

Financial Inclusion and Economic Growth in Nigeria

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Abstract

This paper examines the relationship between financial inclusion and economic growth in Nigeria using monthly data from January 2007 to February 2015 obtained from the Central Bank of Nigeria statistical bulletin and adopted the Granger Causality Framework to analyze such data. The results show that inclusive financial activities such as loan to solid mineral businesses and loans to real estate and construction firms have significant impact on economic growth in Nigeria. Further, loan to rural customers, deposits mobilized from rural branches, loan to solid mineral businesses and loans to real estate and construction firms all have a long run relationship with economic growth. On the basis of these findings, we recommend that measures should be put in place to attract rural banking and solid mineral businesses to realize economic growth in the country.

Key terms: *Financial inclusion, economic growth, Granger causality.*

Introduction

Processes that serve to prevent certain social groups and even individuals from gaining access to a formal financial system mainly account for exclusion within that system, be it a country, state or region. So, in its simplest form, financial exclusion could mean the inability of some groups within an economy to access desirable services within its financial system. Prominent among such groups are the poor, rural dwellers and some disadvantaged persons. It is therefore pertinent to determine the exclusion rate of any formal financial system using measures which identify the proportion within the economy that lack access to appropriate, low-cost, fair and safe financial services from conventional or mainstream providers. Therefore, financial inclusion is an important strategy or tool employed by government to fight poverty or low banking awareness with a tendency to stimulate growth given its ability to facilitate efficient allocation of productive resources. This process can significantly improve the day-to-day management of finances and reduce the growth of informal sources often found to be exploitative that are prevalent in emerging markets.

In both the developing and the developed world, an inclusive financial system is now widely recognized as a policy priority with initiatives coming from the financial regulators, the government and the banking industry. As a critical component of development policy all over the world, it seems to be a general phenomenon, but its nature and challenges cannot be the same across jurisdictions. This seems to be the reason why experts are not disposed to adopt a “one size fit all concept” suggesting that countries should have initiatives that take into account their peculiarities in terms of environment as well as the needs of the local people for whose feet the shoes are produced.

For financial inclusion to serve its purpose the following ingredients are required:

1. Improve economic welfare of low-income groups such as women and rural dwellers.

2. Provide capital for micro businesses in order to buy machines and meet other establishment requirements.
3. Create avenues for affordable credit and safe places to make deposits.

Therefore, this study as set out, is to explore how these strategies and factors can be harnessed to provide a solid framework to tackle financial exclusion aimed at contributing to economic growth in Nigeria.

Studies abound on the relationship between financial development and economic growth. For instance, King and Levine (1993), Demirgüç-Kunt and Levine (1996), Allen and Santomero (1997), Onwiodukit (2007), Maduka and Onwuka (2013) 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 tool for economic growth given its capacity to ensure improvement in the delivery of efficient services, creation of savings opportunities and facilitation of capital formation among the poor and the disadvantaged groups.

Most of these studies focus on the relationship between financial aggregates and economic growth which lacks analysis-based factor influence. The studies on the likely impacts of financial inclusion on economic growth are relatively scarce and are yet to provide statistical evidence in Nigeria. This study is an attempt to bridge this gap and thus complement existing researches designed to achieve adequate financial inclusion by exploring the effect of financial inclusion on economic growth in Nigeria, evaluating measures that are designed to stimulate financial intermediation and poverty reduction as well as examine the relationship between elements of financial inclusion and economic growth in Nigeria.

The remainder of this study is structured as follows: The next section reviews the existing literature on financial inclusion and its impacts on economic growth and development. Section 3 discusses the data and methods used for empirical analysis. Section 4 contains the empirical results and section 5 concludes the study.

