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Impact of Financial Inclusion on the Sustainable Economic Development in Nigeria (1990 – 2017)

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Abstract: *The paper investigated impact of financial inclusion on sustainable economic development in Nigeria. The philosophy behind financial inclusion is the provision of equal opportunity to the public essentially in the areas of market access, resources and unbiased regulatory environment for businesses and individuals. But access to financial services has remained a serious challenge to a wider spectrum of the Nigerian society and one would wonder whether adults have easy access to the broad ranges of financial products and at affordable cost? The objective of the paper is to determine whether financial inclusion has any significant impact on economic development in Nigeria. To find out whether there exist any financial inclusion in Nigeria. The major source of data for this study is from the Central Bank of Nigeria's statistical bulletin. Time series data (1990 – 2017) for all the proxies of loan to deposit ratio broad money supply to GDP and moreover, index of development and per capita income. The study adopted vector auto regression analysis to assess the relationship between economic variables. The paper concludes that there is no significant relationship between financial inclusion and economic development. No financial inclusion exists in Nigerian economy. The greatest populations of the people are inaccessible to the financial services, essentially those who are rural dwellers. Majority of the people are unbanked. It suggests that financial institutions should embarked on expansion arrangement to reach the rural dwellers who are the larger segment of the financially excluded people, to improve their wellbeing and integrate them to main stream of banking system to enhance economic development.*

Keywords: *Workplace flexibility; teleworking, telecommuting; flexi-time; productivity; crisis situation*

Introduction

For a nation to overcome some of its eminent challenges like illiteracy, incidence of poverty, low income, savings, lack of bank branches in some rural areas, under employment of resources, amongst others, it will strive toward a perfectly equal distribution of income.

This is tantamount to an index of 0 which represent perfect equality and opportunity in terms of market access, resources and also unbiased regulatory environment for business and individuals. This economic condition is not easy to achieve. Financial inclusion offers an opportunity for an innovative idea which help attain sustainable economic development. This process leads to making available financial services to the unbanked and under-banked with the help of perfect financial system.

The financial inclusion or otherwise known as inclusive financing is the delivery of financial services of affordable costs to sections of disadvantaged and low-income segments of the society in contrast to financial exclusion where those services are not available or affordable (Hogan, Fogge, &Ukeje, 2015). Financial inclusion provides an innovative concept which help to achieve sustainable development by making available financial services to the unreached people with the help of financial institutions (Trikiand Faye, 2013). Financial inclusion according to Sanusi, (2010) is achieved when adult have easy access to the broad range of financial products designed according to their needs and provided at affordable costs. These products may include payments, credit insurance, pensions, and savings. The CBN reaffirm this by aligning itself to the ideals of inclusive financing and acknowledging it as a key channel to crystallizing its mandate and recognizing that access to financial services has remained a daunting challenge to development in the country. CBN in a attempt to overcome this challenge launched Nigeria's Financial Inclusion Strategy (NIFIS)) as a means to increase access to financial products and services at affordable costs and thereby reduce the spate of financial exclusion in the country in line with international best practices.

In other words of Hogan, Fagge and Ukejele (2015) federal government in an attempt to actualize financial inclusion through the NIFIS adopted mechanisms which include: agent banking framework, financial literacy, consumer protection, mobile payments system and the cashless policy. The expectation is that the banking sector, being a critical stakeholder in the whole process would take all the necessary measures towards the attainment of set targets for financial inclusion Nigeria.

The centre for financial inclusion affirm that financial inclusion is a state in which all people who can use financial services have access to a complement of quantity financial services provided at affordable prices, in a convenient manner, and with a dignity for the clients. The World Savings Bank Institute (WSBI) state that financial inclusion is the provision of access to appropriate, convenient, usable, valuable and affordable financial services and products to the widest part of the population, especially through the delivery of basic banking services to the low income people and the still unbanked, as a way out of poverty. The UNDP (2006) consider financial inclusion as one that services all clients, particularly reaching out to the poor and the low-income people and providing with affordable financial services tailored t their needs and recognizes the market potentials or income-generating opportunities in lending to the poor. Services such as credit, savings insurance and payments and remittance facilities delivered to low income households and individuals which is an attempt to lift them from one level to another state driven intervention or through voluntary effort by the banking community to bring within the ambit of the banking sector and the large spectrum of the society.

