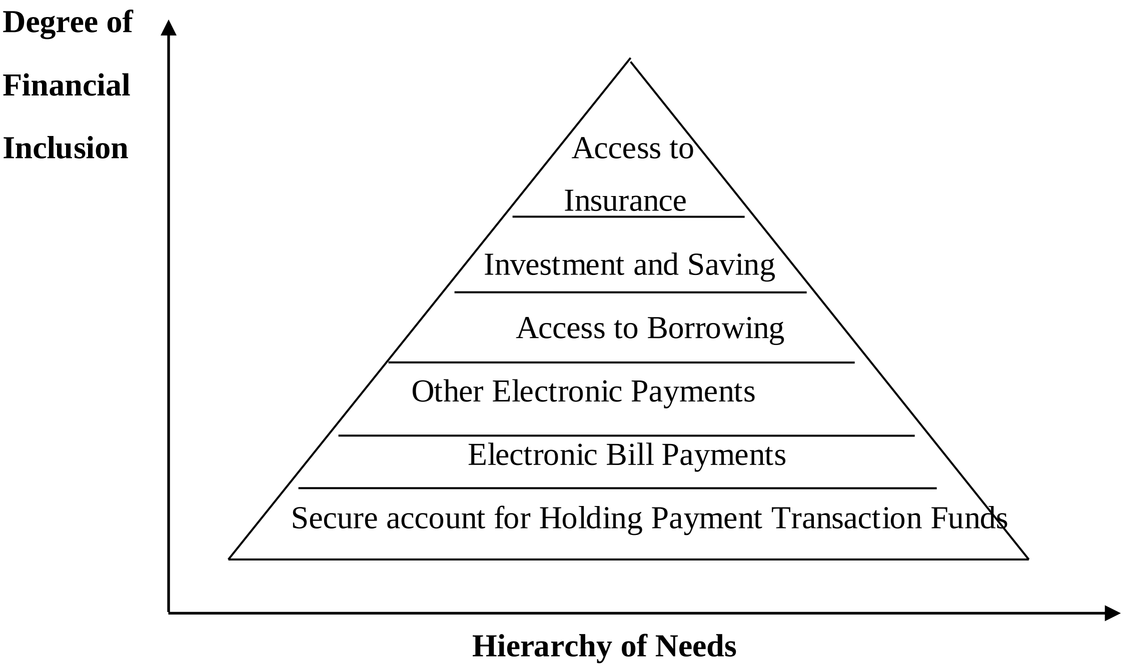

Fig.2.1 Hierarchy of Financial Needs Satisfaction showing Improved Financial Inclusion with Higher Degree of Inclusion

A demonstration of the benefits from the application of a progressive “hierarchical financial inclusion” to a typical Nigerian business retailer as illustrated in figure 2.1 entails

- ✓ The retailer is encouraged to opens a bank account in his locality and obtains a prepaid card ATM Point of Sale (POS).
- ✓ The retailer pays all store bills regularly using his prepaid card and receives payments through the POS terminal.
- ✓ Given the convenience of the prepaid card; the retailer starts using the prepaid card for other personal purchases.

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- ✓ The Central Bank of Nigeria announces a credit facility through say Small and Medium Scale Association (SMEDAN); an association in which the retailer is a member.

- ✓ The retailer through his bank applies for the facility based on the history of his transaction (turnover of his bank Account) and creditworthiness qualifies him for the loan.

- ✓ The concessionary loan received affords the retailer an opportunity to expand his business which generates greater income thus he starts investing more, increases his saving, and possibly open an investment account.

- ✓ The retailer can now afford to secure his family's financial future and buys life insurance.

Financial Inclusion, Economic Growth, and Roles of Mainstream Financial Institutions

Theoretical evidences suggesting that well developed financial system have strong positive impact on economic growth over a long period; Levine(2005) and Demirguc-Kunt and Levine(2008).Many academic literatures have also found a robust positive relationship at the country level between financial depth(deepening),income level and poverty reduction ;Beck,Demirguc-Kunt and Levine (2007). The ineffectiveness of the two previously administered 'stylized financial sector policy reforms' in Nigeria in the nature of state led industrial and agricultural development (e.g. the Agricultural Credit Guaranty Scheme in Nigeria and the Market development (using liberalization and deregulation) made institutional building approach that focused on the performance of financial institutions in delivery services to the segment of the population with little or no access to finance imperative.

