



Financial Sector Development and Poverty Reduction: Evidence from Nigeria

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Abstract

This paper examined the impact of financial sector development on poverty reduction in Nigeria for the period 1986-2020. The dependent variable – poverty reduction was measured by poverty rate while the independent variable – financial sector development was proxied by financial deepening, stock market development, banking sector development and lending rate. Time series data spanning from 1986-2020 were used while ex-post facto research design was adopted. The Ordinary Least Squares (OLS) multiple regression technique was adopted in data analysis. Findings of the study revealed that financial depth and banking sector development had negative and significant impact on poverty rate in Nigeria. Stock market development had a negative and insignificant impact on poverty rate in Nigeria while lending rate had a positive and insignificant impact on poverty rate in Nigeria which implied that the lending rate in Nigerian encouraged an increase in the poverty rate. The study thus concluded that financial development impacted on poverty in various degrees. Based on the findings, the study recommended amongst others that concerted efforts should be made in the area of improving financial development in Nigeria, especially in the area of reducing lending rates and increasing savings rates by the banks as this will enhance access to financial services by the people.

Keywords: Financial Development, Financial Deepening, Lending Rate, Stock Market Development.

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I. Introduction

Financial sector development has not been able to significantly reduce the level of poverty and inequality in many low and middle income countries, Nigeria inclusive. In the last few decades, some of Nigeria's financial sector development indicators recorded significant growth. For instance, private sector credit to gross domestic product grew from 5.9% in 1981 to 20.8% in 2019, whereas the ratio of deposit demand to gross domestic product rose to 21.3% in 2019, from 10% in 1981 (CBN, 2019). However, Nigeria's poverty level did not record significant improvements. According to the World Bank Report (2000), the total number of people living in poverty rose to 86.3 million in 2019. This is the major problem of this study. The reasons why Nigerians have not actually felt the impact of financial sector development on poverty level may be attributed to the high cost of accessing financial services, especially credits.

The importance of financial sector development to national development cannot be overemphasized. Financial development justifies the existence of robust financial regulations and framework which is capable of attracting domestic and foreign investment (Yang and Fu, 2019). More importantly, it reduces information asymmetries and transaction costs attributable to financial transactions. A sound financial system plays an intermediating role in pooling of funds through savings mobilization and extending credit facilities. In addition to the above evidences, financial development has been established to have direct linkage to economic growth in the developed countries (Olohunlana and Dauda, 2019). It improves the establishment of more private business which in turn increases employment opportunities. The increase in employment opportunities empowers the vulnerable thereby inflicting a reduction of poverty in the economy (Omar and Inaba, 2020).

A robust financial system is capable of reducing poverty and inequality through the creation of an enabling environment for easy accessibility of financial services to the vulnerable. The services include the savings mobilization, credit disbursement and provision of micro-insurance services to the grassroots (Sanusi, 2012). It could also proffer financial literacy skills by way of advisory services and trainings. In particular, financial sector development could facilitate the reduction of vulnerability to shocks through effective risk

management practices. This includes the examination of the grass-root effects of market failure and also proffers formal access to finance for the poor (Sara and Alessio, 2017). The availability and easy accessibility of credit to the microenterprises creates an environment for more job opportunities for the poor while improving more equitable income distribution (Onwuka and Nwadiubu, 2019).

Prior studies in the developed economies have established an inverse relationship between financial development, poverty and inequality. The work of Dauda and Makinde (2014), confirmed the importance of financial development to the reduction of poverty and inequality. The reductive impact of financial development on poverty and inequality could be attributed to the easy accessibility of capital in the system (Aye, 2013). The incidence of low financial transaction cost could also be attributed to the significant effect of financial development on poverty level. In a similar manner, the stable and efficient nature of the financial system increases the investors' confidence thereby reducing their cost of investment.

In pursuit of financial development, the Central Bank of Nigeria had in the past introduced a number of reform policies aimed at repositioning the financial systems, especially the banking sector, to be able to perform effectively and efficiently, the intermediation role in the economy. According to The World Bank (2000), most of the reforms which include deregulation of interest and foreign exchange rates in 1986 designed to make the economy more market oriented; establishment of the Debt Management Office in 2000, the banking consolidation of 2004 that raised commercial banks' capital base from ₦2b to ₦25b, contributory pension reform act of 2005; cashless policy of 2011, aimed at engendering a cashless economy; Financial Inclusion Strategy of 2012 aimed at reducing poverty by bringing to poor and vulnerable people into the financial net, among other reforms. In spite of all these reform programs aimed at broadening and developing the financial sector in Nigeria in order to enhance access to loans and advances especially by the poor segment of the society, there is yet no incontrovertible evidence to suggest a reduction in the level of poverty in Nigeria. Indeed, findings from extant research on the effect of financial sector development on poverty alleviation in Nigeria remain inconclusive. Based on the scenario painted above, research questions as to what extent does financial deepening, stock market development, banking sector development and lending rate impact on poverty rate in Nigeria have been raised in this work. Thus, the general objective of this study is to examine the impact of financial sector development on poverty reduction in Nigeria for the period 1986-2020. Specifically, the study will examine the impact of financial deepening, stock market development (market capitalization/GDP), banking sector development (bank assets/GDP) and lending rate on poverty rate in Nigeria.