In view of foregoing therefore one could ask,do the Nigerian Banking System attain the level of financial inclusion? Do the provision of access to appropriate, convenient, usable, valuable and affordable financial services and products reachable to the widest part of the population in the country? Do financial services deliver uplift the citizens from one level to another and out of poverty? There exist a disagreement in the body of literature among researchers and scholars whether Nigerian banking system attain the stage of financial inclusion or not. As we can that the CBN accelerated the banking reform brought about the huge increase of the branches of the surviving 24 banks and their branches have increased. Besides the recorded increase in banks' branches, there were 816 microfinance banks operating in the country. Despite the increase, in the number of banks branches, the ratio of bank branch to total population stood at 24, 224 persons,indicating a high level of financial exclusion (Sanusi, 2012). In the same view Nkwedo, (2015), Nwanko and Nwanko (2014), Ong-A-Kwie-Jurgens (2016) and MbutorandUbah (2013) were of the opinion that the country is operating at the level of financial exclusion. While Ibor, OffiongandMende (2017), Okeje, Adetiloye, ErimandModebeaffirm that the country is operating at the level of financial inclusion.

As a result of the divergent views established above, it became expedient to conduct further investigation to fill the knowledge gap in literature. In view of foregoing the paper hypothesized as follows:

H_{01} Number of commercial bank branches per 1000km^2 has no significant impact on sustainable economic development in Nigeria.

H_{02} Gini index has no impact on the sustainable economic development in Nigeria.

H_{03} Inflation rate has no significant impact on the sustainable economic development in Nigeria.

H_{04} Loan to rural areas has no significant impact on the sustainable economic development in Nigeria.

2.0 REVIEW OF RELATED LITERATURE

2.1 Conceptual Clarification

Financial inclusion is viewed as the ability of some individual to accessand use basic financial services like savings, loans and insurance designed in a manner that is reasonably convenient, reliable and flexible. According to Nwanko and Nwanko (2014), the traditional idea of financial inclusion is the provision of access to and usage of diverse, convenient, affordable financial services. Access to and use of financial services is one of the major drivers of economic growth (Sharma, 2016). Financial inclusion covers sustainable, relevant, cost effective and meaningful financial services for the financially underserved population especially rural dwellers. World Bank (2012) described financial inclusion as the range, quality and availability of financial services to the underserved and financially excluded.

According to FATF (2011), financial inclusion is about providing access to an adequate range of safe, convenient and affordable financial services to disadvantaged and other vulnerable groups, including low income, rural and undocumented persons, who have been underserved or excluded from the formal financial sector. It is also, on the other hand, about making a broader range of financial services available to individuals who currently only have access to basic financial products. Centre for Financial Inclusion (2013) also described financial inclusion as a state in which all people who can use financial services have access to a complement of quality financial services, provided at affordable prices, in a convenient manner and with dignity for the clients. Clark (2013) asserted that financial inclusion helps people to diversify or increase income stream in the house, provides liquidity/cash flow; absorbs shock of adversity by building assets which enables client to cope with loss through consumption smoothing, thus avoiding the sale of productive assets. It increases income when the credit is used for an income-generating activity and that activity generates returns in excess of the loan installment repayments, while it builds asset when the credit-financed investment does not generate a significant net profit but create an asset since the investment remains with the clients (Nwanko and Nwanko, 2014).Access to safe, affordable credit and other financial services by the poor, vulnerable groups, disadvantaged areas and lagging sectors is recognized as an essential condition for accelerating economic growth, reducing income disparities and poverty. According to Agarwal (2014), easy access to a well-functioning financial system, by creating equal opportunities, enables economically and socially excluded people to integrate better into the mainstream and actively contribute to development and protects themselves against economic shocks crisis. So, financial inclusion means to bring disadvantaged and vulnerable sections of the society within the ambit of formalized and standardized financial system because “financial Inclusion is the process of ensuring access to financial services (basic banking, insurance, post office scheme, Micro finance, mortgage, etc., timely and adequate credit) where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost” (Rangarajan, 2008; p.9). According to Kumar and Sheel (2015), the achievement of full financial inclusion is indicated by the five A’s of availability, awareness, affordability, adequacy and accessibility.

The traditional idea of financial inclusion is the provision of access to and usage of diverse, convenient, affordable financial services. Access to and use of financial services is one of the major drivers of economic growth. Financial inclusion covers sustainable, relevant, cost-effective and meaningful financial services for the financially underserved population especially rural dwellers.

Wikipedia (2013) define financial inclusion as the delivery of financial services at affordable price and terms to the generality of the populace especially the disadvantaged and low income segment of the society. Centre for Financial Inclusion (2013) sees financial inclusion as a state in which all people who can use financial services have access to a complement of quality financial services, provided at affordable prices, in a convenient mannerand with dignity for the clients. Consultative Group for Assisting the Poor, financial inclusion means thathouseholds and businesses have access and can effectively use appropriate financial services. Such services mustbe provided responsibly and sustainably, in a well regulated environment.