Literature Reflection

Financial Inclusion and Economic Growth

Dotun (2003) considers Gross National Income (GNI) as the most reliable measure of development of a country because it is a good yardstick to determine the capacity of that country to provide for the well-being of its citizens. This is consistent with the view that material welfare of the citizens of a nation is a basic requirement of development. Among the factors that account for this are the generation and availability of employment, fairly progressive and equitable levels of income, adequate food, portable water supply, housing facilities, a decent health sector that can provide for the needs of the people, qualitative education and security that can underpin welfare. If we are able to measure these factors by the size of a country's population in a manner that there is some level of fairly equitable distribution of all of them among the citizens, then the country is said to be developed.

Until these characteristics are related to individual person in a country measured in terms of total output by way of overall goods and services shared by the size of its population, the real effect cannot be felt and that is why financial authorities are interested in the concept of Per Capita Gross Domestic Product as reported by the World Bank (2009).

In consideration of the view by Ajayi (2003), the underdeveloped countries are characterized by a large segment of their economies with an informal sector. This has some implications for the management of financial and other policies in these countries and further providing a link between development and finance because experience has shown that where large informal sector exists, financial activities are likely to be low.

Demirguc-Kunt and Levine (2004) also observe that some financial systems provide better atmosphere for growth than others because the financial institutions, technology and the rules operate in such a way that financial transactions and dealings are conducted in all segments of the society. Therefore, a good financial system is one that can provide a mechanism for the pooling of resources as well as an institutional arrangement for channeling these resources to all avenues with adequate consideration for the poor and rural dwellers that would ultimately provide basis for growth.

Arestis, Luintel and Luintel (2005), Sam and Pais (2011), Cole, Sampson and Zia (2011) portend that such a system should have a structure which is the foundation for the evolution and a framework for the mixture of activities of banks and non-bank financial institutions for businesses and other ventures to tap resources thereby supporting some earlier studies such as King and Levine (1993), Levine (2002) and Romain and Pottelsberghe (2003). This then provides a basis to have a fairly consensual view that there is a correlation between increased financial activities and economic growth in a country.

Invariably an inclusive system that affords availability and usage of formal financial services 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, 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. Furthermore, financial inclusion can drive growth by mobilizing savings and investment in productive sectors in an economy and this would result in the reduction of poverty, promote economic activities for the poor and reduces income inequality.

However, there are a number of ways financial access can be measured including but not limited to the following:

1. The number of functional bank accounts held by individuals and organizations.
2. The extent of individuals' involvement in banking activities resulting in a banker customer relationship.
3. A process of ensuring that vulnerable groups and weaker segments gain appropriate financial services.
4. Provision of financial services at an affordable cost in a fair and transparent manner by mainstream institutional players.
5. Access to Insurance Investment and Savings by individuals, businesses and other institutions.
6. Access to borrowing based on processes well established to guarantee efficiency, effectiveness and economy.
7. Access to electronic forms of payment that are reliable enough to attract adequate patronage.

In some societies or segments of such societies, these services are not easily accessible posing obstacles for the free flow of economic activities. It is in realization of this factor particularly in the developing world that prompted Levine (2002) to postulate that such economies should design and embark on projects that would boost institutional infrastructure of their financial systems. Hayne and David (1977) suggest that this process would contribute towards reducing financial information asymmetry and contraction in transaction costs thereby providing avenues for economic growth. Evidently it enhances capacity to mobilize savings from the financially excluded through the financial institutions and boost credit delivery as well as

reduce poverty in a greater degree if the resources are channeled to investment in productive sectors as argued by Obstfeld (1994).

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 such as health, nutrition and education capable of reducing inequality and poverty. In order to achieve the objective of inclusive growth with equality, which is more required in developing countries like Nigeria, it is highly essential that commercial banks the most prevalent of financial institutions in those environments should drive inclusion strategy through cost effective and affordable technology. Examples such as Point of Sale technology, mobile banking and Automated teller Machines are already gaining ground all over the world. Effective financial inclusive policies impact economies as they contribute to reduction in poverty, pro-poor growth and accelerated economic growth. Resultantly, there would be greater access to a range of appropriate and affordable financial services and improvement in poor people's welfare & income.

