

Financial Inclusion and Macroeconomic Performance in Nigeria

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Abstract: The paper examines the relationship between financial inclusion and macroeconomic performance in Nigeria from 1981 to 2014. The data for the study were sourced from Central Bank of Nigeria statistical bulletins. The study employs the Ordinary Least Square and Granger Causality tests as estimation techniques. From the result, using the coefficient, Gross Domestic Product (GDP) is positive at constant of 2573.946. This means that when all variables are held constant, there will be a positive variation up to 2573.946 units in GDP. This implies that there is a significant and positive effect of financial inclusion on macroeconomic performance in Nigeria. It is concluded that Credit to the Private Sector as a ratio of GDP (CPS/GDP), Money Supply as a ratio of GDP (MS/GDP), and Numbers of Bank Branches (NBB) have a unidirectional relationship to GDP – while Currency Out Banks (COB), Interest Rate (INT) and Total Saving (TSA) are independent of GDP. The study therefore recommends that the government and the Central Bank of Nigeria should improve on the facilitation of credit to the private sector, and money supply should be properly managed. The Central Bank of Nigeria should encourage the provisions of more bank branches to rural and urban areas in order to promote easy access to financial services.

Keywords: *Financial inclusion, macroeconomic performance, number of bank branches, OLS*

1. Introduction

Financial inclusion entails the process that eases access, availability and usage of the formal financial system – to all the segments of an economy (Sarma & Pais, 2010). The features of financial inclusion particularly in the developing countries is of relevance to economic growth, and as such, policy-makers have expressed that financial inclusion can help poor households improve their lives and promote economic activity. The financial inclusive system facilitates the efficient allocation of productive resources and, at the same time, reduces the cost of capital and of the prevalence of informal financial institutions that are usually exploitative. Financial inclusion targets are to reduce the unbanked populace to formal financial system to give them the opportunity to access financial services – ranging from savings, payments and transfers to credit and insurance. Financial inclusion neither implies that everybody should make use of the supply, nor that providers should disregard risks and other costs when deciding to offer services. Nigeria reported that 39.2million adult Nigerians (46.3%) are financially excluded with regard to provision of banking and financial services. Thus only 31 million adult Nigerians are served with formal financial banking services (Friday, 2015).

The idea of these broad indicators of financial inclusion are based on the premise that in Africa, and with particular reference to Nigeria, it is not enough to have a bank account because unbanked or under-banked people, despite having access to formal financial institutions, usually do not use the financial services due *inter alia* to the remoteness of the bank branch, the cost of banking services like ATM charges, SMS alert charges and other ATM usage charges of ₦65, mobile bank-balance charges, drawer charges, transfer charges, stamp duties, etc. Some of the ways of encouraging and ensuring financial inclusion are circulation of deposit accounts, loans, insurance, and automated electronic transfers. As such, for any economy where most citizens are financially excluded and unbanked, the implication is perhaps that this is a threat to the economy (Friday, 2015). For instance, according to the Central Bank of Nigeria (CBN, 2009), about 83.9% of the total money in circulation is outside the banking system, and the banking sector accounts for an abysmally low 16.1% of the money in circulation (Friday, 2015). Presently, the Economic and Financial Crime Commission (EFCC) and whistle blowers have recovered some funds which are unbanked and the economic implications are telling for the monetary authority, citizenry and financial institutions. Nonetheless, this study examines the relationship between financial inclusion and macroeconomic performance in Nigeria. The remaining part of this work is divided into four sections. Section two deals with a review of the literature, section three focuses

on the research method, section four presents the empirical results and discussion of the findings, and section five concludes the study.

Financial Inclusion: Financial inclusion is defined as the access to and use of formal financial services. This implies that finance should be available to uses: accounts to receive income or transfers, savings accounts to store money safely and prudently, credit sources for personal or business borrowing, and insurance products to protect people during bad times. As The World Bank (2014) opined that financial inclusion could range from “access and use of services provided responsibly and sustainably” to “delivery of financial services at affordable costs to disadvantaged and low-income segments of society.”

