Determinants of Financial Inclusion in Nigeria

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Abstract: *This study examines the determinants of financial inclusion in Nigeria. This was aimed at ascertaining the level of financial access in Nigeria. Thus, supply side data spanning 2000 to 2018 were collated for estimation. The data were sourced from the World Development Indicators and Central Bank of Nigeria databank. The time series data were estimated using ordinary least square technique. This study examines the determinants of financial inclusion in Nigeria. This was aimed at ascertaining the level of financial access in Nigeria. Thus, supply side data spanning 2000 to 2018 was collated for the estimation. The time series data were estimated using the error correction technique. The findings indicates that commercial bank branches and deposit interest rate exert a negative and insignificant impact on financial inclusion.Further results indicate that domestic credit to private sector (% of GDP),ratio of rural deposits to loans and lending interest rate exert a positive and significant impact on financial inclusion. The evidence further indicate thatgross domestic product per capita bears a positive and insignificant consequence on financial inclusion.The study concludes that domestic credit to private sector (% of GDP), ratio of rural deposits to loans and lending interest rate are the determinants of financial inclusion in Nigeria. The study suggests for lending interest rate to be made attractive to encourage continuous access to loanable funds in the market. The target therefore should be aimed at cultivating a conducive financial system that upholds financial access driven rates. That is, rates (that are not too low or excessive) that would encourage economic agents to save and borrow to spur economic activity.*

Keywords: *financial inclusion, financial access, ratio of rural deposits to loans, number of bank branches, Nigeria*

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I. Introduction

The availability, accessibility and affordability of financial products and services are integral in the mobilization and allocation of funds by financial intermediaries. Several studies have shown that the conduit between the surplus units and deficit units propagated by financial intermediaries better the lots of the micro and macro economy. The velocity of this impact is hinged on the proportion of funds mobilized from the surplus sectors which is predicated on the efficacy of the intermediation process. This connotes that the absence or lack of access and high cost of financial products and services could impair the intermediation process and the benefits therein.No doubt, financial exclusion which is a poster child of lack of access to affordable financial product and services by the low income group hampers capital accumulation, availability of loanable funds and investment.

Strategies of inclusive finance create avenues to integrate and develop financial products and services thatmeet the needs of all the members of the society.This connotes that financial inclusion is aimed at tailoring variety of financial products and services that meeting the day-to-day unique needs of households, firms and the economy. This breeds competition and innovation, which leads to affordable financial service. Financial inclusion therefore, increases the aggregate propensity to save, loanable funds, investible funds,pension, general insurance and various types of financial instruments(Kama & Adigun, 2013; Efobi et al., 2014; Central Bank of Nigeria, 2018). This invariably cultivate a solid foundation for inclusive economic growth and standard of living of the entire population (Makina & Walle, 2019; Efobi et al., 2014; Kama & Adigun, 2013; Zins & Weill, 2016).

Records indicate thatonly 39.6% of Nigeria's adult populationhave bank accounts while 36.8% of Nigeria's adult population are not financially included; this is about 36.6m people (Enhancing Financial Inclusion & Access, EFInA, 2018). At the global level, it is reported that about 50% of the global population does not have abank account in a conventional financial establishment(Demirguc-Kunt & Klapper, 2012). This presents a huge opening to pool idle funds into the formal financial sector and transform them into investible funds to stimulate investment, capital formation and economic growth (Kama & Adigun, 2013). Suffice to say that inclusive finance also attracts swift payments and remittances of funds via the financial system. For

instance, banks stand to accumulate deposit liabilities that would enhance and sustain their credit creationcapabilities. This is the case because it gives room for the integration of idle funds from ruralsettlements which make up a huge proportion (i.e. 66.3% of the 99.6 million adult population) ofthe unbanked in Nigeria (Kama & Adigun, 2013; EFInA, 2018). Poverty, low educational development and illiteracy, deficiency in financial technology (Fintech), poor innovation and competition, corporate governance challenges and high cost of banking are all adduced as reasons for financial exclusion and under-development(Triki & Faye, 2013).