A number of strategies have emerged across the globe as efforts to combat financial exclusion as recorded by various regulatory authorities and other sources. For instance, in Nigeria we have the Micro-finance banking policy which is a framework to provide financial services to micro businesses in the country. It has produced desired results with a number of micro finance institutions now existing in the country.

In India, the Reserve Bank formulated financial inclusion initiative to encourage micro credit and other services targeted at small businesses while 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. The developed countries are also concerned about financial exclusion as a number of them have introduced similar measures to tackle the phenomenon. For example, in France, the Law on Exclusion (1998) emphasizes an individual's right to have a bank account, while government of the United Kingdom constituted, a 'Financial Inclusion Task Force' in 2005 to be able to monitor the development of financial inclusion.

For us to appreciate the impact of these policies and programmes or projects, it is pertinent that we develop a framework to show the progression of financial inclusion using an illustration of a typical small business owner with the following steps:

1. Firstly, encourage him to open a bank account in the locality where he operates his business.
2. He can be attracted to technology-based systems that provides relative ease in carrying out financial transactions. Examples are a prepaid card for an Automated Teller Machine (ATM) and a Point of Sale (POS) machine.
3. He can then pay all business bills regularly using his prepaid card and receives payments through the POS terminal.
4. With the convenience of the prepaid card, he starts using it for other personal purchases.
5. The retailer can register for membership of Small and Medium Scale Enterprises Association of Nigeria (SMEDAN) as a prelude to obtain credit under Central Bank of Nigeria Development Finance Programmes.
6. He is now fully equipped and qualified to have such facilities based on the history of his transactions indicated by turnover of his bank account.
7. As a concessionary loan, it affords the retailer an opportunity to expand his business which generates greater income.
8. Furthermore, he starts investing more, increases his savings, and possibly opens an investment account.

9. The micro business owner can now afford to secure his family's financial future and undertakes an insurance policy.

The above scenario opens up a wide spectrum of opportunities available for the target audience to gain access to formal financial services that are innovative in nature. As seen above, the use of information and communications technologies and non-bank retail agents have become useful strategies that can promote banking and related activities in an environment. The old post office system that was so popular in some jurisdictions as a payment system is now giving way for new institutional arrangements to reach those who are financially excluded. All of these would galvanize processes aimed at building financial inclusion. Besides traditional banking services, there are alternatives to informal payment services, insurance products and savings schemes. Delivery mechanisms under such financing systems include both mobile phone and information technology based systems.

There are noticeable reforms adopted by many developing countries in the last decade to open up the financial sector to the hitherto financially excluded populace. Among them are the interest rate liberalization system, the switch from other direct monetary instruments, recapitalization, closure of some state-owned banks and the restructuring of some commercial banks. Furthermore, the establishment of the Agricultural Credit Support Scheme (ACSS) by the Central Bank of Nigeria is one of the attempts to create access to loans for practicing farmers and agro-allied entrepreneurs. The scheme affords farmers and agro-allied entrepreneurs to have access to facilities at a single-digit interest rate of 8.0 percent. For instance, if a bank grants loan to a qualified applicant at 14.0 percent interest rate he is likely to 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.

Other policy measures in Nigeria that are designed to address financial exclusion include the repackaging of community banks into microfinance institutions, restructuring of commercial banks into universal and regional categories, the establishment of framework for mobile services in 2009, the revised Micro Finance Bank (MFB) policies and guidelines on non interest-window in 2011 which culminated in the National Financial Inclusion Strategy, Literacy Framework and Cashless policies in 2012.

In India, the Government commissioned a study in 2008 and a number of suggestions made on how to build financial inclusion centered on strategies to bridge the gap between the rural poor and financial inclusion. Some of these suggestions were developed to form models that attempted to identify clearly the problems of financial exclusion. Based on that, some strategies have been articulated and if applied, have the tendency to elevate the poor and the unbanked to full financial inclusion.