II. Literature Review

Conceptual Framework

Concept of Financial Development

According to Shaw (1973), financial development involves specialization in financial functions and institutions and organized domestic institution and markets. For Nnanna and Dogo (1999), the concept of financial development is usually employed to explain a state of an atomized financial system (i.e.) a financial system which is largely free from financial repression. According to Balogo (2013), financial development refers to the greater financial resource mobilization in the formal financial sector and the ease in liquidity constraints of banks and enlargement of funds available to finance projects.

Economic activities in the country can be greatly facilitated by modern banking services. Financial development involves the introduction and intensive use of new financial products. In this context, it is aimed at modernizing the banking system in order to avail modern banking and financial services in the Nigerian financial market (Nnanna, 2004). Financial development cost becomes high when the administrative costs of banks are high. One of the main reasons for such high cost was the use of traditional management structure and technology methods by these banks. In this scenario, financial development in Nigeria was also aimed at reducing the administrative cost of the banks.

Measurement of Financial Development

The Database of Financial Development and Structure (2009) of the World Bank cited in Valickova (2012) identified various proxies of financial development based on the size, activity, efficiency and stability of financial intermediaries and stock markets. However, empirical studies have frequently focused on financial depth, bank ratio and financial activity.

Financial depth

By definition, financial depth refers to ratio of liquid liabilities to gross domestic product (GDP). The use of financial depth as an indicator of financial development is premised on the assumption that there is a direct link between the size of financial sector and its capacity to provide quality financial services (King and Levine, 1993). Consequently, the use of broader monetary aggregate (proxied by M3 to GDP ratio) is heightened by the notion that broad money (M2) to GDP ratio may not accurately capture financial development

in countries where money is utilized as a store of value (Valickova, 2012). As a measure of financial depth, diverse authors applied the ratio of broad money supply (M2) to GDP (Dauda and Makinde, 2014). On the other hand, some researchers used M3 (a measure of money supply that captures broad money as well as large deposits, institutional money market funds, short term repurchase agreements and other larger liquid assets) to GDP ratio. Conversely, Rousseau and Watchel (2011) employed the difference between M3 and M1 (M1 denote narrow money) to eliminate the activities of financial intermediaries (Choong and Chan, 2011). However, the use of financial depth as a measure of financial development is deficient as it does not control for the quality of financial services rendered by the financial system.

Banking sector development

Another measure of financial development identified in the literature is bank ratio which is used to measure banking sector development. Bank ratio entails bank credit divided by a sum of bank credit and central bank domestic assets (Valickova, 2012). King and Levine (1993), pioneered the usage of this measure in their study. Bank ratio aims at appraising the importance of commercial banks versus central bank in allocating excess resources in the economy. By implication, higher values of bank ratio entail greater better financial development given the fact that commercial banks are likely to perform better primary functions than the central banks. Some weaknesses associated with this measure were pointed out by Levine (1997), that non-bank financial institutions perform financial functions as well. Also, bank ratio, according to King and Levine (1993), does not give information as to whom credit is been allocated, and it does not assess the performance of banks as regards to savings mobilization, allocation of resources, corporate control or risk reduction.

Stock market development

Naceur and Ghazouani (2007), took into consideration market size, market liquidity as well as integration with world capital markets. Mittal (2017), measured financial development based on the share of financial resources a society commits to its financial sector. Also, deposit money bank assets to GDP ratio was used by Bangake and Eggoh (2011) or financial allocation efficiency defined as total bank credit to aggregate bank deposit ratio. The variations in the various proxies of financial development reveals that there is little consensus as to the most optimal measure of financial deepening. As such, in order to provide robust results across different specifications, researchers frequently use diverse measures of financial development instead of a single indicator or proxy. This varies across countries because some countries (like, Germany and Japan) depend more on banking sector, whereas countries like USA, UK, Canada, Ireland etc. rely on heavily on the stock markets in channeling financial resources to the deficit unit of the economy (Valickova, 2012). However, Levine, Loayza and Beck (2000), concluded that a trend towards market based financial system is likely due to the relative importance of the stock markets in accelerating growth over the years and thus more attention should be to measures explicitly incorporating some measure of stock market development when examining financial development.

Indicators of Poverty

One of the factors attributed to the rising poverty rate in developing countries is the lack of finance. Finance plays a significant role in the fight against poverty (Obadan, 2001). While increasing access to formal financial services through micro financing has generated positive responses, this has also been questioned with critics averring that high-interest rates hold the poor back in poverty (Ayyagari, Beck and Hoseini, 2013). However, finance is seen to influence poverty from three (3) major channels viz; entrepreneurship, inter-state and credit channels. First, the entrepreneurship channel entails that the poverty-reducing impact of finance falls majorly on the self-employed in rural areas. Second, it has been averred that inter-state migration of labor towards more financially developed states is a recipe for poverty alleviation. The migration induced by finance is motivated by the job search, suggesting that poorer population segments in rural areas migrated to urban areas. The credit channel entails that higher credit extension has a poverty-reducing effect (Clarke, Xu and Zhou, 2006).