The Reserve Bank of India defines financial inclusion as the process of ensuring access to appropriate financialproducts and services needed by vulnerable groups such as weaker sections and low income groups at anaffordable cost in a fair and transparent manner by mainstream Institutional players. The importance of financialinclusion derives from its impact on livelihood. In Hariharan and Marktanner (2012), financial inclusion is ahuge prerequisite for economic growth and development based on its ability to enhance capital creation,financial sector savings and intermediation and by implication investment. In the view of Khan (2011), financialinclusion improves the financial status and standard of living of the poor and vulnerable, as it enables them toincrease their engagement in economic activities, increase wealth and support employment of householdmembers.

World Bank (2012) sees financial inclusion as the range, quality and availability of financial services to theunderserved and financially excluded. United Nation Development Programme (2013) defined financialinclusion as an inclusive financial system that services all clients reaching out to poor and low-income peopleand providing them with affordable financial services tailored to their needs. Nigerian FI Strategy (2013) statedthat financial inclusion is achieved when adults have easy access to a broad range of formal financial services that meet their needs and are provided at affordable cost. Bank of India (2012) defined financial inclusion as thedelivery of financial services at an affordable cost to the vast section of the disadvantaged and low incomegroups.

Okafor (2012) observed that financial inclusion accelerates the flow of credit to small-scale enterprises, which servesas a new engine of sustaining small- scale enterprises growth and balance development, because credit provides asignificant source of employment and income to the rural dwellers. Goodland, Onumah and Amadi (2012) andYaron, Benjamin and Piprek (2013) reported that financial inclusion enhances efficient allocation of resources through financial intermediation. Financial intermediation is the movement of money from those who have anexcess to those who have shortage. The movement of money to those who make use of it improves resourceallocation efficiency especially in rural areas. Dia (2006) (cited in Goodland et.al 2012) opined that such transferresults in a more equitable distribution of incomes; with transfer being used for health and education whichincrease the access of the poor to these services/investment. Afolabi and Osota (2009) and World Bank (2012) alsoargued that it improves ownership patterns which impact positively on the productivity and status of the poor.

Clark (2013) also asserted that financial inclusion helps people to diversify or increase income stream in thehouse, provides liquidity/cashflow; absorbs shock of adversity by building assets which enables client to copewith loss through consumption smoothing, thus avoiding the sale of productive assets. It increases income when thecredit is used for an income-generating activity and that activity generates returns in excess of the loan installmentrepayments, while it builds asset when the credit-financed investment does not generate a significant net profit butcreate an asset since the investment remains with the clients.

The World Bank (2013) asserted that financial inclusion in about 398 villages in rural area in Niger Republicaccounted for 84 per cent of total loans in those villages and was equal to 17 per cent of income of these ruraldwellers.

2.2. Theoretical Review

Based on the nature of this work, the study of financial inclusion at rural dwellers in Nigeria is anchored on two theories: modern development theory and sustainability theory.

Modern development theory was developed by Burr, HS in the year 1958 and it is a conglomeration or a collective vision of theories about how desirable change in society is best achieved. The theory was based on modernization theory which is used to analyze the way in which modernization processes in a society can take place. The theory looked at which aspect of the economy can foster development and which one that constitutes obstacles for economic growth. This is because the idea of financial inclusion in rural dwellers is thedevelopmental assistance targeted at those particular aspects that can lead to modernization of tradition orbackward societies. The earliest principles of development theory can be derived from the idea of progress whichstated that people can develop and change their society themselves. This is an indication that this countryismeant to be developed by us not by foreigners.

Sustainability theory as developed by Felix Ekardtin 1986 described sustainability as a form of economy andsociety that is lasting and can be lived on a global scale. The society-changing potential of the claim: 'Morejustice between generations, more global justice – at the same time' faces the problem of getting out sight.

Sustainability is just not the general claim to take social, economic, and environmental policy serious and tostrike a sound balance between these aspects. Sustainability theory tries to explain the potential for long-termmaintenance of well-being, which has ecological, economic, political and cultural dimensions that will be in the long run. Sustainability requires the reconciliation of environmental, social equity and economic demands to achieveits aim especially in the rural areas.

As defined above, financial inclusion affects indicators such as economic growth and inequality. It also impacts financial development, financial stability and even monetary stability. According to the literature financial inclusion expands investments through the allocation of resources, reduces poverty by lowering inequality, can raise average income, mobilizes savings, and diversifies risks (World Bank, 2008; Levine, 2005). However, the extent, to which it affects different factors in the economy, varies across regions and countries depending on, among other factors, the level of development of the financial system, its depth, the regulatory framework, institutional arrangements, the income level and political environment.

2.3. Empirical Review

The importance of financial inclusion is highlighted by a growing body of literature and backed by extensive evidence (Han &Melecky, 2013; Mehrotra&Yetman, 2015; Sahay, Čihák, N'Diaye, & Barajas, 2015; Roa Jose, 2015; Norris, et al., 2015). It is multifaceted, due to its nature. It has different definitions measured by different indicators and has an impact on some macroeconomic indicators.