Macroeconomic Performance: Macroeconomic performance includes indicators like GDP, unemployment rates, national income, price indices, and the interrelationships among the different sectors of the economy in order to better understand on how the whole economy functions. Macroeconomists develop models that explain the relationship between factors like national income, output, consumption, unemployment, inflation, savings, investment, international trade, and international finance. The well-established literature (summarized, for example, in Levine (2005) and Pasali (2013)) suggests that under normal circumstances, the degree of financial inclusion is positively correlated with growth and employment, and causally impacts on growth.

2. Literature Review

Migap, Okwanya and Ojeka (2015) studied the level of financial inclusion and its potential impact on an inclusive growth of the Nigerian economy, using relevant inclusive growth indices and indicators. The results revealed that the depth of financial inclusive is shallow even among African economies and more-so with emerging economies. It therefore recommends amongst others, the deployment of enhanced mobile banking and internet services by financial institutes to improve access to bank accounts and other services as well as the active participation of educational institutes in furthering financial literacy. Sarker, Ghosh and Palit (2015) investigated role of banking-sector to inclusive growth through inclusive finance in Bangladesh using simple linear regression model. The results suggest that banking sector's credits are significantly facilitating financial inclusion in Bangladesh. In addition; the study recommends some policy measures to overcome the challenges of financial inclusion with regards to the banking sector's initiatives in financing agriculture in Bangladesh. Friday (2015) examined financial inclusion and economic growth in Africa: insights from Nigeria from 1981 to 2013 using Ordinary Least Square as the estimation technique. The result revealed a high level of financial exclusion of bankable adult citizens in Nigeria, in particular, and in Africa in general. The study suggests a more inclusive financial system in Nigeria (and Africa) – with a focus on the rural populace, because “growth is good, sustained high growth is better and sustained high growth with financial inclusiveness is best of all”, and especially in a developing economy.

In a similar work of Abiola, Folasade, and Alexander (2015) employing Ordinary Least Square Regression Model for analytical purpose. Their findings revealed that financial inclusion is a significant element for factor of production and capital per worker which determines the final output level of the economy. Sarma (2012) evaluated the level of financial inclusion for 94 countries across the world from 2004 to 2010. Findings were that in 2009, of the 91 countries finally measured, Chad with an index of financial inclusion (IFI) value as low as 0.016 was the lowest financially inclusive country, while Cyprus with an IFI value of 0.996 ranked highest as the most financially inclusive country (Muneer et al., 2011). Then, in 2010, Afghanistan ranked lowest with an IFI value of 0.052, while Luxembourg with an IFI value of 0.996 was ranked highest. The study concludes that different countries around the world are at different levels of financial inclusion and exclusion, and recommends consistent use of the multidimensional approach to monitor the level of financial inclusion and exclusion in various countries as it is a good indicator of economic growth. Nwafor and Anyanwaokoro (2017) examined the impact of financial inclusion on economic growth in Nigeria for the period 2006 to 2015. Bivariate correlation analysis and other descriptive statistical tools were used.

Financial inclusion was found to be a positive and significant function of economic growth. Nigerian banks and other financial institutions should be encouraged to increase their number of branches and to deploy more ATMs and other e-payment services, in order to take financial services to areas not adequately reached–

especially the rural sector. The government and monetary authorities should create the enabling environment for them to do so. Mbutor and Ibrahim (2013) investigated the impact of financial inclusion on monetary policy in Nigeria from 1980 and 2012 using Ordinary Least Square and Co-integration as the estimation techniques. The results support the notion that growing financial inclusion would improve the effectiveness of monetary policy. However, the coefficient of the number of bank branches has the wrong sign and this is explained by the fact that, in opening branches, banks mainly pursue profits and not financial inclusion.

3. Methodology

Theoretical Framework: Circuit Theory Bossone (1998, 2000), in articulating the circuit theory of finance, incorporated a microeconomic dimension into the theory. Central to the circuit process is the complementary functions of banks and non-banking financial intermediaries in terms of originating money and making it circulate in a manner beneficial to all agents. The implication is that those financial systems where money and capital market functions are segmented but rudimentary or absent, as in many developing economies, they are prone to circuit malfunctioning and instability.

Selection of Period and Data Description: The period of the study covers 1981 to 2014. It is important to note that structural adjustment program (SAP) was ushered into Nigeria in 1986 to address the perceived economy imbroglio of the country. Its components include financial liberalization, interest rate liberalization and deregulation of the money and capital market, it is expected that these policies will bring about increase in the number of banks, banks' accessibility and financial inclusion. The period of the study captured both the pre and post liberalization periods to clearly see how it affected financial inclusion and how the economy performed during these periods. The chosen period is justified on the basis of the above points.