Several indicators have been developed to measure poverty. Sanusi (2012) posits that there are seven kinds of absolute poverty measures: the headcount ratio/incidence of poverty, the poverty gap/income shortfall, disparity of income distribution, composite poverty measure, the Physical Quality of Life Index (POLI), the augmented Physical Quality of Life Index (APOLI) and the Human Development Index (HDI). The HDI is the most recent composite index devised by the United Nations Development Programme (UNDP) to measure the incidence of human poverty (Dandume, 2014). The index focuses on human development. It is 'people centred' as the primary objective of development is people. Measurement of poverty was acclaimed possible by Obadan (2001) through a measure of income and the use of human development index (HDI) involving a measure of several associated factors. The HDI looks beyond GDP to a broader definition of wellbeing. It incorporates income and non-income dimensions of human development factors which include; life expectancy at birth,

literacy rate (combined primary, secondary and tertiary enrolment) and per capita income (GNP per capita). It is calculated using this formula: $HDI = 1/3 (\text{Life expectancy index}) + 1/3 (\text{Education index}) + 1/3 (\text{Gross Domestic Product index})$. Similarly, Uddin (2016), posits that it is hard to find an indicator that can directly measure the development of the financial sector. However, this work made use of poverty rate published by the World Bank Development Indicators.

Linkages between Financial Development and Poverty

The relationship between financial development and economic growth has been examined extensively in the literature, but with conflicting results. There are existing three views in the literature regarding the relationship between financial development and economic growth. The first view argues that financial development lead to economic growth (Peprah, Ofori and Asomani, 2019; Osisanwo, 2017). The second view maintains that it is economic growth that drives the development of the financial sector, while the third-view contends that there is a bi-directional causality between financial development and economic growth. Although several attempts have been made to investigate the relationship between financial development and economic growth, few studies have gone the full distance to examine empirically the impact of financial development and economic growth on the ultimate policy goal, i.e. poverty reduction. This will enable us appreciate the influence of financial sector development on poverty reduction.

Theoretical predictions advocate that financial development contributes directly to poverty reduction: first, in a direct way through savings, insurance services and access to credits that can enhance the productivity of assets the poor by allowing them to invest in new technologies, or investing in education and health. Financial development can improve opportunities for the poor to have access to formal finance (Omar and Inaba, 2020). Second, financial system enables the poor to access financial services, particularly credit and insurance risk, enhancing the productive assets of the poor, by improving productivity and increasing the potential to achieve sustainable gains (Osisanwo, 2017). Indeed, the direct relationship between financial development and poverty reduction depends on financial instruments, services and institutions available for poor (Peprah et al., 2019).

However, although financial development has a significant beneficial effect on growth, there is no guarantee that this potential supplement of growth drained by financial development benefits the poor. Some explain this phenomenon by the fact that financial development generates increased inequality of income distribution that goes with the increased growth rate. The reason is that, for purely commercial reasons, the banks give loans to households with adequate safeguards. However, the poor, who constitute the most deprived quintile of the society, lack the necessary guarantees and are therefore excluded from the formal financial system, this implies that only the rich have adequate safeguards that can access credit and receive the improvements in financial systems, and such a scenario is exacerbating inequalities between the richest and poorest quintiles of the company. Due to the imperfections in the financial system, only the wealthiest households can borrow and grow. However, as the financial system develops, the credit constraint is cut down and the poor can borrow, thus reducing inequality (Mittal, 2017).

Theoretical Framework

Demand Following Hypothesis

The demand-following hypothesis asserts that productive and successful utilization economic productivity drives financial development (Patrick, 1966). In support of the demand-following hypothesis, Robinson (1952), argued that "where productivity thrives, finance follows" and suggested that financial development is simply a response to higher demand for financial services as growth in the real economy accelerates. Under this, in response to the demand from real economy, there is creation of modern financial institutions, financial assets, and related financial services to meet the demand of the growing real economy. As a result, development of the financial system is seen as a continuous outcome of economic development. This implies that the financial system is influenced by the economic environment, institutional framework as well as individual motivations, attitudes, tastes and preferences.

Supply-leading Hypothesis

The supply-leading hypothesis theorized that money related advancement is the core determinant of financial development. Supply leading performs two prominent functions: to channel financial resources from low-growth sectors to high-growth sectors and to stimulate and promote an entrepreneurial response in the high-growth sectors (Patrick, 1966). This shows that establishment of functional financial institutions and the services exist before there is demand for them. As a result, availability of financial services facilitates demand for these services by investors in growth-inducing economic sectors. This study is hinged on this theory.

Feedback Mechanism

Having formalized both supply-leading and demand following framework, Patrick (1966), suggested another hypothesis linking the feedback causality between indicators of financial development and economic growth. Based on this framework, supply-leading hypothesis can drive capital accumulation in the short-run of economic development. According to Patrick (1966), innovations and developments of new financial plans open up new opportunities for investors, especially the surplus units. As a result of new innovations like technologies, financial instruments and asset-risk management capacity, savers will accelerate their savings and investors can take up more profitable investments at low cost of borrowing. This ensures self-sustained economic growth until the supply-leading elements of financial development decrease gradually and then, the process will be dominated by demand-following financial development.

Consequently, the feedback scenario suggests a bi-dimensional causal relationship between financial deepening and economic growth. The pioneer work of Lewis (1955) supports the feedback theory of financial deepening. This implies that financial markets develop as a response to economic growth which in turn feeds back as a stimulant to real growth (Greenwood and Jovanovic, 1990).

Empirical Framework

Various studies in the area of financial sector development are empirically reviewed here.

Ilori (2020), provided an argument for financial sector development process and poverty reduction interrelationship in Nigeria for the period 1988-2017. The paper used the Johansen cointegration test to examine the existence of long run relationship among the variables. Generally, it was found that financial sector development has both positive and significant relationship with HDI used as proxy for poverty level. The result also indicates a significant positive relationship between aggregate credit (AGC) and HDI. This showed that financial sector development which manifests in the ability of the banking sector to facilitate borrowing and investment in income earning assets, and stimulate the private sector, in particular, small and medium scale enterprises (SMEs), impacts positively on HDI. Finding also showed that aggregate deposit (AGD) (deposit opportunities available to deposit money banks) is negatively related to HDI and significant. This perhaps suggested that the volume of deposit mobilization by deposit money banks in Nigeria was relatively low to what is needed to transform the economy as well as the standard of living of the people.