Following these, several measures have been instituted to broaden the level of financial inclusionin order to accumulate funds outside the banking system and instil a culture of effecting transactions via the financial superstructure in Nigeria. Some notable measures include the introduction ofrural banking by the Central Bank of Nigeria in 1977, guidelines on the allocation of funds to small ventures and rural areas by the Central Bank of Nigeria, the establishment of People's Bank in 1989 and Community Banks in the 1990s to cultivate savings and banking culture(Kama & Adigun, 2013). Furthermost strategies of financial inclusion of note are: the Financial System Strategy (FSS2020) aimed at widening the range of financial instruments, savings, effective remittance and credit system; the the National Microfinance Policy of 2005 to cater for the financial needs of the poor and low income earners;the non-interest banking framework of 2011;the cashless policy of 2012 and various medias of electronic banking like automated teller machines and post of sales terminals (Central Bank of Nigeria, 2018; Efobi et al., 2014; Kama & Adigun, 2013; Bayero, 2015; Aro-Gordon, 2016).

Irrespective of these measures of financial integration, a manifest protion of the universe of people in Nigeria are excluded from the formal financial system. This is evident as huge amount ofcurrency is outside the tills and vaults of banks and financial transactions are mostly cash centred. This implies that access and usage of financial services is still a major concern to policy-makers given the strategic role it plays in capital accumulation, provision of investible funds, capital formation and inclusive growth. Several empirical studies have upheld the catalystic role of inclusive finance (see Nwafor & Yomi, 2018;Ageme, Anisiuba, Alio, Ezeaku, & Onwumere, 2018; Olaniyi, 2017; Fadun, 2014).Given the catalystic role of financial inclusion, it is vital to ascertain the determinants of inclusive finance to cultivate informed policy making in Nigeria. This is significant on sundry levels; (1) available extant literature is abound with cross-country studies which may not have captured the demographic attributes and macroeconomic dynamics of the individual members of the sample; (2)there are few studies on the underpinnings of access and usage of financial products and services in Nigeria. Thus, this country-specific study would be a valuable addition to the universe of extant literature on the determinants of financial inclusion (likeAllen, Demirguc-Kunt, Klapper & Peria, 2016;Evans and Adeoye, 2016; David, Oluseyi & Emmanuel, 2018; Poonam & Chaudhry, 2019, etc.). Policy makers also stand to have a clear insight of the drivers of financial inclusion that would inform purposeful strategy tailored to increase availablity, access and affordable financial products and services in Nigeria. Inclusive finance is not an end in itself, but rather a means to an end; thus, it is vital to understand the nucleus of financial access and usage in order to design policies of financialization that would in the long run cultivate sustainable and inclusive growth in Nigeria.

The remainder of the paper is structured as follows; section 2 presents review of related empirical studies, section 3 describes the methodology of the study, section 4 presents results and findings and section 5 and 6 presents the concluding remarks and recommendations of the study.

II.   Review of Empirical Studies

The central theme of inclusive finance theory holds that broad access and affordable financial products and services would enable economic agents to better manage their day-to-day economic endeavours and the lots of the entire economy. Several empirical studies have been carried out in this regard. However, this section is an exploration related empirical studies of the underpinnings of financial inclusion.

Evans and Adeoye (2016) investigated the contributing determinants of financial inclusion in Africa spanning 2005 to 2014. Historical data for 15 African countries were collated from the World Development Index for the analyses and estimation using dynamic panel regression technique. The study adopted number of depositors with commercial banks per 1,000 adults as the dependent variable and gross domestic product per capita, broad money supply (M_2) to GDP, the ratio of credit to the real sector to GDP, inflation, number of people with internet access, internet servers, adult literacy rate, population, savings rate and a dummy for Islamic banking as explanatory variables of the study. The results indicate that GDP capita income, broad money to GDP, level of literacy, access to internet and dummy of Islamic banking are key determinants of financial inclusion. It also emerged that the proportion of credit to the real sector to GDP, savings rates, inflation and population are inconsequential determinants of financial inclusion in Africa.