One of such models is the Sustainable Financial Model 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. A financial system designed to capture these three requirements is bound to provide inclusion in a wider scale.

Another model tagged Social Development model represents the society as a three-segment pyramid framed in a pecking order of access to financial service and descending in order of inclusion. Under the 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 institutions based on customers' needs for products such as micro-insurance, micro-credits and zero balance accounts.

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 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.

To better understand the phenomenon behind financial inclusion as described above, it is imperative we develop a framework by way of a matrix as follows:

Table 2.1: Illustrative Framework for Financial Inclusion

Why (Definitions)	What (Solutions)	How (Possible Applications)
Why financial inclusion?	What are the possible solutions?	How then can solutions be applied?
Poor infrastructure in rural areas	Accessible network in such areas	Micro-banking products
High cost of administration and funds	Technology and economy for products and services	Integrated systems and shared access
Population and poverty	- Literacy campaign - Social programmes - Non-government Organizations and agents	- Pursuit of mass literacy - Government initiatives and NGOs and Self- Help Groups - Development of MFIs

Source: Author's conceptualization.

Note that the what, how and why questions are answered with definitions, suggested solutions and possible applications respectively as strategies for inclusion.

Empirical Review

Onaolapo (2015), using the ordinary least square method, examines the effects of financial inclusion on economic growth and poverty reduction in Nigeria from 1982 to 2012. From the findings of that study, loan to rural area and the CBN's agricultural credit guarantee scheme fund both have a positive and significant impact on per capital income, while broad money ratio to GDP and credit to private sector ratio to GDP both have a highly significant impact on GDP. However, money supply is associated with a negative beta, suggesting that its effects on the economy is harmful. The effects of liquidity ratio and loan to deposit ratio are statistically not significant.

Adeola and Evans (2017) use the full information OLS (FMOLS) method to examine the impact of both financial inclusion and financial development on economic diversification in

Nigeria using data from 1981 to 2014. They find that financial inclusion, measured by access and usage, has a positive and significant effect on economic diversification. They also find amongst others that financial development has a positive effect on economic diversification though not significant.

Okere and Ozuzu (2018) use the OLS method and the Johansen cointegration tests to study the relationship between financial inclusion and economic growth in Nigeria, focusing on microfinance for the period from 1992 to 2013. They find that all financial inclusion variables have long run relationships with economic growth. They also find that total loans and advances of microfinance banks has a statistically significant effect at 5% level on gross domestic product, while the effects of total deposits mobilized, investments and number of microfinance branches are not significant. However, the beta coefficient on total deposit mobilized is associated with a negative sign meaning its impact on growth and development of the economy is adverse.

More recently, Uruakpa, Kalu and Ufomadu (2019) employ the multiple regression OLS model to examine the impact of financial inclusion on the economic growth in Nigeria between 2003 and 2015. Economic growth is measured by the real GDP while financial inclusion has three dimensions; namely, commercial banks' deposits from rural branches, commercial banks' loans to rural branches and ATM transactions. They find that deposits mobilized from rural branches and ATM transactions both exert positive and significant effects on real GDP, while the effect of loans from rural branches is negative.

Methodology

To examine whether financial inclusion will lead to economic growth in Nigeria, this study uses monthly data from January 2007 to February 2015. The study variables are real GDP (a proxy for economic growth), loan to small and medium enterprises, deposits mobilized from rural branches of banks, loan to rural customers of banks, loan to public utilities, loan to real estate and construction firms and loan to solid mineral businesses. All data are obtained from the CBN database. However, the real GDP data are converted from quarterly (the reported frequency) to monthly through the data frequency conversion window provided in EViews.

Figure 1 shows the quantile curve of the study variables. As this Figure demonstrates, all variables have an S-shape, showing departure from the straight line for all the series. This suggests evidence of non-normal distribution.