Omar and Inaba (2020), investigated the impact of financial inclusion on reducing poverty and income inequality, and the determinants and conditional effects thereof in 116 developing countries. The analysis was carried out using an unbalanced annual panel data for the period of 2004–2016. For this purpose, the authors constructed a novel index of financial inclusion using a broad set of financial sector outreach indicators, finding that per capita income, ratio of internet users, age dependency ratio, inflation, and income inequality significantly influenced the level of financial inclusion in developing countries. Furthermore, the results provided robust evidence that financial inclusion significantly reduces poverty rates and income inequality in developing countries. The findings were in favor of further promoting access to and usage of formal financial services by marginalized segments of the population in order to maximize society's overall welfare.

Appiah, Frowne and Tetteh (2020), looked at the degree to which financial development helps alleviate poverty. Cointegration estimation of the system, called the FMOLS, was applied over the period 1995–2015 to a panel of five African emerging economies. Using liquid liability as a percentage of GDP and bank domestic credit as a percentage of GDP as the main financial development indicators, the findings indicated that both financial development indicators minimize poverty. Other factors such as economic growth and inflation were not statistically significant. Government spending, on the other hand, does not tend to affect poverty irrespective of the measure of financial growth employed. These findings suggested that while financial growth is capable of reducing poverty, it must be combined with a reduction in inflation, as well as other macroeconomic variables. The use of liquid liability and bank domestic credit as measures of financial growth was robust to the results.

Yang and Fu (2019), built an evolutionary game model to analyze the equilibrium strategies of inclusive financial institutions and the poor in poverty reduction activities to find the answers. As there was a high incidence of poverty and serious financial exclusion in rural areas of China, the study tested the poverty reduction effectiveness of inclusive financial development on the poor with different labor capacity in rural China from 2010 to 2016 based on survey data of China Family Panel Studies and relevant statistics collected from 21 provinces. The study found that there were differences in poverty alleviation effects of inclusive financial development among the poor with different labor capacities; if financial institutions target the service precisely to the working-age population in rural areas, they will achieve the dual goals of maintaining institutional sustainable development and alleviating poverty; And the development of inclusive finance in aspects of permeability, usability, and utility can significantly reduce multidimensional poverty. Therefore, to further improve the multidimensional poverty reduction performance and stimulate the endogenous motivation of the poor, it is necessary to strengthen the support for financial resources served to the working-age population, and to improve the development of rural inclusive finance in aspects of quality and affordability.

Onwuka and Nwadiubu (2019), examined the impact of financial sector development on investment in government treasury bills in Nigeria. Financial sector development was proxied by the ratio of money supply to GDP; private sector credit to GDP and lending interest rate while the dependent variable was measured by the outstanding treasury bills in money market. The study adopted the multiple regression technique while the result of the regression coefficient was subjected to diagnostic tests. The result of the study showed that the level of intermediation and lending interest rate had significant effect on investment in treasury bills in Nigeria as a unit increase in interest rate resulted in 52 percent increase in treasury bills. Also a unit increase in lending rate of banks led to 11 percent increase in investment in treasury bills in Nigeria. Based on the results, the study recommended a systematic reduction in lending interest rates and increase in savings rate to stimulate high investment returns to savers and reduce the credit risk on lending.

Olohunlana and Dauda (2019), examined the short and long-run implications of the four measures of financial development on poverty reduction and income inequality in Nigeria within the period 1996-2017. The study employed the Autoregressive distributed lag (ARDL) long-run co-integration approach. The results revealed a positive but economic insignificant relationship between financial development, poverty and inequality both in the short and long run. The study further revealed that corruption and inflationary levels exhibited positive effect on poverty reduction and income inequality. These results advocated for an establishment of more bank branches as well as the development of informal/micro financial institutions in the rural areas. Since the result particularly pointed out the significance of the financial institution efficiency and stability has germane to foreign and domestic investment attraction, the government should embark on policies that strengthen the efficiency and stability of the sector. It also recommended that since the control of corruption has been highlighted as a panacea for poverty and inequality reduction, the government should tilt toward policies that would address corruption which is the most important element in institutional quality.

Tadesse and Abafia (2019), investigated the link between financial development and productivity in Ethiopia during the period from 1975 to 2016 using Autoregressive Distributed Lag (ARDL) approach. The paper also scheduled Vector Error Correction Model (VECM) in order to observe how fast the cointegrated variables convergence in long-run. Accordingly, the results of bound test revealed that long-run relationship existed between the explanatory variables and economic growth. The empirical results showed evidence of long- and short-run positive impacts of financial development of economic output in Ethiopia which implies that progresses in financial sector contribute to economic growth in both short- and long-run. In consideration of few control variables, the study found that all indicators, except inflation and government expenditure, significantly influenced economic growth in the long-run. Moreover, the study employed Granger causality tests and found that the 'supply-leading' hypothesis was evident in Ethiopia.