David, Oluseyi and Emmanuel (2018) examined the determinants of financial inclusion in Nigeria. Time series data spanning 1990 to 2016 were collated and estimated using errror correction technique. The dependent variable is the number of depositors with deposit money banks per 1,000 adults, while the

independent variables are gross domestic product per capita, the ratio of broad money supply to gross domestic product, credit to micro, small and medium enterprises and internet users. The study found that gross domestic product per capita, the ratio of broad money supply to gross domestic product, credit to micro, small and medium enterprises and internet users are significant determinants of financial inclusion in Nigeria.

Akudugu (2013)examined the financial inclusion with the aim of ascertaining the factors predicting financial inclusivenessin Ghana. To achieve this, primary data from one thousand adult population were collated and estimated using a logit model. The results found age, literacy, proximity to banks, lack of confidence in the financial sector, poor recordkeeping, poverty and shared networks as key factors of financial inclusion in Ghana. The study conclude that financial inclusion in Ghana is poor; in that in a universe of five persons only two are financially included in the formal sector.

Akileng, Lawino, and Nzibonera (2018) examined the factors determining financial inclusion in Uganda. Cross sectional survey design was adopted with universe of adult rural and urban inhabitants in Uganda. Data were collated using structured questionnaire which was estimated using multiple regression. The study found financial literacy, age, and income to be significant determinant of financial inclusion, while education and gender are insignificant in Uganda.

Soumar, Tchana and Kengne (2016) examined the determinants of inclusive finance in Central and West Africa. Data from 18 countries were collated from the World BankGlobal Financial Inclusive (Global Findex) databank. The study identified Ownership of account, savings and frequency proxies of financial inclusion and built three models using the same set of explanatory variables; which includes gender, educational level, age, the income level, residential area, employment standing, marital statusand family size. The models were estimated using the multiple regression technique. The study found that inclusive finance in both regions are significantly determined by employment, education, age, income, gender, residential area, marital status and family size.

Abel, Mutandwa and Roux (2018) investigated the determinants of inclusive finance in Zimbabwe. A logit model was built and estimated to identify the determinants of inclusive finance. It emerged that public confidence in the financial system, age, education, literacy, income, and access to internet as significant determinants for financial inclusion. Proximity to financial institution and documents required for account opening are insignificant determinants of financial inclusion in Zimbabwe.

Poonam and Chaudhry (2019) seek out to examine the factors determing inclusive finance in India. The study based on primary data collected via questionnaire. The sample size of the study is 411 family units. The model was estimated using logit regression technique. It emerged that age, gender and occupation has a negative insignificant impact on savings. Education, cast and land ownership were positive but insignificant. The study concludes that income is a positive significant determinant of savings the measure of inclusive finance in the study.

Abrol and Kaur (2018) examined the factors determining financial inclusion in Jammu and Kashmir States in India. To achieve this, primary data were collated via structured questionnaires. The sample size for the study is four districts with 100 respondents each with a total sample size of 400. The principal component analysis technique was used for the estimation. The results indicate that bank credit, bank service, financial access, income, savings, health insurance, use of financial services and availability of agency banking as determinants of financial inclusion.

Asuming, Osei-Agyei and Mohammed (2019)investigated the determinants of inclusive finance in thirty-one Sub-Saharan African nations. Data spanning 2011 to 2014 was sourced from the Global Findex repository of the World Bank, World Development indicators and Heritage Foundation. The objective of the paper was to ascertain account ownership, level of savings and borrowing as measures of inclusive finance on micro-level variables of level of education, age, gender and wealth status and that of macro variables of IT infrastructure, GDP per capita, the spread of ATM machines, rural population and ease of doing business.The study built a probit model and estimated the model using the ordinary least square technique. The study found and concluded that the micro-level variables GDP per capita, the spread of ATM machines and ease of doing business are significant determinants of inclusive finance.