Inclusive finance that affords availability and usage of formal financial system for all members of an economy especially vulnerable and financially excluded group at an affordable cost will ultimately influence economic activities. In urban areas, low-salaried employees or self-employed in such positions as shopkeepers, street vendors, foreign exchange officers as well as small-scale farmers, small gold and diamond mine operators in rural areas and others who are engaged in subsistent income-generating activities such as food processing and petty trade, especially women and children of banking age will benefit from such financing activities. Consequently, Ogunleye (2009) links financial inclusion to financial stability, stating that the former promotes the later by facilitating inclusive growth. Financial inclusion is important for ensuring economic inclusion as financial sector development drives economic growth by mobilizing savings and investment in the productive sector; Johnson and Nino-Lazarawa (2009). This is premised on institutional infrastructures that a financial system afford which contribute to a reduction in information and transaction cost as well as indirectly enables lowering of poverty, promote pro-poor growth and lessen income inequality; Honohan and Beck (2007) and Collins *et al.* (2009).

The AT&SG Report(2010) links financial inclusions to economic growth through an inclusive financial access as represented in Figure 2.2 below:

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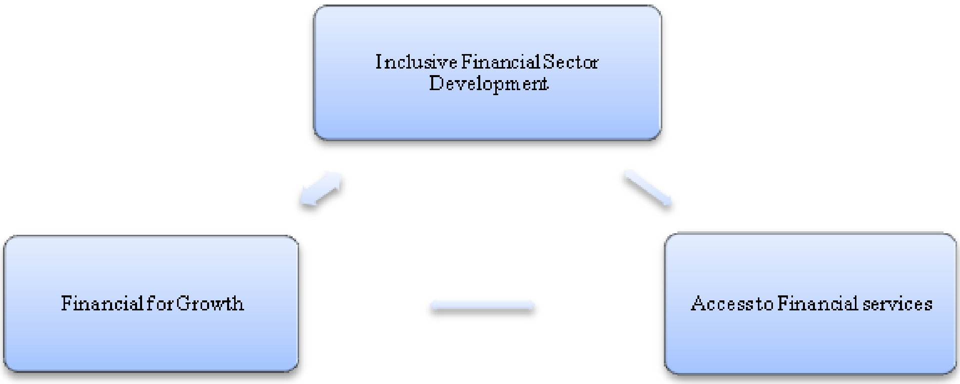

Mobilization of savings enhances financially excluded have access to financial savings institution credit delivery and reduces poverty services through investment in productive sector and welfare improvement

Figure 2.2 Linkages between Financial Inclusion, Finance for Economic Growth and Financial Sector Development

Source: Innovative Financial Inclusion; Expert Group AT&SG Report, G.20; 25 May, 2010

Studies that linked financial system activities to economic growth and poverty reduction abound. According to Levine (2005) institutional infrastructure of the financial system contributes to reducing financial information asymmetry, contraction in transaction costs, which in turn accelerates economic growth . Effective financial inclusive policies impact economies as it contribute to reduction in poverty, pro-poor growth and accelerated economic growth. In a study tracking the financial diaries of poor people in Bangladesh, India and South Africa, Collins (2009) found causality between access to a range of appropriate and affordable financial services and improvement in poor people's welfare & income.

Demirguc-kunt *et al* (2008) also observed that inclusive access to finance is not only pro-growth but also pro-poor as well as reducing income inequality and improving welfare.

In a wider context, financial inclusion contributes to economic growth through value creation of small businesses with positive spill-over effects on improvements in human development indicators - like health, nutrition and education – and reduction in inequality and poverty (CIMP, 2011)and Obstfield (1994) and Ghali (1999).

Alper (2008) examined the relationship between financial development and economic growth in Middle East countries as a group by employing panel co-integration for a dynamic heterogeneous panel over a 14-year period (1990-2003). A positive and statistically significant equilibrium relation between financial development and economic growth was established for the Middle East countries. Other components of the model used found control variables such as human capital, gross fixed capital, international trade and government spending on growth to be significant. Calderon and Liu (2002) examined whether all financial developments leads to economic growth naturally. The study found that a mutual Granger causality exists between financial development and economic growth, but financial development's share in causing economic growth is higher in developed countries

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than in developing countries. Another study of interest is Christopoulos *et al* (2004) which verified whether long-run relationship exists between financial development and economic growth in a multivariate framework for ten developing countries over a 30-year period (1970-2000). A panel unit root tests and co-integration analysis in a panel-based Vector Error Correction Model, for the sampled developing countries, found unidirectional causality from financial development to economic growth.