Kheir (2017), empirically examined the impact of financial development on poverty reduction in Egypt. This study used the autoregressive distributed lag approach to estimate two specifications. The first was dependent on poverty by the ratio domestic credit to the private sector (percentage of GDP) and the second was dependent on the poverty by the ratio liquid liabilities to GDP or M3/GDP. The data are annual and cover the period from 1980 to 2015. In the long-run, the study found that relationship between economic growth and poverty was bidirectional. Financial development and poverty (household final consumption expenditure per capita) were complementary as bidirectional (in Granger sense). In short-run, the study found that the bidirectional causality between financial development (real domestic credit to private sector per capita) and poverty reduction. The findings suggested that governments should remove policies that impede the ability of banks to offer loan products or undermine the commercial incentive structure for banks or borrowers.

Ho and Njindan (2017), reassessed the nexus between bank-based financial development and economic growth in Hong Kong during the period 1990 – 2014. That is, it tested whether Hong Kong follows a supply leading or a demand-following hypothesis. Using the Toda-Yamamoto test for causality and two indicators of bank-based financial development – in order to report robust results – the paper found Hong Kong to follow the supply-leading hypothesis. This implied that the banking sector was vital in driving economic growth in Hong Kong during the study period. Policymakers in this economy will only enhance economic growth further by targeting and ensuring efficient performance of bank-based financial institutions.

Keho (2017), examined the relationship between financial development, economic growth and poverty reduction in nine African countries for the period 1970-2013. It used the ARDL bounds testing approach. The results showed evidence of long-run relationship among the variables in height countries with GDP and financial deepening having a positive effect on poverty reduction in five countries (Benin, Cameroon, Cote d'Ivoire, Gabon and South Africa), and poverty reduction having a positive effect on economic growth in three countries (Ghana, Nigeria and Senegal). The study also revealed bidirectional long-run causality between economic growth and poverty reduction in Cote d'Ivoire, Gabon and South Africa, and bidirectional long-run causality between finance and poverty reduction in Benin, Cameroon and South Africa. These findings suggested that policies aimed at increasing economic growth and improving access to credit would reduce poverty.

Zahonogo (2017), investigated how financial development affects poverty indicators in developing countries. The analysis is carried out with a poverty model using data from 42 SubSaharan African countries and covering the period 1980 – 2012. The researcher employed System Generalized Method-of-Moment (GMM) that is appropriate to control country specific effects and the possible endogeneity. The empirical evidence showed that there indeed exists a financial development threshold below which financial development has detrimental effects on poor and above which financial development could be associated with less poverty. The evidence then points an inverted U curve type response and the findings are robust to changes in poverty measures and to alternative model specifications, suggesting thus the non-fragility of the linkage between financial development and poverty for sub-Saharan African countries. The findings were then promising and supports the view that the relation between financial development and poverty reduction is not linear for sub-Saharan countries.

Donou-Adonsou and Sylwester (2016), applied the instrumental variables approach, namely the fixed-effects two-stage least squares, to a panel of 71 developing countries over the period 2002–2011. Using credit to GDP as the main financial development indicator, the results indicated that banks reduce poverty when poverty was measured by the headcount ratio and poverty gap. As for the squared poverty gap, there was no significant effect of banks. On the other hand, MFIs did not appear to have any impact on poverty regardless of the measure of poverty employed. These results implied that while banks have some ability to reduce poverty, MFIs did not, at least at the aggregate level. The results were robust to the use of assets to GDP as an alternative measure of financial development.

Kasali and Lim (2015), examined the role of microfinance vis-à-vis poverty reduction particularly in the South - West Zone of Nigeria. Data were collected through survey questionnaire in the study area. Descriptive Statistics together with Binary Logit Regression Model were employed to analyze the data collected. The result of the analyses revealed that microfinance loan made significant impact on the loan beneficiaries in the study area which lead to poverty reduction. The government is advised to provide more enabling environment to make Microfinance operations more effective in the country particularly in the rural areas. Microfinance Institutions are implored to create more awareness on their operations and make less stringent conditions for the loan accessibility.

Yinusa and Alimi (2015), examined the relationship between financial development, income inequality and poverty level in Nigeria; and explores if the Greenwood and Jovanovich (GJ) hypothesis applies in Nigeria. Using data from 1981-2012, the paper implemented the Johansen Cointegration test to examine the existence of long run relationship and the error correction model for the short-run relationships. Stationarity properties of the series were tested by the ADF, PP and KPSS unit root test. The findings indicated that financial development does not reduce poverty and income inequality significantly therefore the GJ hypothesis does not hold in Nigeria. Appropriate reform of the financial system that is targeted at correcting the financial market imperfections could help developed a well-organized financial sector that can help reduce poverty and income inequality in Nigeria.

III. Materials and Methods

Research Design

The study employed the *ex-post facto* design. This type of research design is considered necessary because the study used secondary data in its analysis. According to Obasi (1999), *ex-post facto* research is a form of descriptive research in which the independent variable has already occurred and in which an investigator starts with the observation of dependent variable then studies the independent variable in retrospect for possible relationship to and effects on the dependent variable.

Nature and Sources of Data

Data for the study were sourced from the Central Bank of Nigeria Statistical Bulletin (2019) and Quarterly Financial Report of the CBN (2020) as well as World Bank Development Indicators (WDI). The data on financial development indicators are available in the CBN Statistical Bulletin and Quarterly Financial Reports of the CBN (2020) while data on poverty rate were sourced from WDI.