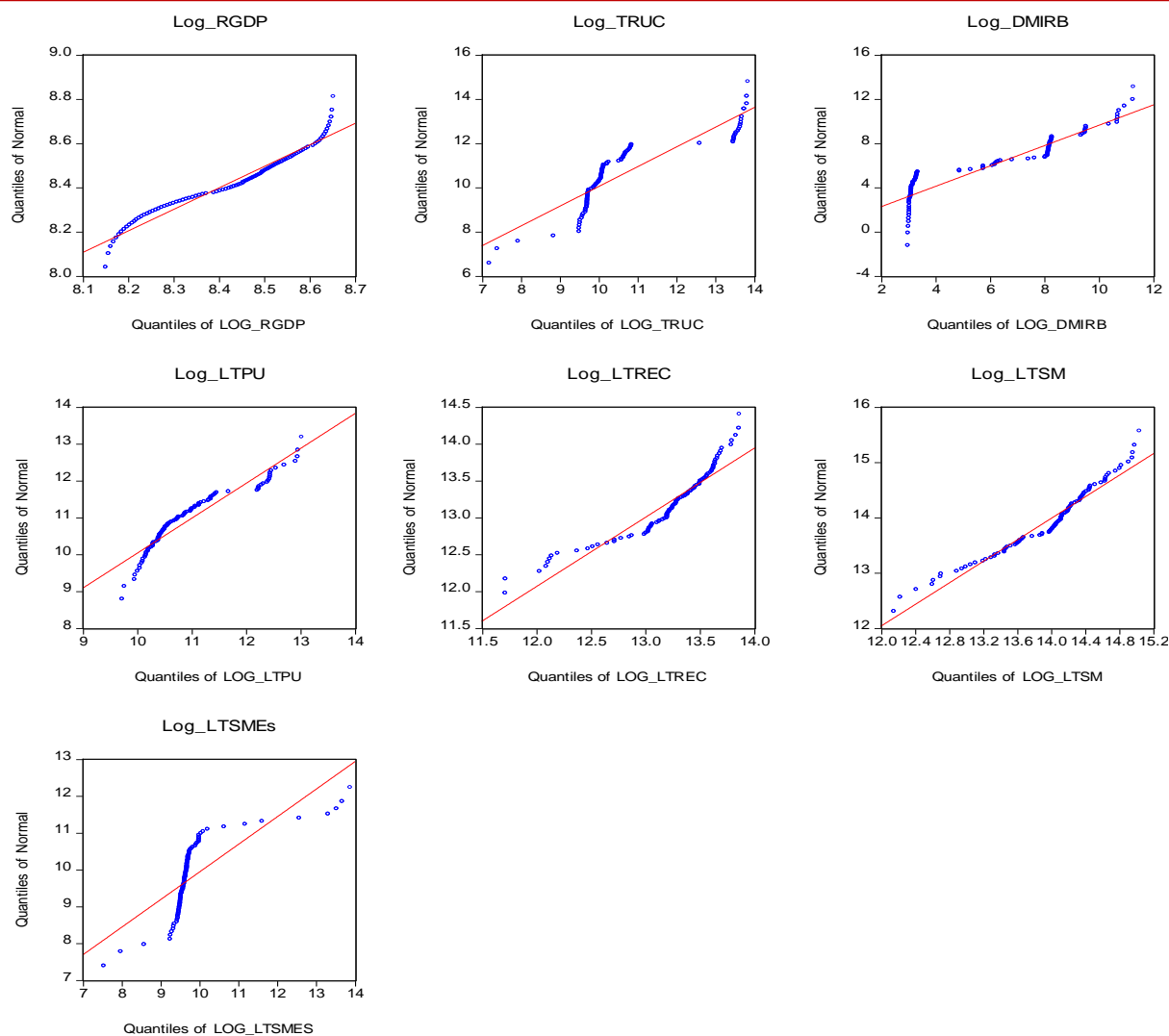


Figure 1: Quantile plot for the data

Methods and Models

For empirical analysis, this study employs the dynamic Granger Causality framework. It is documented in the literature that the dynamic Granger Causality framework can be used to examine the bi-causal relationship between two or more economic and financial variables. However, only one equation would be specified since our focus is to examine the unidirectional causality from financial inclusion to economic growth.