Academic work on Nigeria has been relatively scarce and where available somewhat unconvincing. One of such is Ayadi *et al* (2008) which investigated the relationship between financial system development and economic growth in post- Structural Adjustment Programme (SAP) economy. The result indicates lack of consistency in the relationship between major variables. Similarly, Onwioduokit (2007) found evidence of a causal relationship going from financial sector variable to economic growth but with no evidence of a feedback on how financial sector development indicator impacts positively on economic growth in Nigeria.

Empirical evidences exist attesting to financial inclusion as having positive effects on growth and development within an economy as it raises the asset base; (BFA, 2009, Sajeev and Thangavel, 2012). In order to achieve the objective of inclusive growth with equality, it is highly essential that commercial banks drive the financial inclusion through cost effective and affordable technology like no-frills (or near-zero balance) bank accounts, Point of Sale technology, mobile banking and Automated teller Machines (Basant, 2011).

Strategies and Models to Achieve Adequate Financial Inclusion

Innovative financial inclusion refers to the delivery of financial services outside conventional branches of financial institutions (banks and MFIs) by using information and communications technologies and non-bank retail agents (including post offices) as well as new institutional arrangements to reach those who are financially excluded. Besides traditional banking services, this concept includes alternatives to informal payment services, insurance products, savings schemes, etc (Lyman, et al 2008). Delivery mechanisms under such financing system include both mobile phone-based systems and systems where information and communications technologies, such as Point-Of-Sale (POS) device networks, are used to transmit transaction details between the financial service provider, the retail agent, and the customer in a branchless banking regime. Noticeable reforms adopted by many developing countries in the last decade to open up the financial sector to the hitherto financially excluded populace entails the use of interest rate liberalization, the switch from other direct monetary instruments, recapitalization, closure of some state-owned banks, and restructuring of commercial banks. The establishment in 1988 of the Agricultural Credit Support Scheme (ACSS) by the CBN was one of the early attempt for creating access to loans for practicing farmers and agro-allied entrepreneurs are encouraged to approach their banks for loan with large scale farmers allowed under the scheme to apply directly to the banks in accordance with the stipulated guidelines (CBN Special Report, 2011).The scheme afford financial assistance to farmers and agro-allied entrepreneurs at a single-digit interest rate of 8.0 percent. For instance banks grant loans to qualified applicants at 14.0 percent interest rate who enjoy a rebate of 6.0 percent for prompt repayment in subsequent applications thus reducing the effective rate of interest to be paid by farmers to 8.0 percent and a means for influencing financial inclusion. Recent reform attempts in the Nigeria case has also led to the repackaging of community banks into microfinance institutions and the

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restructuring of commercial banks into universal and regional categories. The establishment of framework for mobile services in 2009 further marked a significant watershed in financial inclusion policies in Nigeria. Subsequent policies such as the revised MFB policies and guidelines on non interest-window in 2011 culminated in the National Financial Inclusion Strategy; Literacy Framework and Cashless policies in 2012.Recently a new regime for Tiered Know Your Customer, bank Charges and Regulation of Agent Banking Relation are part of policies designed to enhance the supply side of financial services delivery.

Literatures have further furnished us with numerous suggestions on how to bridge the gap between the rural poor and financial inclusion. Some of these suggestions presented in form of models attempted to identify clearly the problems of financial exclusion and strategies to be applied in order elevate the poor and unbanked to full financial inclusion. One of such models is the Sustainable Financial Model by Porteous (2014) which identified three basic propositions for creating a sustainable long term inclusion within an economy; namely customers' needs proposition, business' case proposition and a compliant ecosystem. Another model tagged Social Development model represents the society as a three-segment pyramid with the peak representing the financially included, the base unbanked bankable, and the middle the under-banked bankable.