Model Specification

The model for the study was based on the empirical work of Onwuka and Nwadiubu (2019), with modification. In the model of Onwuka and Nwadiubu (2019), as specified below:

$$PCI = \beta_0 + \beta_1 M2/GDP + \beta_2 CPS/GDP + \beta_3 IRS + \mu \quad \text{Eqn. (3.1)}$$

Where,

PCI = per capita income

M2/GDP = broad money supply to GDP ratio (measure for financial depth)

CPS/GDP = credit to private sector to GDP ratio

IRS = interest rate spread

The above model was modified by replacing PCI with poverty rate while banking sector development stock market development was included as an independent variable at the expense of CPS/GDP. Hence, the model to be used for this study is expressed as follows:

$$PR = \beta_0 + \beta_1 FD + \beta_2 SD + \beta_3 BD + \beta_4 LR + \mu \quad \text{Eqn. (3.2)}$$

Where,

PR = poverty rate

FD = financial deepening

SD = stock market development

BD = banking sector development

LR = lending rate

β_0 = constant

$\beta_1 - \beta_4$ = coefficients

The above equation served as the estimable equation for the study. The theoretical basis for the model is the established nexus between financial sector development and poverty reduction. According to the supply leading hypothesis, the financial sector provides capital for economic growth and access to information to take it up. A sound and liquid financial sector serves as an engine of economic growth which in turn transmits into poverty reduction.

Description of Model Variables

The model variables are described in line with their respective *a priori* expectations as follows:

Dependent variable:

Poverty rate (PR): This was used to measure the poverty level in Nigeria. According to the World Bank Group, it was measured by the ratio of the number of people living below the poverty line (below income level of \$1.90/day) in Nigeria expressed as a ratio of the total population. Higher ratios imply a higher poverty rate.

Independent variables:

Financial deepening (FD): Financial deepening captures the financial sector relative to the economy. The most classic and practical indicator related to financial deepening is the ratio of broad money (M2) to GDP which means the share of narrow money (M1) + all time-related deposits and non-institutional money market funds to GDP in a certain year.

Stock market development (SD): Market capitalization is seen as the most important measure for assessing capital market development. It is well known that a well-developed capital market is a key indicator of a sound financial system. MCP is computed as share price multiplied by total number of shares outstanding divided by GDP.

Banking sector development (BD): As an indicator of financial development, this connotes the ratio of deposit money banks' asset to gross domestic product. This is based on the premise that a stable and well-functioning financial system boosts the asset of banks which could be transmitted to economic growth through increased loans and advances.

Lending rate (LR): Lending rate is the amount charged by lenders for a certain period as a percentage of the amount lent or deposited. Higher lending rate will discourage borrowings, increase cost of production and increase in the price of goods and services which eventually cause poverty to increase.

Technique of Data Analysis

The Ordinary Least Squares (OLS) technique was applied for this study. According to Osuala (2010), OLS is a statistical method for estimating the unknown parameters in a linear regression model. A regression model describes the nature of the relationship between variables by expressing the relationship in a mathematical form. In other words, regression analysis provides an estimated equation which expresses the functional relationship between the relevant variables. Using this equation, a researcher can predict one variable given the values of the other variables. Thus, this study adapted the multiple regression model, which involves one dependent variable and two or more independent variables.

In testing for the significance of the regression model specified in equation 3.2, the following are considered:

t-statistic: In a multiple regression model, the individual contribution of each of the explanatory variables to the dependent variable (s) were tested. Here, the student t-test (i.e. t-statistic) was used to test for the significance of each of the explanatory variables to the dependent variable (s). The t-statistic is a ratio of departure of an estimated parameter from its notional value and its standard error. The decision was arrived at by using the p-value at 5 percent benchmark. If the P-value is less than 0.05, then the variable is said to be significant at 5 percent level, and *vice versa* when it is greater than 0.05.

Test of significance for the overall regression: To test for the overall significance of the multiple regression model (i.e. the explanatory variables taken together), the F-test was employed. If the probability of the F-test is less than 0.05 or 5%, the model was adjudged significant and adequate. If on the other hand, the probability of the F-test is greater than 0.05 or 5%, the model will be rejected.

Adjusted coefficient of multiple determination (\bar{R}^2): To assess the goodness of fit of the multiple regression equation, the adjusted coefficient of multiple determination (\bar{R}^2) was used. This is to determine the proportion of variation in the dependent variable as a result of variations in the independent variable.

IV. Data Presentation, Analysis and Discussion

Data Presentation

The data used for the study are presented in Table 4.1 below:

Table 4.1: Data used for the analysis

YEAR	Poverty rate (PR) %	Financial depth (FD) %	Stock market development (SD) %	Bank development (BD) %	Lending rate (LR) %
1986	49.85	13.53	3.36	19.60	10.50
1987	41.98	13.50	3.29	19.98	17.50
1988	46.67	14.19	3.12	18.11	16.50
1989	56.99	11.23	3.05	15.48	26.80
1990	55.02	13.74	3.26	16.60	25.50
1991	62.23	14.68	3.88	19.72	20.01
1992	57.10	14.19	3.43	17.50	29.80
1993	54.76	15.76	3.77	17.96	18.32
1994	55.90	15.14	3.76	16.74	21.00
1995	57.10	11.01	6.23	13.30	20.18
1996	63.50	9.80	7.56	12.14	19.74
1997	60.60	10.45	6.86	14.21	13.54
1998`	61.90	11.45	5.72	15.14	18.29
1999	63.10	13.18	5.65	20.16	21.32
2000	64.40	15.02	6.85	22.75	17.98
2001	65.70	16.18	8.14	27.62	18.29
2002	66.90	14.11	6.75	24.42	24.85
2003	53.50	14.92	10.22	22.91	20.71
2004	53.30	13.07	12.20	21.67	19.18
2005	53.02	12.64	13.02	20.27	17.95
2006`	53.12	14.05	17.87	25.03	17.26
2007`	52.99	17.61	39.95	33.28	16.94
2008	53.60	23.41	24.42	40.65	15.14
2009`	53.50	24.34	15.88	39.57	18.99
2010	54.43	21.10	18.16	31.74	17.59
2011	54.90	21.12	16.32	30.80	16.02
2012	55.01	21.59	20.64	29.68	16.79
2013	55.21	19.58	23.82	30.34	16.72
2014	55.90	21.21	18.95	31.63	16.55
2015	55.80	21.28	18.06	33.77	16.85
2016	57.20	23.25	15.95	31.22	16.87
2017	61.20	21.23	18.58	35.23	17.58
2018	54.00	19.94	17.15	31.96	16.72
2019	59.22	19.34	17.95	34.67	15.21
2020	65.91	18.23	15.82	31.53	14.99

Source: Central Bank of Nigeria Statistical Bulletin (2019) and Quarterly Abstract of National Bureau of Statistics (2020)

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Descriptive Statistics

The descriptive analysis gave a breakdown of the features of the data presented for this study. The outcome of the summary statistics is presented in Table 4.2 below:

Table 4.2: Descriptive Statistics

	PR	FD	SD	BD	LR
Mean	56.72886	16.43057	11.98971	24.78229	18.51943
Median	55.80000	15.02000	10.22000	22.91000	17.59000
Maximum	66.90000	24.34000	39.95000	40.65000	29.80000
Minimum	41.98000	9.800000	3.050000	12.14000	10.50000
Std. Dev.	5.401035	4.147838	8.348419	7.964569	3.723085
Skewness	-0.163905	0.312479	1.080503	0.218875	1.058455
Kurtosis	3.370330	1.867196	4.531418	1.869040	4.774015
Jarque-Bera	0.356714	2.440986	10.23048	2.144763	11.12480
Probability	0.836643	0.295085	0.006005	0.342193	0.003840
Sum	1985.510	575.0700	419.6400	867.3800	648.1800
Sum Sq. Dev.	991.8202	584.9550	2369.667	2156.768	471.2862

Observations	35	35	35	35
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Source: EViews computations (2021)

From the descriptive statistics presented in Table 4.2 above, poverty rate (PR) averaged 56.72886, financial depth averaged 16.43057, stock market development averaged 11.98971, banking sector development averaged 24.78229 while lending rate (LR) had an average of 18.51943. The minimum values and the maximum values indicates the lowest and highest values obtained for each series, that is, it is an indicator of the range of values contained in each of the series. The standard deviation shows that dispersion of the variables from their respective mean values. The skewness values showed that apart from PR which was negatively skewed, all the other variables were positively skewed. The Kurtosis values for PR, SD and LR were greater than the acceptable level of 3, implying that the series for PR, SD and LR are highly peaked (leptokurtic), that is, they had more values that are greater than their respective sample mean. The Jarque-Bera test probability values for SD and LR were less than 0.05, indicating that the null hypothesis that the series are normally distributed should be accepted but rejected for PR, FD and BD.

Analysis and Results

The regression estimates explaining the influence of financial development on poverty reduction in Nigeria were presented in Table 4.3 below:

Table 4.3: Regression results (dependent variable, PR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FD	-0.417926	0.186755	-2.237832	0.0420
SD	-0.240831	0.220664	-1.091392	0.2935
BD	-0.797088	0.327674	-2.432564	0.0290
LR	0.383708	0.243229	1.577557	0.1355
C	126.9413	24.64592	5.150599	0.0001
R-squared	0.702452	Mean dependent var		57.74258
Adjusted R-squared	0.676684	S.D. dependent var		4.449222
S.E. of regression	2.894786	Akaike info criterion		5.265544
Sum squared resid	117.3170	Schwarz criterion		6.051924
Log likelihood	-64.61593	Hannan-Quinn criter.		5.521884
F-statistic	9.554312	Durbin-Watson stat		1.950425
Prob(F-statistic)	0.000019			

Source: EViews computations (2021)

Result from Table 4.4 was used to test the influence of financial sector development on poverty reduction in Nigeria. Poverty rate (PR) for Nigeria was used as the dependent variable while financial depth (FD), stock market development (SD), banking sector development (BD) and lending rate (LR) were used as independent variables. The resultant coefficients for FD, SD and BD were negative while the coefficient of LR was positive. This implied that FD, SD and BD caused a reduction in poverty rate (PR) while LR caused an increase in poverty rate (PR). The positive coefficient constant (C) term indicated that poverty rate would be increasing if the explanatory variables (FD, SD, BD and LR) were held constant.

The estimated coefficients of FD, SD and BD showed that poverty rate (PR) reduced by 0.42%, 0.24% and 0.79% due to an increase in financial depth (FD), stock market development (SD) and banking sector development (BD), respectively while the positive coefficient of LR implied that PR accelerate by 0.38% due to an increase in lending rate. Financial depth (FD) turned out with a probability value of 0.0420 < 0.05. This indicates that financial depth exerted a significant impact on poverty rate Nigeria. Stock market development (SD) had a probability value of 0.29935 > 0.05. This implies that stock market development did not have a significant impact on poverty rate in Nigeria. Banking sector development (BD) revealed a probability value of 0.0290 < 0.05. This shows that banking sector development had a significant impact on poverty rate in Nigeria. Lending rate (LR) on its own, had a probability value of 0.2935 > 0.05. Therefore, the study concluded that lending rate had no significant impact on poverty rate in Nigeria.