The global Partnership for Financial Inclusion (GPFI) and the consultative Group to Assist the Poor (CGAP) defined it as the situation where all workers have effective access to financial services such as finance, savings payment and insurance that is provided by formal institutions (CGAP & WB, 2010). According to the two institutions, access should be convenient and the services should be delivered at a responsible manner with the cost being affordable for the clients and sustainable for the one who provides it. García, Grifoni, López, andMejía (2013) stated that the International Network on Financial Education (INFE) explains financial inclusion as the development in fostering reasonable, well-timed financial products and services. Also the public should have access to these products that are regulated. This should be available for all citizens everywhere in the country.

The Alliance for Financial Inclusion (AFI) stated that financial inclusion should concentrate on 4 indicators namely access, usage, quality and wellbeing (Roa-Jose, 2015). According to this institute, the indicator access represents the possibility to obtain financial services and products from formal institutions. Usage at the other hand proxies the performance, depth or extent of financial services and product being used. Quality should indicate whether the delivered products and services are in accordance with the needs of clients and if when financial products are being developed these needs are taken into considerations. At lasts, wellbeing signals the effect that financial services have had on consumers' living. Other scholars such as Mehrotra&Yetman (2015) defined it as access to financial services. In conclusion, all the different definitions of financial inclusion end up with the access that the public, households and business, should have. Moreover, it should enable them to increase their standard of living and give business the opportunity to expand their activities. All of this should happen at an affordable price and within minimum time.

Empirical studies focusing on financial inclusion have been conducted mostly for advanced and emerging economies and are frequently conducted for a panel of countries. On the other hand, fewer studies have been conducted for developing countries due to data shortage.

To capture the process of economic development studies has focused on financial intermediation in models of occupational choice and financial fictions (Banerjee & Newman, 1993). Other researchers build on this framework by enlarging the model by adding the distributional characteristics according the Kuznets hypothesis (Lloyed-Ellis & Bernhardt, 2000). The authors included the development of the extent of entrepreneurship, the rate of rural-urban migration, the scale and structure of production and the degree of income and wealth inequality. With the model they tried to illustrate income inequality and that the Kuznets hypothesis exists. Also Cagetti&Nardi (2006) used this framework in order to explain the advantages of bequests. This analysis showed that better financial intermediation can lead to larger entry into entrepreneurship, increased productivity and investment, and a general equilibrium effect that expands wages. Moreover, the models indicated the importance of the distribution of wealth or the joint distribution of wealth and productivity. Studies of (Gine& Townsend, 2004) (Jeong& Townsend, 2008) (Amaral&Quintin, 2010) (Buera, Kaboski, & Shin, Finance and Development: A Tale of Two Sectors, 2011) show that better financial intermediation has a great impact on aggregate productivity and income. These economists added forward-looking economic agents in a framework focusing on occupational choice. They demonstrated that cross-country differences in economic activity per worker and aggregate Total Factor Productivity (TFP) is caused mainly by frictions in financial services. In addition Buera&Kaboski(2012) employed the general equilibrium effects of micro finance. The results suggested that impact of micro finance on a larger scale is small, due to the redistribution of income from higher to lower savings. Moll (2014) at the other hand demonstrated with his general equilibrium model in which heterogeneous producers face collateral constraints, that financial frictions impacts' on GDP and TFP is determined by among other things the persistence of specific shocks. The results further show that the long-run impacts of financial frictions are less than the short-run impacts.

Though financial frictions such as moral hazard and adverse selection play an important role, studies like (Clementi&Hopenhayen, 2006) (Albuquerque &Hopenhayen, 2004) concentrated on their impact on other variables. According to these authors moral hazard and restricted commitment have various impacts on firms. Abraham &Pavoni (2005) and Doepke& Townsend(2006) at the other hand added that consumption allocations have a different effect under moral hazard with and without hidden save ups versus full information. Adverse selection was analyzed by (Martin &Taddei, 2013) who stated that by fostering unproductive investment, adverse selection can lead to both an increase in the economy's equilibrium interest rate and generates a negative impact between the marginal return to investment and the equilibrium interest rate. To account for these frictions different methods were applied in the literature.

Kinnan (2014) employed an first-order condition model which is characterized on optimal insurance under moral hazard, limited commitment and hidden income. He also distinguished between these regimes using Thai's data. Moll, Townsend, &Zhorin (2014) assessed the equilibrium interactions between different frictions by applying a general equilibrium framework that included various types of frictions. A great part of the literature also focused on real effects of credit. That financial deepening fosters economic growth is backed by empirical evidence (King & Levine, 1993; Levine, 2005). Also the strong link that exists between broad measures of financial depth (such as M2 or credit to GDP) and economic growth, poverty reduction and income inequality has been confirmed (Beck et al, 2005; Ayyagari et al., 2008). (Beck et al., 2007; Clarke et al., 2006).