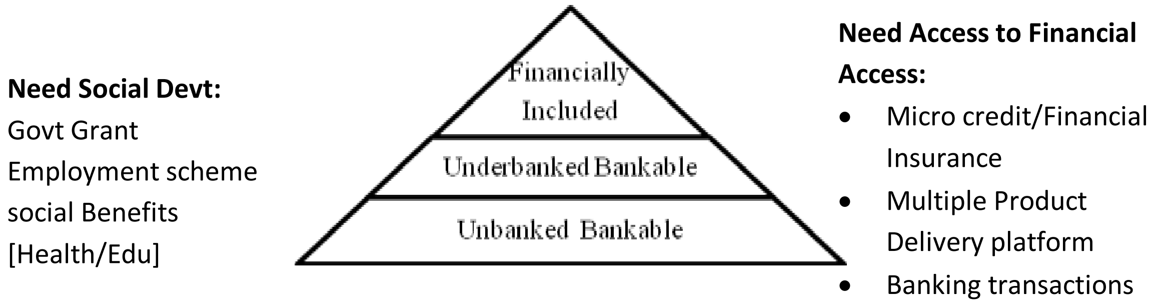

Figure 2.3: Social Development Financial Inclusion Model

The base of the pyramid represents the larger portions of the society which is absolutely excluded financially with little or no prospect for financial inclusion. To progress into the under-banked bankable sphere, this group needs social development through government grants, employment scheme, social benefits such as health, education, etc. Similarly, to move into the financially included region, the under-banked bankable needs access to financial services through banking transactions (deposits, savings, etc), micro-credit/micro-finance, micro insurance, and multiple product delivery platforms and suitable ecosystem support by the government.

A third model is the financial Ecosystem model which focuses on how economic growth can be achieved by financially integrating the under-banked bankable group. The model recommends an articulated business case by financial institution based on customers' needs for products such as no-frills (zero or near-zero balanced) accounts, micro-insurance, government benefits, micro-credits, crop loans and micro-enterprises finance and similar financial services which encourage better management of funds and opportunities for stability and growth.

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Figure 2.2: Financial Inclusion Ecosystem indicating Reasons for financial Exclusion

Why (Why Financial Inclusion)	**What** (What are the possible solutions For financial inclusion?)	**How** (How Solutions can be applied)
Under-developed infrastructure in the interiors of the country	- Accessible network in interiors of the country - Micro-banking products - Sharable technology platform aimed at reducing cost and improving efficiency	- Data connectivity - Shared access - Well connected delivery channel for real time transaction
Higher cost of funds and administrative expenses	- Influx of technology products to scale - Better usage of data - Reduction in cost of delivery of service	- Lower cost technology products - Lower cost data management system - Shared access and self-service solution
Population and poverty	- Literacy campaign - Social development programme - Involvements of Non-governments Organisations (NGOs) and agents	- Corporate pursuit of mass literacy - Government initiatives and support for NGOs and Self-Help Groups (SHGs) - Development of MFIs. SHGs and NGOs
Illiteracy (also financial illiteracy)	- Use of technology where possible - Customization of product for excluded populace - Financial literacy campaign	- Corporate drive for financial literacy - National alliance pioneered by MFIs, SHGs, NGOs and even technology vendors - Literacy campaign

Source: Congo, 2009

The fourth model otherwise called financial inclusion lifecycle model is more comprehensive and precise. It identifies reasons for financial exclusion, sets out the basic needs of the affected groups and suggests strategies of achieving the much desired financial inclusion.

This model is built on the premise that opening a bank account for a poor individual is a necessary but not a sufficient step towards becoming financially included. It focuses on a three-step approach which must be applied to bring financially underserved individuals into a financially inclusive category. The thrust of the model is that after improving financial literacy and opening an account, the usage of that account, linkage with other financial services and access to all the financial instruments are required to complete the financial inclusion lifecycle.