Yakubu, Dinye, Buor and Iddrisu (2017) set out to ascertain the determinants of financial inclusion in North Ghana. Data for the study were collected via structured questionnaires. Specifically, the data was collated from 395 repondents. A discriminant function was built and estimated. The study found age, cost, capability, literacy, distance and employment as key determinant of inclusive finance in Northern Ghana.

Lotto (2018) investigated the determinants of financial inclusion in Tanzania. Data for the study were obtained from TWAWEZA's household survey. A probit model was built and estimated using the multiple regression technique. The study found and concluded that income level, age, educational status and gender are key determinants of inclusive finance in Tanzania.

Anarfo, Abor and osei (2019) investigated the effect of regulation of financial institutions on inclusive finance in Sub-Saharan Africa. Secondary data were collated from International Financial Statistics and Global

Financial Development spanning 1990 to 2014. The dependent measure is inclusive financial index (FINDEX) made up of number of bank accounts, number of automated teller machines, borrowers from commercial banks, number of bank branches, number of depositors with commercial banks and number commercial bank branches. The explanatory variables are capital adequacy ratio, bank z-score, financial regulation and stability interactive term, the proportion of lending to deposit, boone indicator and the ratio of non-performing loans to the total loan portfolio of banks. The stduy employed a mixed effect regression model.The study found that capital adequacy is an insignificant determinant of inclusive finance. It also emerged that financial regulation with financial stability is a significant determinant of inclusive finance. Boone indicator an indicator of competitionwas found to be a significant determinant of financial inclusion. Bank lending to deposit ratio and NPLs was found to be a nonlinear but significant determinant of inclusive finance in Sub-Saharan Africa.

Allen, Demirguc-Kunt, Klapper and Peria (2016) examined the determinants of financial inclusion. The objective of the study is to identify individual and country specific attributes of inclusive finance. Panel data were collated from 123 countries in theGlobal Findex repository of 2011. The study employed multiple regression technique to estimate the model. The estimated model found that nearness to banking services, political stability, low cost of operating accounts and improved legal rights as key determinants of financial inclusion.Furthermore, the study found that rural dealers, indigent and young people are the most likely groups to be financially excluded from financial inclusion policies.

Bayero (2015)used a cross sectional survey design to examined the effect of cashless policy on financial inclusion in Nigeria. The specific objective is to determine the influence of the explanatory varaibles; business model, awareness, customer value and infrastructure on financial inclusion in Nigeria. Primary data were collated from a sample group of working age adults comprising of 230 respondents. The data were estimated using the multiple ordinary least square technique. The study found that business model, awareness, customer value and infrastructure has a significant impact on financial inclusion in Nigeria.

Efobi, Beecroft and Osabuohien (2014) investigated the use and access to bank financial services in Nigeria. The objective of the paper was to ascertain key indicators of inclusive bank finance in Nigeria. Historical data were collated from the World Bank Findex data repository of 2011.The dependent metrics of the study are the usage of banking financial services, account usage – savings and withdrawals. The independent metrics used are age, income, penchant for IT use, gender, education and financial discipline. A probit model was built and estimated using multiple regression. The results indicate that the major determinants of inclusive finance are age, income and individuals with the penchant for IT use. Other variables were found to be insignificant.

Zins and Weill (2016)investigated the contributing factors of inclusive finance in 37 Africa countries. Data for the study were surveyed from the Global Findex data repository of the World Bank (2014). A probit model was developed and estimated. The study found educated and rich adult males are vastly disposed to be financially included.

Gebregziabher and Daniel (2019) examined the macroeconomic determinants of financial inclusion in 27 African nations. Panel data were sourced from the World Development indicators of the World Bank and the Financial Access Survey of the International Monetary Fund spanning 2004 to 2013. The dependent variable is Findex while the independent variables are GDP per capita, domestic credit to the public sector and mobile phone data subscription and the ratio of rural population. The panel model was estimated using GMM. The results indicate that GDP per capita and mobile phone data subscription are significant determinants of inclusive finance in Africa. However, public sector borrowing was found to be an insignificant contributor to financial inclusion in Africa.