The functional model expressing the relationship between financial inclusion and economic growth are given by:

$$RGDP = f(LTSME, DMIRB, LTRUC, LTPU, LTREC, LTSM)$$

Where;

LRGDP = Log of Real GDP

LLTSMEs = Log of Loans to Small and Medium enterprises

LLDMIRB = Log of Deposits Mobilized in Rural Branches of Banks

LLTRUC = Log of Loans to Rural customers of Banks

LLTPU = Log of Loan to Public Utilities

LLTREC = Log of Loan to Real Estate and Construction Firms

LLTSM = Log of Loan to Solid Mineral Businesses in Nigeria.

The simple econometric parameterization of the above functional model is given by:

$$LRGDP = \alpha + \beta_1 LRGDP_{t-1} + \beta_2 LLTSME_{t-1} + \beta_3 LDMIRB_{t-1} + \beta_4 DMIRB_{t-1} \\ + \beta_5 LLTRUC_{t-1} + \beta_6 LLTPU_{t-1} + \beta_7 LLTREC_{t-1} + \beta_8 LLTSM_{t-1} + e_t$$

Where; α is the regression constant, e_t is the error term, β_1 is the auto regression coefficient, $\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ and β_8 are the slope coefficients that capture the effects of different financial inclusion variables on real GDP.

Data Analysis and Discussion

Unit roots/Nonstationarity tests

To formally determine the number of unit roots contained in each of the series, we perform two alternative unit roots/non-stationarity tests; namely, the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests. Although, previous studies suggest that the two tests give similar results, they however, use different approaches in correcting for the observed serial correlation in the errors of the test equation. While the ADF test follows a parametric approach that requires lag specification, the PP test follows a non-parametric approach using an automated correction method. To determine the plausible specification for the test, two models are considered; (1) a random walk with drift (intercept only) model and (2) a random walk with drift and trend (intercept and trend) model. The results are presented in Tables 1 and 2.

From Table 1, it appears that a random walk with drift model fits well to all the data series, with both ADF and PP tests generally preferring a model that includes only an intercept in the test equation. The results indicate that \log_RGDP , \log_DMIRB , \log_LTPU and \log_LTRUC are nonstationary in level, with both ADF and PP test statistics failing to reject the unit root null hypothesis at conventional levels ($p > 0.1$). By contrast, the test is significant for \log_LTREC , \log_LTSM and \log_LTSMEs , suggesting that each of the series is stationary in level. The \log_LTSM is stationary at 10% level of significance ($0.05 < p < 0.1$) while \log_LTREC ($0.01 < p < 0.05$) and \log_LTSMEs ($p < 0.1$) are significant at 5% and 1% levels of significance respectively.

From Table 2, the p -values are all less than 1%, except for the ADF test corresponding to \log_RGDP which is more than 1% but less than 5%. The null hypothesis of unit root is therefore rejected for all the series. This suggests clear evidence that the series are all stationary in first difference. On balance, the results suggest evidence that \log_RGDP , \log_DMIRB , \log_LTPU and \log_LTRUC contain one unit root or $I(1)$ while \log_LTSM , $\log_DLTSMEs$ and \log_LTREC are $I(0)$. Thus, following Engle and Granger (1987), there is need to check whether the variables are cointegrated in order to avoid running a regression that will produce misleading results.

Table 1: p-values of unit root tests in level series; *indicates plausible specification

Variable	<i>p-values of tests</i>			
	H_0 : Series has a unit root (Levels)			
	ADF (tau) statistic		Phillips-Perron statistic	
	Intercept only	Intercept & trend	Intercept only	Intercept & trend
Log_RGDP	0.1715*	0.9632	0.0561*	0.9778
Log_DMIRB	0.3860*	0.9101	0.1385*	0.0801
Log_LTPU	0.8040	0.7610	0.6292*	0.2744*
Log_LTREC	0.0264*	0.1761	0.0115*	0.1566
Log_LTRUC	0.6886*	0.5643	0.2752*	0.1684*
Log_LTSM	0.0912*	0.0130*	0.0716*	0.0130*
Log_LTSMEs	0.0000*	0.0000	0.0000*	0.0000

Source: E- View Output

Table 2: p-values of unit root tests in different series; *indicates plausible specification.