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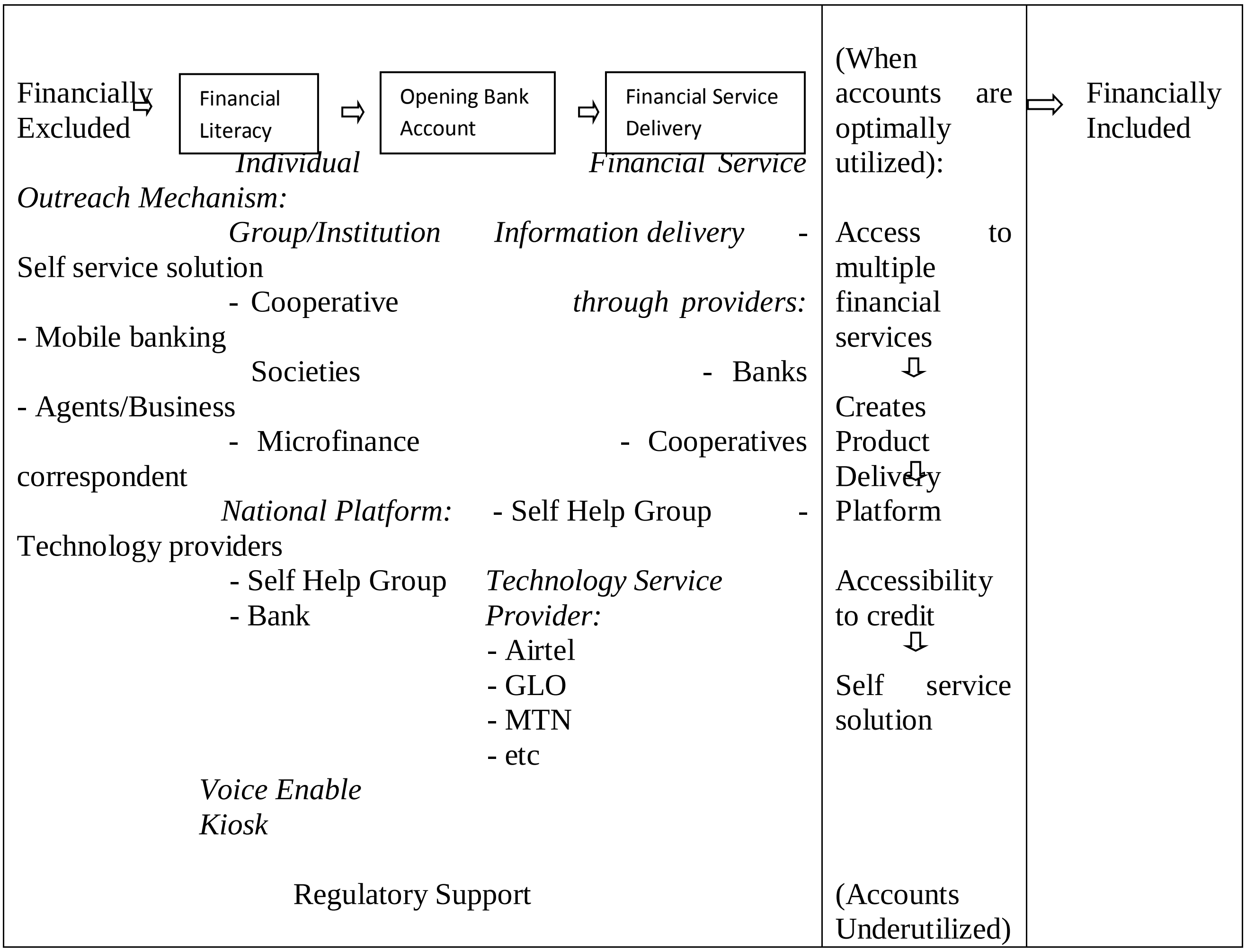
Chart 2.3: Financial Inclusion Lifecycle



Source: Frost and Sullivan, 2009)

Myriads of researches on the opportunities for deepening financial inclusion in Nigeria through the supply side have been extensively undertaken by EFinA2012, 2013, and 2014.Findings of some of these surveys found more adults(about 91.2%) maintaining deposits with commercial banks with a paltry 8% with Microfinance Banks(MFB); thus making evaluation of the effects of financial inclusion in Nigeria a deposit money bank dominance. Based on the review of relevant literatures and a priori expectations of the present study, a noticeable trend can be assumed regarding consistency of relationship between an inclusive financial system, poverty alleviation, bank intermediation, and economic growth. The present study therefore conceptualise a framework of interconnectivity between study variables of the form in figure 2.4 to establish whether financial inclusion exist in Nigeria or not.

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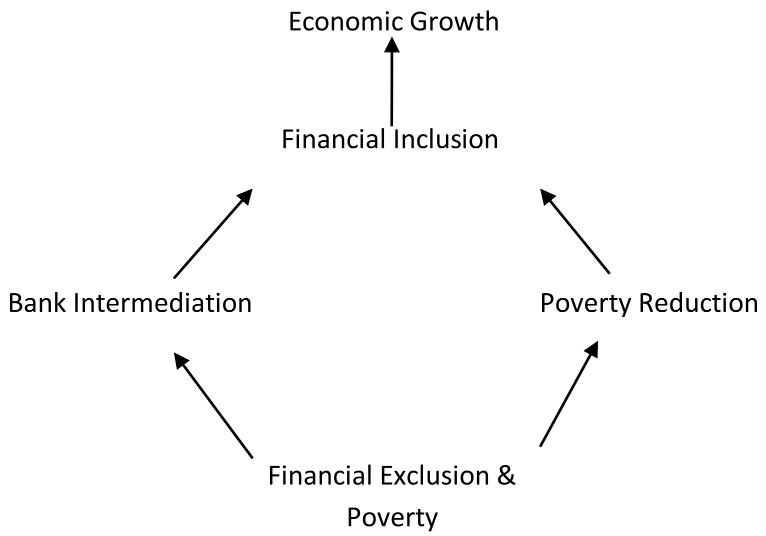