Makina and Walle (2019) used a panel data of 42 Africa countries to examined the relationship between financial inclusion and economic growth. Historical data werecollated from the World Development Indicators spanning 2004 to 2014. The dependent measure of the study is real GDP per capita while the explantory metrics are the proportion of credit to the real sector to gross domestic product, number of branches per a thousand individuals, proportion of governement consumption to gross domestic product, ratio of enrolees in primary school education and the ratio of total trade to gross domestic product. The estimation was done using the GMM. The study found that inclusive finance stimulates economic growth in Africa.

Lanie (2017) set out to ascertain the determinants of financial inclusion in the West African Economic and Monetary Union. Data was obtained from the World Bank 2014 Global Findex archive. The study found gender, employment position, educational and income level as determinants of financial inclusion in the economic block.

Nandru, Byram and Rentala (2016) examined the determining factors of financial inclusion in India. Account ownership is the dependent indicator while income, sex, age, employment status and ones level of education are the explanatory measures. Primary data were collated using structured questionniare from 98 respondents in Pondicherry region. The qualitative data were estimated using binary logistic regression. The

results found status of employment and income level linear measures of financial inclusion in India. The other variables were found to be negative and insignificant.

Lema (2017)investigated the factors influencing the adoption of mobile financial services in the unbanked population. A cross-sectional research design and structured questionnaires were used to collate from 250 respondents. The key variables of the study are usefulness, ease of use, trust, cost, risk and social influence. A structural equation model was built and estimated using the multiple regression technique. The estimates indicate that the explanatory variables have a significant impact on mobile financial services.

III.   Methodology

As earlier stated, the objective of this study is to ascertain the determinants of financial inclusion in Nigeria. To achieve this, the study employed quantitative method in conjunction with the ex-post facto research design in order to ensure quality and clarity of data that will beanalyzed and also take into cognizance the avoidance of bias in presentation of findings.

Secondary time series data spanning 2000 to 2018(18 years interval) were sourced from surveying World Bank's Development Indicators and Central Bank of Nigeria data repository to investigate the study components in retrospect. The data set collated are supply side statistics. They serve as a barometer to measurethe availability of various financial products and services that economic agents can buy.

Specifically, the variables of the study are number of depositors with commercial banks (per 1,000 adults) as the dependent variable, the explanatory variables include,GDP per capita,domestic credit to private sector by banks (% of GDP), lending interest rate, deposit interest rate, commercial bank branches (per 100,000 adults)andthe ratio of rural deposits to loans. Aside GDP per capita, the other variables"refers to accessibility and corresponds to the range of financial services that are available to, or that can be mobilized by, customers."(Irving Fisher Committee on Central Bank Statistics, 2015).

The multiple regression technique was employed to estimate the hypothesized determinants of financial inclusion. That is, the study assumes that number of depositors with commercial banks (per 1,000 adults) is a function of GDP per capita,domestic credit to private sector (% of GDP), lending interest rate, deposit interest rate, commercial bank branches (per 100,000 adults) and the ratio of rural deposits to loans.
The functional relationship between the dependent variable and the explanatory variables is expressed as:
$$FIN = f(CAPG, DCPS, LIR, DIR, CBC, RRDL)$$
This is econometrically expressed as follows;
$$FINt = \beta_0 + \beta_1 capGt + \beta_2 DCPSt + \beta_3 LIRt + \beta_4 DIRt + \beta_5 CBCt + \beta_6 RRDLt + Et$$
Where;
B_0 is the intercept of the model, $\beta_1 - \beta_6$ are the coefficients of the explanatory indicators, time series and E is the error term of the model.
FIN is number of depositors with commercial banks (per 1,000 adults).
CapG is GDP per capita.
DCPS is domestic credit to private sector (% of GDP).
LIR is lending interest rate.
DIR is deposit interest rate.
CBB is commercial bank branches (per 1,000 adults).
RRDL is ratio of rural bank deposits to loans.
The Augmented Dickey-Fuller test is employed to solidify the time series first before theyare estimated at their orders of integration. This is to avoid spurious results and estimates.
Furthermore, the Johanson cointegration test was employed to ascertain whether long run equilibrium relationship exist in the model. The existence of a single long run equilibrium relationship gives econometric credence to carryout the error correction process.