Source: E- View Output

Variable	<i>p-values of tests</i>			
	H_0 : Series has a unit root (First difference)			
	ADF (tau) statistic		Phillips-Perron statistic	
	Intercept only	Intercept & trend	Intercept only	Intercept & trend
Log_RGDP	0.0425*	0.0252	0.0001*	0.0000
Log_DMIRB	0.0000*	0.0000	0.0001	0.0000
Log_LTPU	0.0001	0.0000	0.0001	0.0000
Log_TLREC	0.0000*	0.0000	0.0000*	0.0000
Log_LTRUC	0.0001	0.0000	0.0001	0.0000
Log_LTSM	0.0000*	0.0000	0.0000*	0.0000
Log_LTSMEs	0.0000	0.0000	0.0001	0.0001

Cointegration Test

Table 3 gives the results of Johansen cointegration test for log_RGDP, Log_DMIRB, Log_LTPU, Log_LTRC, log_LTSM, Log_LTREC and Log_LTSMEs. Compared to the residual-based cointegration test suggested by the Engle-Granger (1987) which follows a two-step procedure, the Johansen test is a system-based test and is mostly used in a VAR/VECM framework. The presence of cointegration implies that long run relationship exists between the variables. As the results indicate, there is evidence of a cointegrating relations among the variables. The trace statistic suggests 2 cointegrating relationships while the max-eigenvalue test suggests 1 cointegrating test. This implies that the static OLS technique is not appropriate to estimate the relationship of interest as its results will be misleading.

Table 3: Johansen co-integration test; * indicates rejection of null hypothesis

Hypothesized No of CEs	Trace test		Max-Eigenvalue test	
	Statistic	<i>p</i> -value	Statistic	<i>p</i> -value
None	152.0650	0.0005*	52.42421	0.0097*
At most 1	99.64075	0.0263*	34.05957	0.2036
At most 2	65.58118	0.1039	29.07026	0.1684
At most 3	36.51092	0.3710	15.37556	0.7180
At most 4	21.13536	0.3493	11.80704	0.5668
At most 5	9.328312	0.3359	8.340059	0.3452
At most 6	0.988253	0.3202	0.988253	0.3202

Source: E- View Output

Cointegrating Regression

Table 4 shows the results of the dynamic OLS cointegrating regression of LRGDP on Log_DMIRB, Log_LTPU, Log_LTRC, log_LTSM Log_DMIRB and Log_LTSMEs. As required by this method, we added 1 lag and 1 lead of different regressors to correct any long run correlation between the cointegrating equation and stochastic regressors as innovation. Furthermore, we follow the robust HAC procedure to deal with both Heteroskedastic and Autocorrelation that may be present in our model. As we can see, most of the estimated coefficients are significantly different from zero point five as the target level of significance and the *p*-values indicate as such. Specifically, Log_DMIRB and Log_TLREC have negative and significant effects of Log_RGDP while Log_LTSM and Log_LTRUC have positive and significant effects on Log_RGDP. The effects of Log_LTPU and Log_LTSMEs on Log_RGDP are not significant.