Sarma (2012) evaluated the level of financial inclusion for 94 countries across the world between 2004 and 2010 using Index of Financial Inclusion (IFI) approach which he constructed in line with UNDD within the 94 countries of study. Very few African countries were in the list without even Nigeria and Ghana, though his choice of country was based on data availability in Financial Access Survey (FAS) data base of IMF. Findings in the study indicate that in the year 2009, out of 91 countries finally measured, Chad with IFI value as low as 0.016 was the lowest financially inclusive country while Cyprus with IFI value of 0.996 ranked highest as the most financially inclusive country. Then, in 2010, Afghanistan ranked lowest with IFI value of 0.052 while Luxembourg with IFI value of 0.996 ranked highest. The study concludes from their findings that different countries around the world are at different levels of financial inclusion and exclusion.

Onaolapo and Odetayo (2012) in their own study on financial inclusion and micro finance banks in Nigeria disclose that access to finance via micro finance strategy especially by poor and vulnerable groups is a prerequisite for poverty reduction, employment creation, social cohesion and overall economic development for Nigerian nation. While using survey approach in their study, their findings also shows that the commonest reasons for saving with micro finance bank in Nigeria were consumption, investment in education and to start a business; whereas those with better education save more money for investment than the less educated once. They concluded that microfinance institution is inevitable in a globally competitive environment like Nigeria. In line with prior studies, the conclusion of Onaolapo and Odelayo (2012) are in tandem with the result of Ellis, Lemma and Rad (2010) in Kenya who applied the same approach and discovered that reasonable number of people in Kenya save and borrow for household's investment, consumptions and day to day transaction. Interestingly, Decanay, Nito and Buensuceso (2011) conducted an empirical investigation with international perspective on financial inclusion, microfinance and financial development for eighty countries. Using the index of financial inclusion developed by Sarma (2008); results indicate that: 1) microfinance outreachhas a significant positive relationship to financial inclusion, 2) there is a significant positive relationship between financial inclusion and financial development, 3) index of financial inclusion of micro financial industry has a moderate significant relationship with the financial development index and gross domestic products. Drawing their conclusion, they argue that there is a chain of relationship between microfinance, financial inclusion and financial development.

Hariharian and Marktanner (2012) asserted that financial inclusion is a huge prerequisite for economic growth and development based on its ability to enhance capital creation, finance sector savings and intermediation and by implication investment. Nwanko and Nwanko (2014) also examined the sustainability of financial inclusion to rural dwellers in Nigeria using descriptive study and content analysis. The study observed that the sustainability of financial inclusion to rural dwellers in Nigeria remains the mainstream for economic growth in any country. Waihenya (2012) investigated the relationship between agent banking and financial inclusion in Kenya. Their study utilized descriptive survey research method. The study investigated agent banking in Kenya with emphasis on the factors contributing to financial exclusion, both natural barriers such as rough terrains and man-made barriers such as high charges on financial services and limited access due to limited bank branches. The study found out that agent banking is continuously improving and growing and as it grows, the level of financial inclusion is also growing proportionately.

Ibeachu (2010) also did a comparative study of financial inclusion in Nigeria and the United Kingdom, using a deductive approach. He measured financial inclusion, accessibility and the quality of bank services in Nigeria by analyzing responses from survey questionnaires administered. From his findings, financial inclusion was more market driven in terms of consumer behavior and customer satisfaction from the offering of financial services.

In their study, Bertram, Nwankwo and Onwuka (2016) identified full financial inclusion as a prerequisite for inclusive economic development in Nigeria. Using the descriptive survey methodology, they employed questionnaires to generate data on financial inclusion from stakeholders such as Banks, Insurance, Regulators, and Telecom firms providing every household with access to a suite of modern financial services, including savings, credit, insurance, and payments, as well as sufficient education and support to help customers make good decisions for themselves.