IV.   Econometric Results
4.1   Descriptive Statistics
Table 1 presents the unique features of the variables of the study.
Table 1: Descriptive statistics of the variables of the study

	FIN	RRDL	LIR	DLR	DCPS	CBB	CAPG
Mean	617.8992	3.166667	16.90898	9.076144	15.06110	5.559176	2345.166
Median	647.4563	0.160000	16.85859	9.242917	14.41483	5.710623	2390.633
Maximum	1013.280	23.13000	18.99083	12.95833	22.28930	6.563825	2563.900
Minimum	296.1495	0.000000	15.13583	5.692500	10.94885	4.300079	1993.097
Std. Dev.	223.1605	6.823599	0.920743	2.072171	3.403979	0.811607	181.4799
Skewness	0.237315	2.370448	0.397386	0.227154	1.050731	-0.244520	-0.693186
Kurtosis	2.208250	7.357979	4.097390	2.538993	3.183990	1.649439	2.440427

Jarque-Bera	0.426070	20.73404	0.917964	0.209462	2.224999	1.031589	1.117575
Probability	0.808128	0.000031	0.631927	0.900567	0.328736	0.597026	0.571902
Sum	7414.790	38.00000	202.9077	108.9137	180.7332	66.71011	28141.99
Sum Sq. Dev.	547806.6	512.1765	9.325438	47.23284	127.4578	7.245758	362284.6
Observations	12	12	12	12	12	12	12

The descriptive statistics indicate the observations are equal. The mean of the variables are; Fin (617.8992), RRDL (3.166667), LIR (16.90898), DLR (9.076144), DCPS (15.06110), CBB (5.559176) and CAPG (2345.166). Jarque-Bera statistics shows that, aside ARRDL which is statistical zero, all the other variables normally distributed. The descriptive analyses further indicate that, aside CBB and CapG, all the other variables are positively skewed.

The standard deviation captured the variability of the distribution of the measures of the study. The descriptive analyses indicate as follows; FIN (223.1605), RRDL (6.823599), LIR (0.920743), DLR (3.403979), DCPS (3.403979), CBB (0.811607) and CAPG (181.4799). Comparatively, the values indicate that, aside RRDL which dispersed above the middle and mean value – this is noticeable a benign variation. All the other variables are noticeable dispersed below and around their median values.

4.2 Augmented Dickey-Fuller Statistics
Table 2 presents the summary unit root test statistics

Table 2: Summary Augmented Dickey-Fuller Test Results

Variables	ADF Statistics	Critical Value @ 5%	Decision
FIN	-3.471066	-3.212696	I(1)
RRDL	3.852177	-3.081002	I(1)
LIR	-4.700054	-3.052169	I(1)
DLR	-4.225300	-3.052169	I(1)
DCPS	-3.013469	-1.964418	I(1)
CBB	-2.352763	-1.970978	I(1)
CapG	-3.710482	-3.542578	I(1)

The summary results indicate that all the variables are stationary at their first difference. This is symbolized as I(1).

4.3 Johanson Co-integration Test Results
Table 3 presents the Johanson co-integration test results of the study.

Table3: Summary Johanson co-integration Results

Sample (adjusted): 2001 2018
Included observations: 18 after adjustments
Trend assumption: Linear deterministic trend
Series: FIN DLR DCPS CBC CAPG LIR RRDL
Lags interval (in first differences):
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.970571	165.5826	125.6154	0.0000
At most 1 *	0.864841	102.1187	95.75366	0.0170
At most 2	0.821240	66.09528	69.81889	0.0956
At most 3	0.684825	35.10445	47.85613	0.4425
At most 4	0.350911	14.32113	29.79707	0.8221
At most 5	0.266947	6.541796	15.49471	0.6314
At most 6	0.051521	0.952124	3.841466	0.3292

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The summary test results indicate the existence of long run equilibrium relationships in the model. Specifically, the summary test results indicate the existence of 2 co-integrating relationships in the model. This invariably gives econometric credence to carry out the error correction process.