Table 4: The results of the estimated co-integrating equation

Variable	Coefficient	Standard Error	t-Statistic	<i>p</i> -value
Log_DMIRB	-0.009282	0.002467	-3.763155	0.0004
Log_LTPU	-0.005205	0.006633	-0.784640	0.4360
Log_LTRUC	0.009957	0.003730	2.669530	0.0099
Log_TLREC	-0.070043	0.028785	-2.433319	0.0182
Log_LTSM	0.249170	0.026360	9.452682	0.0000
Log_LTSMEs	0.006976	0.004726	1.476135	0.1455
Constant	5.815065	0.074908	77.62993	0.0000

Source: E- View Output

Granger Causality Test

Table 5 presents the results of Granger Causality test, which tests there is a causal link between Real GDP and financial inclusion variables. As this table shows, there is evidence of unidirectional causality from Log_LTREC and Log_RGDP, a bidirectional or feedback causality between LTSM and Log_RGDP.

Table 5 Granger Causality test results

Null Hypothesis	F-Statistic	p-value
Log_LTRUC does not Granger Cause Log_RGDP	0.01903	0.9812
Log_RGDP does not Granger Cause Log_LTRUC	1.32164	0.2723
Log_DMIRB does not Granger Cause Log_RGDP	1.43783	0.2430
Log_RGDP does not Granger Cause Log_DMIRB	0.14566	0.8647
Log_LTPU does not Granger Cause Log_RGDP	1.47670	0.2338
Log_RGDP does not Granger Cause Log_LTPU	1.13037	0.3274
Log_LTREC does not Granger Cause Log_RGDP	5.82181	0.0042
Log_RGDP does not Granger Cause Log_LTREC	1.17672	0.3129
Log_LTSM does not Granger Cause Log_RGDP	4.54825	0.0131
Log_RGDP does not Granger Cause Log_LTSM	5.98893	0.0036
Log_LTSMEs does not Granger Cause Log_RGDP	1.97279	0.1450
Log_RGDP does not Granger Cause Log_LTSMEs	0.20510	0.8149

Source: E- View Output

Discussion of Findings

However, based on the limitations of the study including the fact that the variables of financial inclusion considered do not adequately cover all factors or components as contained in our literature review, care must be observed in applying these results. For instance, the number of Automated Teller Machines (ATM) per area, number of bank accounts per segment of society, access to credit and means of payment and investment windows are very resounding factors that define financial inclusion which were not considered in the study.

From the theoretical framework, we established a practical approach to solving the exclusion problem in the society with the aid of a matrix which ordinarily would form the basis for our analysis. But while the model in the literature dealt with specific issues such as number of ATM cards the analysis in chapter four concentrated on issues on their macro bases. Therefore, there is need to commission further study to regress further details in terms of impact those factors could present. To us, further modeling in this regard would be necessary to adequately address the problem of financial exclusion.

These factors therefore provide a good basis for future research so that the subject matter can have adequate coverage with greater detail. Based on this, the following recommendations are made:

1. The regulatory authorities particularly the Central Bank of Nigeria should put in place proper guidelines and regulations that would encourage financial intermediation among the rural poor and certain segments of the society with a view to providing better mechanism to increase payments within the formal banking system as well as enhance delivery in other financial services.
2. The poor, low income group and the rural dwellers should be given greater attention by creating for them windows for deposits and borrowing.
3. The twin problem of financial illiteracy and poor infrastructure prevalent in the rural areas must be tackled with greater vigor including strategies for Information and Communications Technology (ICT) education.
4. An enabling environment should be created to boost the services of insurance companies for wider coverage as well as other bank like financial institutions because they have little or no presence in the Nigerian rural areas.
5. The administration and regulation of pension funds would have to be more effective as they provide better means for long term investments.

Policy Implications

In this study we have examined the effects of financial inclusion on economic growth in Nigeria. The empirical results indicate that there is a positive relationship between financial inclusion in Nigeria and economic growth over the period under consideration. A good number of variables showed that there is statistically strong correlation between financial inclusion and growth. Furthermore, the Granger Causality tests also proved that desperate financial inclusion measures can lead to economic growth as indicated by various levels of Real Gross Domestic Product increases. For instance, an increase in loans to real estate and construction firms can result to significant increase in economic growth. So is increase in solid mineral businesses as well as a reverse effect from growth back to rural loans and solid mineral businesses.

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