Fig 2.4: A Conceptualized Framework of Relationship between Financial Inclusion & Economic Growth

METHODOLOGY

The study adopts three separate econometrics models for capturing and testing for significance in the stated objectives. The focus of the first model is to determine whether financial inclusion improve the financial well-being off the Nigerian poor or low-income earners in the study period. The second investigates the impact financial inclusion has on the performance of the Nigerian economy and the last model evaluates the extent to which elements of financial intermediation improves financial inclusion of the hitherto financially excluded. Each of the models was subjected to the Box-Cox regression to determine the appropriateness of models to be estimated, and the results favoured the use of normal estimation (Box and Cox 1964).

Financial Inclusion and Poverty Reduction

$PCI=\alpha + \beta_1 BBranch + \beta_2 LR + \beta_3 DRA + \beta_4 ACGSF + \mu t$..................Eq.3.1

This model tests for relationship between financial inclusion and poverty. Per capita income (PCI) has been a consistent variable for measuring the economic well-being of the inhabitants of a country. Rising PCI indicates that the citizens are better off whereas a declining PCI is indicative of slide towards poverty. Consequently, PCI was used as a proxy of poverty in the model. On the other hand, financial inclusion is in this context defined as the extent of involvement or participation in financial activities, especially as it affects the low-income earners or rural dwellers. To this end, the number of Commercial bank branches (CBBRANCH), Bank loan to rural areas (BLRA), Demand deposits from rural areas (DRA) and the Central Bank Agricultural credit guarantee scheme fund (ACGSF) of 1978 were used as proxy for financial inclusion.

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Financial Inclusion and Economic Growth

$GDP = \alpha + \beta_1 FD1 + \beta_2 FD2 + \beta_3 LDR + \beta_4 LQRT + \mu t$....................Eq.3.2

Economic growth refers to sustained rise in the value of economic activities within a country over a period of time. The Gross Domestic Product (GDP) often comes in handy in measuring the aggregate worth of an economy. In like manner, the second model incorporates a broader view of financial inclusion by employing two financial deepening indicators (FD1 and FD2). FD1 represents the ratio of Broad Money to GDP (M2/GDP), while FD2 is the ratio of Credit to Private Sector to GDP (CPS/GDP). According to Nwagwugwu (2008) financial deepening refers to the increase provision of financial services with a wider choice of services geared towards the development of all levels of society. The World Bank (1992) further notes that financial deepening encompasses increase in the stock of financial assets. From this perceptive, financial deepening implies the ability of financial institutions in general to effectively mobilize financial resources for growth and development. This is affirmed in Okeke (2009) which observes that a high level of financial deepening is a necessary condition for accelerating growth in an economy.

Additionally, the model includes other important financial ratios as loan-to-deposit ratio (LDR) and Liquidity ratio (LQR) of commercial banks. The justification is that a financial system with good or rising LDR and LQR is indicative of an expanded platform for financial inclusion. Generally, this model is an improvement from Ighodaro and Oriakhi (2011) which defines financial development in terms of Loan-to-Deposit ratio and Broad Money income only.

Financial Intermediation and Financial Inclusion

$DRA = \alpha + \beta_1 CAPt + \beta_2 LRAt + \beta_3 LDRt + \beta_4 LSSEt + \mu t$.......................Eq.3.3

The provision of credit facilities to a wider segment of the society is an avenue of financial inclusion. This however is greatly influenced by the financial health of the bank or financial institution. Owing to this fact, the third model captures financial intermediation using Loan to rural area (LRA), Loan-to-deposit ratio (LDR) and Loan to small scale enterprises (LSSE). Capital adequacy of the financial institutions to a large extent affects their lending and this is the reason it was incorporated into the model. Overall, the model takes an investigation into the effect financial intermediation may have on financial inclusion. The focus again is on the hitherto financially excluded; hence the model uses an aspect of financial inclusion namely, Deposit from Rural Area (DRA) as a good indicator of financial inclusion because an economy with a very low level of rural bank deposits is indicative of a serious case of financial exclusion.