4.4   Error Correction Results
Table 5 presents the results of the error correction process estimated using the least square technique.

Table 4: Error Correction Results

Dependent Variable: D(FIN)
Method: Least Squares
Date: 11/13/19   Time: 15:47
Sample (adjusted): 2002 2018
Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	48.83185	26.69039	1.829567	0.1006
D(DLR)	-6.536400	9.750272	-0.670381	0.5194
D(DCPS)	17.88371	6.249677	2.861541	0.0187
D(CBB)	-12.63324	14.72591	-0.857892	0.4132
D(CAPG)	0.119292	0.336276	0.354743	0.7310
D(LIR)	35.16247	10.87655	3.232871	0.0103
D(RRDL)	14.73130	6.396487	2.303030	0.0468
ECM(-1)	-0.861496	0.359765	-2.394610	0.0403

R-squared	0.729152	Mean dependent var		59.60472
Adjusted R-squared	0.518493	S.D. dependent var		83.91161
S.E. of regression	58.22686	Akaike info criterion		11.27176
Sum squared resid	30513.30	Schwarz criterion		11.66386
Log likelihood	-87.80995	Hannan-Quinn criter.		11.31073
F-statistic	3.461287	Durbin-Watson stat		2.128249
Prob(F-statistic)	0.043605			

Table 4 x-rays the possible determinants of financial inclusion in Nigeria. The adjusted coefficient of determinant indicated that 51% variation in the dependent variable is explained by the explanatory variables used in the study. This implies that the remaining 49% of variation is not captured in this study. The adjusted R^2 coefficient further indicates that the model is well fitted. This is corroborated by the DW statistics of 2.128249 (which is approximately 2); indicating that there is no first order serial autocorrelation. Additionally, the indicator of the statistical significance of the entire model (the Fisher's ratio) signalled that the model is statistically significant. Furthermore, the coefficient of the error correction term is negative. This implies that the model has capacity to adjust and return periodically to equilibrium. Specifically, the coefficient showed that there is a 86% fast speed of adjustment to equilibrium. This further indicates that the model is fit and adequate for the purpose of the study.

More precisely, the explanatory variables aver as follows;

Deposit interest rate (DLR), which captures the cost of attracting deposits on savings account, certificates of deposits and other deposits aside currrent account deposits indicated that the rate exert a negative impact on account ownership. Although the measure of significance indicated that the impact is insignificant. This is indicative of the fact that, the coefficient of deposit interest rate is negative and the p-value is above the 5% acceptable level of significance. This finding is consistent with the study of Evans and Alenoghena (2017). The study found deposit interest rates does not have any meaningful consequence on financial inclusion in Africa. The study aver that deposit interest rate does not have the capacity to attract new accounts and repeated deposit, however, this variable is an insignificant determinant of financial inclusion. Thus, to attract savings and deposits, it is imperative to offer rates and products that are enticing to retain and create new accounts.

Domestic credit to private sector (% of GDP), which captures the proportion of credit allocated to real sector activity posed that the variable exerted a Positive and significant impact on the measure of financial inclusion in Nigeria. This is indicative of the fact that, the coefficient of domestic credit to private sector (% of GDP) is positive and the p-value is below the 5% tolerable level of significance. This goes to say that credit to the private sector stimulate output growth and financial inclusion in Nigeria.   This gives further credence to the assumption that firms and the real private sector are constrained of funds and that the accumulation of idle funds from the unbanked population (which forms a good portion of Nigeria's population) would in turn enable banks to make available loanable funds and credit to private sector activity that stimulates and shifts the production possibility frontiers of a nation outward. This follows closely the findings of significance by

Gebregziabher and Daniel (2019) and David, et al. (2018). However, Evans and Adeoye (2016) study found the variable to be an insignificant determinant of financial inclusion.