Table 1: Data description

Variable	Short form	Definition	Proxy
National gross domestic product growth rate	GDP gr	This is the rate at which the total monetary value of goods and services at current basic prices grow in the economy	Macro-Economic performance
Number of Bank Branches	NBB	This is the total number of indigenous bank branches excluding branches outside the country	Accessibility to Financial Institutions and financial inclusion
Money Supply to Gross Domestic Product	M2/GDP	Ratio of Money Supply by the monetary authority to the economy compared with total goods produced within the country.	Funds availability and financial intermediation
Credit to Private Sector to Gross Domestic Product	CPS/GDP	Ratio of Credit given to the production/real sector for investment compared to Gross Domestic Product	Investment
Currency outside Banks	COB	This is total unbanked money in the economy	Financial leakages that is the volume of unbanked money financial exclusion
Interest Rate	INT	This is the amount paid by the banks to the depositors or the opportunity cost for saving their money	Cost of fund to the bank/ cost of financial inclusion

Source: Authors' computation (2018)

Model Specification: The study adopts an econometric model in determining the causality links of financial inclusion with respect to macroeconomic performance in Nigeria. The study adopts a model similar to that used by Nwafor and Anyanwaokoro (2017) – which is specified below as:

$$Y_t = f(X_t) \dots\dots\dots 1 \text{Where}$$

Y = the dependent variable represented by Gross Domestic Product,

X = the independent variables represented by: Deposit Money Bank Branches (DMBB); Retirement Savings Accounts (RSA); Broad money supply to GDP (M2/GDP); Credit to Private Sector to Gross Domestic Product (CPS/GDP); Number of ATMs per 100,000 people (NATM); and Gross Savings Rate (GSR).

In stipulating the model for this research, the above model will be amended by adding to the explanatory variables. As a result, the new model adopted to underpin the research, is specified below as:

$$\text{GDPgr} = f(\text{NBB}, \text{M2/GDP}, \text{CPS/GDP}, \text{COB}, \text{TSA}, \text{INT}) \dots\dots\dots 2$$

$$\text{GDPgr} = \gamma_0 + \gamma_1 \text{NBB} + \gamma_2 \text{M2/GDP} + \gamma_3 \text{CPS/GDP} + \gamma_4 \text{COB} + \gamma_5 \text{TSA} + \gamma_6 \text{INT} + \epsilon_t \dots\dots\dots 3 \text{Where}$$

GDPgr represents Gross Domestic Product growth rate,

NBB represents Number of Bank Branches,

M2/GDP represents the ratio of Money Supply to Gross Domestic Product,

CPS/GDP represents the ratio of Credit to Private Sector relative to Gross Domestic Product,

COB represents Currency Outside Banks,

TSA represents Total Savings, and

INT represents Interest Rate

$\gamma_0 = \text{Constant}$

$\gamma_1 - \gamma_6 = \text{Shift parameters}$

f represents functional denotation

4. Results and Discussion

Table 2: Descriptive Analysis

	GDP	CPS_GDP	COB	INT	M2_GDP	NBB	TSA
Mean	17827.15	12.84335	1826.131	11.66349	17.25827	2947.714	2072.166
Median	4189.250	10.91669	156.7161	11.69083	16.56882	2362.000	200.0651
Maximum	94144.96	36.89332	7420.946	23.24167	37.95685	5807.000	12008.21
Minimum	94.32502	5.917133	3.861900	5.699167	8.577088	862.0000	6.562600
Std Dev.	28092.36	6.547699	2669.591	4.006678	5.838363	1582.014	3457.948
Skewness	1.688211	1.877912	1.198296	0.758806	1.655927	0.657230	1.684234
Kurtosis	4.405487	6.880788	2.780508	3.511568	6.868021	2.063961	4.595928
Jarque-Bera	19.50612	42.53481	8.446420	3.740403	37.81453	3.797463	20.26144
Probability	0.000058	0.000000	0.014652	0.154093	0.000000	0.149759	0.000040
Sum	623950.4	449.5173	63914.60	408.2222	604.0393	103170.0	72525.80
Sum Sq.Dev.	2.68E+10	1457.660	2.42E+08	545.8180	1158.941	85094153	4.07E+08
Observations	35	35	35	35	35	35	35