Data Description and Sources

The data used are mainly annual time series data covering a thirty-one year period from 1982 to 2012. Most of them were extracted from the Statistical Bulletin of Central Bank of Nigeria (CBN), 2013. The Per capita income data was obtained from the website of Nigerian bureau of statistics (www.nigerianbureauofstatistics.org) while that of level of bank capitalization (CAP) was gleaned from CBN and Nigeria Deposit Insurance Corporation (NDIC) Statement of Account and Annual Reports, various issues.

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There are different financial inclusion variables as literature suggests. These include, but are not limited to, number of bank branches per 10,000km2, number of Automated Teller Machines (ATMs) per 10,000km2, access to credit, number of bank accounts held by a particular segment of the economy, and elements of financial intermediation. The choice of the variables however is inhibited by paucity of data for Nigeria. Hence, the paper takes two measures of financial inclusion: the narrow measure and the broad measure. The first measure is evident in the first and the third models where financial inclusion is strictly defined in terms of the involvement of the poor or low-income earners in the financial system while the second is exemplified in the second model which expands the concept of financial inclusion to include aggregate financial deepening indicators as well as selected financial ratios of commercial banks.

In the view of Ighodaro and Oriakhi (2011), the aforementioned indicators measure the degree of monetization in the economy. They are designed to show the real size of the financial sector of a developing economy in which money provides savings services and determines the size of financial intermediation or certain facilities which may target the non-banked bankable.

Empirical Results

The econometric models were estimated by the Ordinary Least Square technique. The results shown below were obtained using the STATA 10. The first model examined the relationship between financial inclusion and poverty reduction in Nigeria.

MODEL 1: PCI = f (BBRANCH, LRA, DRA, ACGSF)

Dependent Variable: PCI
Method: Least Squares
Date: 10/10/14 Time: 15:52
Sample: 1982- 2012(Incl. Observations 31)
Table 4.1: Regression Result 1

Variable	Coefficien	Std. Error	t-Statistic	Prob. t
C	668.2430	192.6962	3.467858	0.0018
BBRANCH	0.178246	0.116044	1.536018	0.1366
LRA	0.026324	0.009342	2.817707	0.0091
DRA	-0.012548	0.007588	-1.653701	0.1102
ACGSF	0.000116	4.44E-05	2.612683	0.0147
R-squared	0.773955	Mean dependent var		1263.859
Adjusted R-squared	0.739178	S.D. dependent var		532.1173
S.E. of regression	271.7560	Akaike info criterion		14.19438
Sum squared resid	1920135.	Schwarz criterion		14.42566
Log likelihood	-215.0128	F-statistic		22.25528
Durbin-Watson stat	1.856367	Prob(F-statistic)		0.000000

The result shows that within the study period, the number of bank branches (BBRANCH), Loan to the rural area (LRA) and the Agricultural Credit Guarantee Scheme Fund (ACGSF) havea positive impacts on the dependent variable, with those of LRA and ACGSF being significant. Additionally the R-Squared of about 77% shows a strong relationship and the

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estimated Durbin Watson value of 1.86 clears any doubts as to the existence of positive first order serial correlation in the estimated model.

The first model was constructed to test the null hypothesis that there is no significant relationship between financial inclusion and poverty eradication in Nigeria. Judging from the estimated F-statistic we observe that the overall regression plane is statistically significant and we reject the null hypothesis.

The second model that test whether a significant relationship exist between financial inclusion and economic growth in Nigeria, the study findings are presented below:

MODEL 2: GDP = f (FD1, FD2, LDR, LQR)

Dependent Variable: GDP
Method: Least Squares
Date: 10/10/14 Time: 17:16
Sample: 1982- 2012(Incl. Observations 31)
Table 4.2: Regression Result 2

Variable	Coefficien	Std. Error	t-Statistic	Prob.t
C	169728.5	7464219.	0.022739	0.9820
FD1	-1458876.	403520.5	-3.615371	0.0013
FD2	2078705.	428406.2	4.852183	0.0000
LDR	2196.500	9551.547	0.229963	0.8199
LQR	142665.6	131885.6	1.081738	0.2893