Commercial bank branches (CBB), which capture the spread of bank branches indicated that the spread exert a negative impact on account ownership. This was however found to be statistically insignificant. This is indicative of the fact that, the coefficient of commercial bank branches is negative and the p-value is above the 5% bearable level of significance. This implies that the spread of bank branches and the financial services they render stimulate financial access at an insignificant rate. It is expedient to note that there are few bank branch networks in rural areas which constitute a large number of Nigeria's population and constitute a large number of the universe of the unbanked in Nigeria. This could be a possible reason why this variable exerts statistical insignificant impact on financial inclusion. Makina & Walle (2019) found that this variable has a significant impact on financial inclusion.

Gross domestic product per capita, which captures the economic wellbeing of the people of a country indicated that GDP per capita exert a positive but insignificant impact on account ownership in Nigeria. This is informed by the fact that the coefficient of GDP per capita is positive and the p-value is above the 5% level of significance. This signifies that GDP per capita has the capacity to intensify the financial inclusion agenda of a nation if the productive capacity of the nation is adequately propagated. This implies that as the economic wellbeing of the people of Nigeria improves so does their capacity to access and use financial products and services. Evans & Alenoghena (2017), Asuming et al. (2019), Gebregziabher and Daniel (2019), and Makina and Walle (2019) found that GDP per capita exert a significant impact on the measure of financial inclusion. However, this was found to be insignificant in this study.

Lending interest rate (LIR), which captures the cost of accessing credit showed that the rate bears a positive and significant consequence on financial inclusion. This is as a result of the positive coefficient of the variable and a p-value that is below the 5% acceptable level of significance. This is extremely startling in that, lending interest rates has been a major impediment to access to loanable funds from formal financial houses in developing countries. Theoretically, it can be averred that high lending interest rates hamper access to investible funds, and in like manner, low interest rates could accelerate access to loanable funds and thus financial inclusion. This position was empirically tested by Evans (2017), who found that interest rates impair financial inclusion in Nigeria.

The ratio of rural deposits to loans (RRDL), which is an indicator of how well banks located in rural areas attract deposits and sell loans to their customers indicated that the ratio bears a positive consequence on financial inclusion. This was indicated by the positive coefficient of the variable and a p-value that is below the 5% threshold of significance. This signals the ability of rural bank branches to attract deposits and allocate same as loans to the rural populace. This is even as it is widely held that the economic fortunes of rural dealers are deplorable and thus, their banking habits. Suffice to note that proximity to banking and financial services in rural areas is nearly lacking. Irrespective of this, the study found that increasing bank financial services, deposit liability mobilization and allocation via loans and advances stimulates financial inclusion of the unbanked in Nigeria. Anarfo, Abor and osei (2019) found this variable to be negative and statiscally significant determinant of financial inclusion in Sub-Saharan Africa.

V.   Conclusion

This study examines the determinants of financial inclusion in Nigeria. This was aimed at ascertaining the level of financial access in Nigeria. Thus, supply side data spanning 2000 to 2018 was collated for the estimation. The time series data were estimated using the error correction technique. The findings indicates that commercial bank branches and deposit interest rate exert a negative and insignificant impact on financial inclusion. This stand to suggest that financial inclusion is peripheral in Nigeria. Further results indicate that domestic credit to private sector (% of GDP), ratio of rural deposits to loans and lending interest rate exert a positive and significant impact on financial inclusion. The evidence further indicate that gross domestic product per capita bears a positive and insignificant consequence on financial inclusion.The study concludes that domestic credit to private sector (% of GDP), ratio of rural deposits to loans and lending interest rate are the determinants of financial inclusion in Nigeria.

VI.   Recommendations

The study recommend as follows:
(1) That lending interest rate should be made attractive to encourage continuous access to loanable funds in the market.
(2) That a conducive financial system should be cultivated to encourage financial access driven rates. That is, rates (that are not too low or excessive) that would encourage economic agents to save and borrow to spur economic activity.

(3) That banks should spread their operations to rural areas in order to propagate banking habits, and thus integrate the rural populace into the formal financial sector.

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