EMPIRICAL STUDY	Countries covered	Time period	Technique	Findings
Wang'oo (2003)	1	2005-2011	Human Development index (HDI)	The finding ensures case of availability, accessibility and usage of the formal financial system to all members of the economy.
Anwar, Shabir, andHussain (2011)	1	1973-2007	Auto Regressive Distributed Lag	This reveals that financial sector development was the basis for economic development.
FasanyaandTaiwo (2013)	1	1965-2010	ECM	The study reveals that financial inclusion tends to strengthen financial deepening and provide resources to the banks to

				expand credit delivery thereby leading to financial development.
Rashti, Araghiand Shayeste (2014)	OECD	1990-2010	Generalized Method of Moment (GMM)	It reveals that the financial crisis has had the most influence on developing countries with high average income and its effect has been less on developed countries and developing countries with low and middle average income.
Nkwede(2015)	1	1981-2013	MultipleRegression Model	The result shows that financial inclusion has significant negative impact on the growth of Nigerian economy over the year.
Dunicanand Pop (2015)	1		Panel Dataset	It reveals an econometric analysis that shows the credit impact on economic growth in Romania using panel Dataset.
Aro-Gordon (2016)	1	2011-2014	Key Performance Indicators (KPI)	The implications of these findings for sustainable financial sector reforms, human capital development, and future research are covered.
Izevbigie(2016)	1	2001-2004	ECM (Error correction Model)	It shows that financial development boost banks performance and as such policy recommendations to enhance financial development and bank performance was proffered.
Jurgens(2016)	Developing countries	2004-2013	General equilibrium Model (GEM)	The findings suggest that priority for financial inclusion remains low in some developing countries.

Olaniyi (2017)	1	1981-2014	ARDL	The results show that usage of financial services has significant impacts on agriculture, both in the short and long run.
Omojolaibi(2017)	1	1980-2014	Generalized method Of Moment (GMM)	The findings suggest that to reduce income inequality and increase per capita GDP, more measures must be taken to address financial exclusion of low-income groups from financial services.

3.0 METHODOLOGY AND MODEL SPECIFICATION

The studyuses the single equation linear Generalized Method of Moment (GMM) in analyzing the models specified. GMM estimation was formalized by Hansen (1982), and since has become oneof the most widely used methods of estimation for models in economics and finance. GMM does not require complete knowledge of thedistribution of the data. Only specified moments derived from an underlying model are needed forGMM estimation. In models for which there are more moment conditions than model parameters,GMM estimation provides a straightforward way to test the specification of the proposed model. Thisis an important feature that is unique to GMM estimation.This study therefore, employs the superior and more policy-applicable GMM methodology developed by Clarida, Gali and Gertler, (2000) in estimating the equation, because the GMM in differences approachProposed by Hansen (1982) is plagued with the problem of weak instruments. Clarida-Gali-Gertler System estimator combines a levels equation, using lagged first differences as instruments. This permit exploiting several additional moment conditions that dramatically improve both consistence and efficiency for values of the coefficient of the lagged dependent variable (Omojolaibi, 2017).

Consider the linear GMMor unit root test (KPSS); Johnsen Co integration test to assess the integration of all the data series (Johsen, 1981); moreover, KPSS test statistics to estimate the model; and Engle- Granger Causality co-integration test to determine the direction of causality between variables in Nigeria (Engle & Granger (Engler& Granger 1987), and the GMM estimation results. The financial inclusion is proxies by the following variables: Human development, commercial banks deposits, number of commercial bank branches,per $1000km^{2,}$ gini index, inflation, loan to rural areas.

The sources of data used were obtained from CBN statistical bulletin, annual reports, Journals, Published materials. Time series data covering (1990-2017) were utilized. The proxies were obtained from Central Bank of Nigeria, (CBN) statistical bulletin, National Bureau of Statistics, (NBS) Securities and Exchange Commission (SEC), world income inequality data base.

Researchers like: Omojolaibi (2017),Nkwede (2015), Anwar and Shabir (2011), Aro-Gordon, (2016) adopted GMM (both restricted and unrestricted) analysis to assess the causal relationship between variables. They used time series model and this study followed their steps. The models for the study is stated below:

$HDI_t=\alpha_0+\alpha_1 CBD_t+a_2 NCBB_t+\alpha_3Gini_t+\alpha_4 INF_t+\alpha_5LRA_t+\mu_t$ ---(1)

$INF_t =\beta_0+\beta_1CBD_t+\beta_2NCBB_t+\beta_3Gini_t+\beta_4LRA_t+\beta_5 HDI_t+\mu_t$---(2)

Where;

HDI = Human Development Index

CBD= Commercial Banks Deposits

NCBB= Number of Commercial Bank Branches per $1000km^2$

Gini= GiniIndex to Proxy Income Inequality

INF= Inflation

LRA= Loan to Rural Areas

α_0=*is a constant*

α_1- α_5=$are\ coefficient\ of\ the\ model\ or\ parameters\ to\ be$

$estimated.$

β_0= *is a constant*

β_1- β_5= *are coefficients of the model or parameters to be estimated.*

ut = Stochastic error term

4. THE EMPIRICAL RESULTS

4.1: Unit Root test: KPSS

The Kwiatkowski-Phillips-Schmidt-Shin(KPSS) test is performed to determine the order of integration of the variables used in the model. A series is said to be integrated of order d, denoted I(d), if the series becomes stationary after being differenced d times. The test statistics allow one to test formally the null hypothesis that a series isI(1) against the alternative that it is I(0). The result is consistent and show that all the variables arestationary at first difference (that is, they are integrated of order one). The result of the stationary testis shown in Table 2. The implication of the unit root test result is that the null hypothesis is rejectedand we conclude with a very low probability of making an error that the time series has no unit root.