Source: Author's computation (2018)

The mean, median, maximum, minimum and standard deviation are presented in Table 1 above together with the normality test statistics like Skewness, Kurtosis and Jarque-Bera. The Skewness statistic reveals that all the variables were positively skewed. Kurtosis statistics reveal that GDP, CPS_GDP, INT, M2_GDP and TSA were leptokurtic (fat tailed), while COB and NBB were platykurtic (tin tailed). The Jarque-Bera (JB) test is also reported in the table. Based on the probability scores, the JB statistic result shows that all the variables were normally distributed – except for INT and NBB which were not normally distributed during the study period.

Unit Root Result: The Augmented Dickey Fuller (ADF) test was used to analyze stationarity of the variables. The results are presented in level and first difference.

Table 3a: Augmented Dickey Fuller Unit Root Test at Level

Variable	ADF Test Statistic	95% Critical Value	ADF	Remark
GDP	3.332824	-2.951125		Non-stationary
NBB	-0.062327	-2.954021		Non-Stationary
M2/GDP	-2.075021	-2.951125		Non-Stationary
CPS/GDP	-	-2.951125		Non-Stationary
	1.899665			
COB	-8.413328	-2.976263		Stationary
TSA	-0.267289	-2.960411		Non-Stationary
INT	-2.845594	-2.960411		Non-Stationary

Source: Author's Computation (2018)

Table 3b: Augmented Dickey Fuller Unit Root Test at First Difference

Variable	ADF Test Statistic	95% Critical ADF Value	Remark
DGDP	-3.999098	-2.954021	Stationary
DNBB	-4.312080	-2.957110	Stationary
DM2/GDP	-5.470327	-2.954021	Stationary
DCPS/GDP	-5.829786	-2.957110	Stationary
DTSA	-5.871264	-2.960411	Stationary
DINT	-3.447312	-2.963972	Stationary

Source: Author's Computation (2018)

Table 3c: Order of Integration

Variable	Order of Integration
GDP	I(1)
NBB	I(1)
M2/GDP	I(1)
CPS/GDP	I(1)
COB	I(0)
TSA	I(1)
INT	I(1)

Source: Author's Computation (2018)

Ordinary Least Square: Tables 3a,3b, and 3c (above) present the result of the unit root testing and the results show that all variables were stationary. Currency outside Banks (COB) was the only variable that is stationary at level or I(0) – while all other variables were stationary after converting them to first differencing or I(1).

Table 4 shows a regression result of financial inclusion and macroeconomic performance in Nigeria. As specified above, the results were acquired using Ordinary Least Square (OLS) which tests short-run equilibrium of the variables. The results reveals that the Coefficient of Multiple Determinant(R^2) was considered high in this study with over 97%; the adjusted R-square was also over 97%; the Durbin-Watson statistic; and the F-test, were significant at the 5% level of significance. The equation reveals that some signs were not in line with expectation. From the result, TSA was the only variable in line with expectation, while other variables also did not conform with the expectation in the model. From the result, the coefficient of the variables showed different results– representing the financial inclusion contributions to macroeconomic performance in Nigeria (GDPgr).

Table 4: OLS Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2573.946	21257.66	0.121083	0.9045
CPS_GDP	-550.3142	466.2632	-1.180265	0.2482
INT	147.6357	214.6926	0.687661	0.4975
M2_GDP	-612.6581	389.2338	-1.574010	0.1271
NBB	-4.706515	2.295448	-2.050368	0.0502
TSA	1695.218	2144.112	0.790639	0.4360
COB	13.72998	1.044044	13.15077	0.0000
R-squared	0.979460			
Adjusted R-squared	0.974895			
F-statistic	214.5826	Durbin-Watson stat		1.261453
Prob(F-statistic)	0.000000			

Source: Author's computation (2018)