R-squared	0.528001	Mean dependent var	5971026.
Adjusted R-squared	0.455386	S.D. dependent var	8695059.
S.E. of regression	6416779.	Akaike info criterion	34.33342
Sum squared resid	1.07E+15	Schwarz criterion	34.56471
Log likelihood	-527.1680	F-statistic	7.271210
Durbin-Watson stat	0.638467	Prob(F-statistic)	0.000454

We observe in Table 4.2 that the second element of financial deepening (FD2), Loan-to-deposit ratio (LDR) and Liquidity ratio (LQR) all have a positive impact on the nation's economic growth whereas the first element of financial deepening (FD1) does not. Both estimates of the financial deepening indicators are however significant. Also, the extent of the relationship between the dependent and independent variables is fairly good (about 53%) although a case of autocorrelation is unavoidably present.

Specifically, the essence of the second model is to test the null hypothesis that there is no significant relationship between financial inclusion and economic growth. Again the F-statistic shows a statistical significant relationship result hence the null hypothesis is rejected.

The third model relates selected financial intermediation variables to an aspect of financial inclusion itself – deposit from rural areas (DRA).

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MODEL 3: DRA = f (CAP, LRA, LDR, LSSE)

Dependent Variable: DRA
Method: Least Squares
Date: 10/10/14 Time: 13:58
Sample: 1982- 2012(Incl. Observations 31)
Table 4.3: Regression Result 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.t
C	-3964.247	4023.098	-0.985372	0.3335
CAP	-0.080341	0.091629	-0.876814	0.3886
LRA	0.632959	0.287438	2.202076	0.0367
LDR	2.804026	14.47684	0.193691	0.8479
LSSE	0.367994	0.125568	2.930638	0.0070
R-squared	0.501050	Mean dependent var	10173.19	
Adjusted R-squared	0.424288	S.D. dependent var	12539.53	
S.E. of regression	9514.447	Akaike info criterion	21.30570	
Sum squared resid	2.35E+09	Schwarz criterion	21.53699	
Log likelihood	-325.2384	F-statistic	6.527357	
Durbin-Watson stat	1.826574	Prob(F-statistic)	0.000892	

As the result of the third model shows, all the financial intermediation variables indicate positive impacts on financial inclusion (the dependent variable); with Loan to rural areas (LRA) and Loan to small scale enterprises (LSSE) being significant. The extent of the relationship between the variables on either sides of the model is strong (about 50%) and there is no evidence of autocorrelation in the estimated model.

The purpose of the third model is to test the null hypothesis that a significant relationship does not exist between financial intermediation and financial inclusion in Nigeria. The F-statistic again comes in handy. It shows that the aggregate effect of the explanatory variables on the explained variable is statistically significant so we reject the null hypothesis.

CONCLUSION

This paper has examined the effects of financial inclusion on the Nigerian economic growth; findings from the empirical results in model one (1) to three (3) as well as table 4.1 to 4.3 results indicate relationship between financial inclusion in Nigeria, poverty reduction, economic growth, and financial intermediation over the thirty (30) years period of study.

The study concluded among others that model one is statistically significant since the Prob. (F-Stat) is 0.000000 with F-Stat 22.25528. Thus, there is a significant relationship between financial inclusion and poverty reduction in Nigeria.

Empirical finding that examines the relationship between financial inclusion and economic growth in Nigeria also indicates that there is a significant relationship between financial inclusion and economic growth in Nigeria in the period under study (giving Prob. (F-Stat) is 0.000454 as against F-Stat 7.271210).

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Also, the summary of table 4.3 of this study found that there are positive relationships between DRA and the LRA, LDR, LSSE; and there is negative relationship between DRA and CAP. The extent of the relationship between the variables on either sides of the model is about 50%; since the Prob.(F-Stat)therefore is 0.000892 with F-Stat 6.527357,the model is statistically significant.

The study suggests therefore that financial inclusion will have a positive significant impact on the economic growth of Nigeria. However, the study does have some limitations. It has only examined the relationship between financial inclusions on Nigerian Economic growth; emphasis on which components of financial inclusion like lending; means of payment and investment window has been minimal thus providing a good basis for future studies to examine this matter in greater detail. This study gives a signal to the financial regulator on the need to have proper guidelines or regulations in place that will encourage financial intermediation among the rural poor.

The study policy recommendation therefore centres on the need to create deposit and borrowing windows at affordable cost to the poor and to the income group erstwhile tagged the 'unbankable'.

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