Table 2: KPSS Test Statistics

VariablesLM-Statistics	1%5%		Conclusion
INF -4.9148*	0.549000	0.378000I(1)	
HDI -3.6883**	0.5419000	0.378000I(1)	
GINI -4.421101**	0.549000	0.378000I(1)	
CBD -4..233406**	0.549000	0.378000I(1)	
NCBB -3.7290**	0.549000	0.378000I(1)	
LRA-4..56110**	0.549000	0.378000I(1)	

Notes: *All the variables are stationary at first difference. The asymptotic critical values of KPSSunit root tests are in their respective levels of significance. * (**) denotes the rejection of the nullhypothesis at 1% (5%) significance level.*

Source: *Author's computation*

Based on the result of the variables our decision rule to accept the null hypothesis (H_o) means that there is no stationary if the t-calculated is more than t- tabulated, otherwise rejected H_o and accept (H_1) alternative hypothesis.

4.2: Co-integration Test

The variables are said to be cointegrated and this implies that there is a long-runrelationship among them. If the tests for stationary reveal that most of the variables arenot stationary, there is need to conduct cointegration test. In this study, we explore the Engle-GrangerCointegration approach. The null hypothesis stated that there is not cointegrated. Examining theprobability values of both tau-statistics and z-statistics, we can infer that there is no integratingrelationship among the variables. This means that there exists a long-run equilibrium condition amongthe variables. The result of the cointegration tests statistics are presented in Table 3.

.**Table 3: Engle-Granger Cointegration Test**

Variables	tau-statistic	Prob.*	z -statistic	Prob.*

CBD	-3.323031	0.7959	-28.57607	0.6433
HDI	-4.277447	0.0502	-201.5354	0.0000
GINI	-3.600784	0.0126	-23.10118	0.1314
INF	-5.063452	0.0160	113.4589	1.0000
LRA	-4.387578	0.1945	-17.57485	0.7443
NCBB	-2.804724	0.3714	-33.83228	0.0190

Note*: Automatic lags specification based on Schwarz criterion (max lag=8)*

Source*: Author's computation*

4.3: GMM Estimation Results

The estimation weighting matrix is used to compute Standard errors and covariancematrix. The result of the GMM is reported using Bartlett Kernel, Newey-West fixed bandwidth to determine the results in the following tables:

Table 4: Sensitivity of Investment to Financial Inclusion

Instrument specification: CBD (-1) HDI (-1) LRA (-1)

NCBB (-1) GINI (-1) INF (-1) C

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
CBD	41.7597	21.0969	1.9794	0.0021
HDI	33.0961	5.9767	5.5375	0.0167
LRA	23.0649	19.1337	1.2054	0.0400
NCBB	0.008845	0.036447	0.242683	0.0101
GINI	-122.8150	85.6542	-1.4338	0.0170
INF (-1)	-110.2864	33.8323	-3.2598	0.1017
C	-1547.969	- 2801.706	0.55251	0.0050

R-squared 0.842076 Mean dependent var 121.4615

Adjusted R-squared 0.784759 S.D. dependent var 178.4596

S.E. of regression 100.1985 Sum squared resid 271072.9

Durbin-Watson stat 2.288385 J-statistic 2.053339

Instrument rank 8 Prob(J-statistic) 0.151873

Note: Dependent Variable is INF

***Source**: Author's computation*

From Table 4 which is the sensitivity of financial inclusion to sustainable economic development, it indicates that the R2 value is 0.84 and the adjusted R2 is 0.78. This mean that 84% and 78% variation in HD1 is explained by the impact of financial inclusion has a lot to develop the economy.

The 'J' value is 2.05333 which is the test of the appropriateness of the model and with a 'P' value of measure economic development in the country. The coefficient of CDB is 41.7597 suggesting that an increase in the number of commercial bank branches per 1000km^{2}has a significant impact on sustainable economic development by N41.7597 billion on the average. Testing for the statistical significance of this estimate, the 't' value is 1.9794 with a 'P' value of 0.0021 which is the exact probability of committing a type 1 error and it means that CBN has a statistically significant positive effect on the HDI in Nigeria. Almost the same situation apply to other predictors like IRA, NCBB, GINI etc. the intercept value is negative, which have no viable economic interpretation. This leads to the rejection of Ho hypothesis, on economic development in Nigeria.