The Adjusted R-squared is the summary measure that tells how well the sample multiple regression line fits the data. From the regression results, Adjusted R-squared of approximately 0.68 means that 68% variations in PR is attributable to the independent variables (FD, SD, 5BD and LR). The Durbin-Watson (DW) statistics as shown in Table 4.3 shows the absence of serial autocorrelation as the DW statistics (1.950425) falls below the critical value of 2. The F-statistics of (9.554312) is significant (Prob.= 0.000019) at a critical value of

0.05. This implies that the entire model is significant. The F-statistic validates the joint contributions of all independent variables in explaining poverty rate in Nigeria for the period under review.

V. Discussions

The negative and significant coefficients of financial development indicators (FD and BD) showed that poverty rate reduced significantly to meet the *a priori* expectation under the finance led (supply leading) hypothesis that availability of financial resources ensures economic growth which in turn helps to reduce poverty in a country. These findings were in consonance with prior empirical works like Appiah, Frowne and Tetteh (2020); Yang and Fu (2019); Donou-Adonsou and Sylwester (2016), that also found that financial development helped to reduce poverty rate.

The negative and insignificant coefficient of stock market development (SD) is indicative of the fact that Nigerian stock market have underperformed over the years due to several economic crisis that have affected the global economy in recent years. This was in line with Olohunlana and Dauda (2019); Yinusa and Alimi (2015), Dauda and Makinde (2014) who stated that developing stock markets like Nigeria's have not been able to effectively fill the finance gap in the economy, hence has been unable to reduce poverty. Also, as supported by Dhrifi (2013); Muritala and Fasanya (2013) the positive and insignificant influence of lending rate could be attributed to the fact that the poor people often do not access bank credit due to high lending rate, hence the increase in poverty rate.

VI. Summary of Findings, Conclusion and Recommendations

Summary of Findings

The study investigated the impact of financial development on poverty reduction in Nigeria. Based on the empirical analysis, the following findings were made:

- 1) It was observed that financial depth has a negative and significant impact on poverty rate in Nigeria. This implies that higher degree of financial depth reduced poverty rate in Nigeria.
- 2) Also, it was found that stock market development has a negative and insignificant impact on poverty rate in Nigeria. This implies that the Nigerian stock market helped to reduce poverty but not as expected.
- 3) Again, it was seen that banking sector development significantly and negatively impacted poverty rate in Nigeria. This shows that banking sector development enhanced poverty reduction in Nigeria.
- 4) The study also indicated that lending rate has a positive and insignificant impact on poverty rate in Nigeria which implied that the lending rate in Nigerian encouraged an increase in the poverty rate.

Conclusion

In all, the financial development may have significantly impacted poverty rate in Nigeria. From the analysis of data, it was evident that though financial development was relatively low during the period of the study, but it helped to reduce poverty to large extent. The study found that financial depth, stock market development and banking sector development caused poverty rate to reduce, but financial depth and banking sector development were the most significant variables that caused poverty rate to decline. Consequently, it is important to note from this study that the more the financial sector is developed and individuals have access to financial services, the more their welfare improves and poverty rate is reduced.

Recommendations

From the findings, this study therefore recommends the following:

- 1) Policy makers need to undertake more measures to provide financial services to the poor and the most vulnerable people, since they can only be encouraged for entrepreneurship through the provision of financial services to enable them engage in economic activities. This no doubt will go a long way in making them more self-reliant, increase employment opportunities and household income, hence leading to poverty reduction.
- 2) There is a critical need for the government to carry out subsequent efforts at developing the stock market in such a way as to conform to the global development trend. This will tally with the global development pattern and ensure an effective and efficient functioning of the stock market in terms of providing financial services which will in turn help the poor economically.
- 3) The findings implied that the banking sector has been an important driver of poverty reduction in Nigeria during the study period. Hence, policymakers should enhance further poverty reduction by targeting and ensuring efficient performance of bank-based financial institutions in the country.
- 4) Monetary authorities especially the Central Bank of Nigeria (CBN), should take regulatory action to improve savings accumulation. They could do this by reducing the monetary policy rate and encouraging banks to do same in lending rates. More importantly, saving accumulation will later improve access to credit and make some borrowers to shift from informal to formal credit market, leading to access to financial services by the poor.

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APPENDIX

Regression Results

Dependent Variable: PR

Method: Least Squares

Date: 02/08/22 Time: 13:46

Sample: 1986 2020

Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FD	-0.417926	0.186755	-2.237832	0.0420
SD	-0.240831	0.220664	-1.091392	0.2935
BD	-0.797088	0.327674	-2.432564	0.0290
LR	0.383708	0.243229	1.577557	0.1355
C	126.9413	24.64592	5.150599	0.0001
R-squared	0.702452	Mean dependent var		57.74258
Adjusted R-squared	0.676684	S.D. dependent var		4.449222
S.E. of regression	2.894786	Akaike info criterion		5.265544
Sum squared resid	117.3170	Schwarz criterion		6.051924
Log likelihood	-64.61593	Hannan-Quinn criter.		5.521884
F-statistic	9.554312	Durbin-Watson stat		1.950425
Prob(F-statistic)	0.000019			