In this result, using the coefficient, GDPgr is positive at a constant of 2573.946. This means that when all variables held constant, there will be a positive variation up to 2573.946 units in GDPgr. Implying that there is significant and positive effect of financial inclusion on macroeconomic performance in Nigeria. The result equally reveals that the regression coefficient of Credit to Private Sector/GDP (CPS_GDP) in GDPgr is -550.3142, and its P-values are 0.2482. This implies that CPS has a negative and insignificant impact on macroeconomic performance (GDPgr) in Nigeria. The negative signed coefficient of CPS_GDP. The regression coefficient of Interest Rate (INT) in GDPgr is 147.6357, and its P-values are 0.4975. This implies that INT has a positive and insignificant impact on GDPgr in Nigeria. The regression coefficient of Money Supply/GDP (M2_GDP) in GDPgr is -612.6581, and its P-values are 0.1271. This implies that M2_GDP has a negative and insignificant impact on GDP in Nigeria. The coefficient of Number of Bank Branches (NBB) in GDPgr is -4.706515, and its P-values are 0.0502.

Lag Length: This implies that NBB has a negative and significant impact on GDPgr in Nigeria. The coefficient of Total Saving (TSA) in GDPgr is 1695.218, and its P-values are 0.4364. This implies that TSA has a positive and insignificant impact on GDPgr in Nigeria, the regression coefficient of Currency outside Banks (COB) in GDPgr is 13.72998, and its P values are 0.0000. The OLS equation shows that COB has a positive and significant impact on economic development in Nigeria. The lag-length selection results in Table 4 indicate that Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hanann Quin (HQ) all suggested 3 lags. These lags are followed in the next regression (Granger Causality).

Table 4: Lag Length Selection Criterion

Lag	LogL	LR	FPE	AIC		HQ
0	-1326.906	NA	3.80e+27	83.36915	83.68978	83.47543
1	-1149.018	266.8321	1.30e+24	75.31364	77.87868	76.16388
2	-1055.211	99.67028	1.28e+23	72.51319	77.32263	74.10738
3	-899.6934	97.19847*	8.32e+20*	65.85584*	72.90969*	68.19399*

Source: Author's computation (2018)

Granger Causality: In Table 5 (above), there is a unidirectional relationship between CPS_GDP and GDPgr which implies that CPS_GDP can influence GDPgr. M2_GDP reveals that there is a unidirectional relationship to GDPgr which implies that M2_GDP can cause the variation to GDPgr, while NBB equally depicts a unidirectional relationship to GDPgr. Based on the above result, COB, INT and TSA move independently to GDPgr– meaning there is a causality link among the variables to GDPgr.

Table 5: Granger Causality Result

CPS_GDP does not Granger Cause GDPgr	32	21.0793	5.E-07
GDPgr does not Granger Cause CPS_GDP		5.16233	0.0065
COB does not Granger Cause GDPgr	32	45.2718	3.E-10
GDPgr does not Granger Cause COB		2.17644	0.1159
INT does not Granger Cause GDPgr	32	0.11206	0.9522
GDPgr does not Granger Cause INT		0.78773	0.5121
M2_GDP does not Granger Cause GDPgr	32	10.4720	0.0001
GDPgr does not Granger Cause M2_GDP		2.48154	0.0842
NBB does not Granger Cause GDPgr	32	5.17635	0.0064
GDPgr does not Granger Cause NBB		1.68972	0.1947
TSA does not Granger Cause GDPgr	32	15.3148	7.E-06
GDPgr does not Granger Cause TSA		24.0993	2.E-07

Source: Author's computation (2018)

5. Conclusion and Recommendations

This study examined short-run relationship between financial inclusion and macroeconomic performance in Nigeria. It concluded that financial inclusion has a high influence on macroeconomic performance in Nigeria. It also concluded, from the analysis presented above, that credit to the private sector as a ratio of GDPgr, money supply as a ratio of GDPgr, and numbers of bank branches have a unidirectional relationship with macroeconomic performance, while currency out banks (COB), interest rate (INT) and total savings(TSA) move independently. It is recommended that the government and Central Bank of Nigeria including Banks are urge to reduce most of these charges discouraging access to financial services thereby increases financial inclusion. It is also recommended that the Banks and the Banking regulators should continuously organize sensitization programs to facilitate credit to the private sector in both rural and urban areas. It is also recommended that money supply should be properly managed. Furthermore, the Central Bank of Nigeria should encourage the provisions of more bank branches to rural and urban areas to promote easy access of financial services

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