The above table shows the impact of financial inclusion on Nigeria economy. It isevident from the results above that the financial inclusion is positivelyrelated to economic development. A percent increase in number of commercial bank branches, commercial bankdeposits, control of inflation, loan to rural area, better human development index and absence of 100% gini index. The implication of this result is that an increase in each of these predictorsenhances economic development through investment process in Nigeria.

Table 5: Sensitivity of Per HDI to Financial Inclusion In Nigeria

Instrument specification: CBD(-1) GINI(-1) LRA(-1)

NCBB(-1) INF(-1) HDI(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CBD	39.7582	16.5205	2.4065	0.001
GINI	-21.6012	19.5388	-1.1056	0.0316
LRA	11.8074	7.5620	-1.5614	0.0241

NCBB	7.6755	18.8499	4.0719	0.5671
INF	3.3482	-4.9378	0.6780	0.0403
HDI(-1)	-5.8028	19.7120	0.2943	0.0172
C	-11.1458	10.1502	-1.0980	0.7923

R-squared 0.912782 Mean dependent var 96580.76

Adjusted R-squared 0.893400 S.D. dependent var 149135.2

S.E. of regression 48692.12 Sum squared resid 6.40E+10

Durbin-Watson stat 2.120636 J-statistic 0.047430

Instrument rank 8 Prob(J-statistic) 0.827597

***Note**: Dependent Variable is HDI*

***Source**: Author's computation*

Table 5 is the regression result of the sensitivity of the HDI to financial inclusion in Nigeria. It shows that $R^2$is 0.91 and the adjusted R^2 is 0.89 meaning 91% and 89% variation in HDI is explained by the variation in CBD, GINI, LRA, NCBB and INF, this points to the fact that these variables significant to the economic development. The 'J' value is 0.047430 which is the test of significance of the independent variable in the model and with a P value of 0.827597. This leads to the rejection of Ho hypothesis that GINI Index and Inflation have positive impact on economic development. The coefficient of all the variables suggests that there is a favourable condition to show that HDI is sensitive to the financial inclusion if all the variables are in place.

The impact of financial inclusion on economic development is representedin Table 5. It showsthat percent increase in commercial bank deposits, loan to rural areas,number of bank branches, 0% gini index& absence of inflation rate are positively related to economic development.

Table 6: Sensitivity of Inflation to Financial Inclusion

Instrument specification: CBD(-1) GINI(-1) LRA(-1)

NCBB(-1) HDI(-1) INF(-1)

PSAV(-1) C

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CBD	10.0096	8.02077	-12.4688	0.0342
GINI	-7.9953	14.20019	-0.5630	0.0611
LRA	10.0876	6.4496	1.5640	0.0566

NCBB	21.0002	8.0005	2.6249	0.0513
HDI	-6.6199	1.9450	-3.4035	0.0020
INF (-1)	-2.0974	1.2189	1.72073	0.0251
C	-133.4334	71.95134	1.85449	0.0645

R-squared 0.756247 Mean dependent var 40.19412

Adjusted R-squared 0.740969 S.D. dependent var 3.441013

S.E. of regression 3.280770 Sum squared resid 290.6131

Durbin-Watson stat 1.991722 J-statistic 0.122206

Instrument rank 8 Prob(J-statistic) 0.726654

***Note**: Dependent Variable is INF*

***Source**: Author's computation*

The Table 6 above explains the relationship among financial inclusion variables in relation to inflation.The result shows that the rate of inflation is sensitive to the distribution of income or consumption expenditure(gini index), loan to rural areas, these affect economic development as shown by negative coefficient of HDI.

5.0 CONCLUTION

The study investigated the impact of financial inclusion on sustainable economic development using time series properties of the data 1990 to 2017. The result reveals that all the variables were integrated at order one, and the long-run relationship exist among the variables investigated. Moreover, theCo-integration relationship exists among the variables. Meaning that null hypothesis of no co-integrationwas rejected. The result of GMM estimation technique unfolds that commercial bank branches, number of commercial bank branches, gini index, inflation, loan to rural areasare sensitive to sustainable economic development in Nigeria. This means that increase in these variables NCBB, LRA and CBD will result to increase in sustainable economic development. The Nigerian economy has not reach the stage of full financial inclusion. This conclusion is inconsistent with that ofOmojolaibi (2017),Nkwede (2015), Anwar and Shabir (2011), Aro-Gordon, (2016).

6.0 RECMMENDATIONS

In view of the foregoing conclusion the following recommendations are offered:

1. The federal government should enhance commercial banks to establish rural branches to meet the needs of rural dwellers majority of them are not opportune to banking services.

2. Federal government should encourage savings through small and medium scale enterprises to enhance investments opportunities

3. Reduce inflation rate to a single digit in order to promote equitable distribution of income.

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