# Effect of Financial Sector Development on Poverty Alleviation - The Nigerian Experience (1986 – 2018)

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## ABSTRACT

**The study 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 (M2/GDP); private sector credit to GDP (CPS/GDP) and lending interest rate while the dependent variable was measured by the outstanding treasury bills in money market. The study adopted the ex-post facto research design. 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.**

**Keywords:** Financial sector development, treasury bills, Gross Domestic Product, Private sector credit

## INTRODUCTION

The financial sector plays a crucial role in the growth and development of an economy. Financial literature is replete with empirical evidence that countries with well-developed financial system tends to grow faster than their counterparts with less developed financial sector. This claim draws support from the earlier work of Schumpeter (1911) cited in Oriavwote and Eshienake (2014) that "a well-developed financial system engenders technological innovation and economic growth through the provision of financial services and resources to entrepreneurs who have the highest probability of implementing innovative products and processes.

According to Sanusi (2012), financial system is not just institutions that facilitate payment and extend credits but encompasses various elements and functions that direct real resources to their ultimate users. It is a central nervous system of a market economy and contains a number of separate, yet co-dependent components all of which are essential to its functioning. These components include financial intermediaries such as commercial banks and insurance companies which act as principal agents for assuming liabilities and acquiring claims. This system vigorously seek out and attract the reservoir of savings and idle funds and allocate same to entrepreneurs, businesses, households and government for investment projects and

other purposes with a view of getting returns which forms the bases for economic activities (Nzota & Okereke, 2009).

It has been argued in various financial literatures that the very essence of financial development is to achieve efficiency in the financial sector that will engender financial deepening and economic growth. Among these components of financial system, commercial banks stand out as major catalysts that connect the savers and the borrowers towards facilitating efficient intermediation process that promotes private investment and lead to growth and development of the economy. This efficiency can only be achieved through regular financial reforms in order to strengthen the financial system to be able to play its crucial role in the economy.

As remarked by Kehinde and Adejuwon (2011), reforms generally evolve in response to challenges in the system such as systemic crises, globalization, technological innovation, financial crises; and often seek to act proactively to support the system's growth potentials for the overall development of the economy. It is important to reiterate the fact that financial sector development involves the nurturing and expansion of the institutions, markets and all the processes that support financial intermediation.

In pursuit of this, 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 Sheyin (2015), 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 N2b to N25b, 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. Further studies are therefore, needed to ascertain and evaluate the effect of financial sector development on poverty alleviation in Nigeria.

To this end, the objective of this study is to examine the effect of financial sector development on poverty alleviation in Nigeria for the period 1986 - 2016. To give empirical direction to the study, it is hypothesized that financial sector development has not led to poverty alleviation in Nigeria within the period under review.

## Scope and Significance of the Study
The study covered the period 1986 - 2018 (32 years). 1986 was chosen as the base year for the study because the Structural Adjustment Program (SAP) which encompasses a wide range of financial reforms aimed at developing the Nigeria financial sector was introduced in 1986.

A study of this nature will naturally be of significant to both policy makers and drivers of the private sector of the economy in Nigeria. The findings may help to reshape policy formulation and retooling. The financial sector players especially the banking sector may also benefit from

the findings of the study to enable them rethink and develop financial products that are suited to the poor and often neglected segments of the society.

Following this introduction, the rest of the paper is organized into four sections. Section 2 provides the theoretical framework and literature review while section 3 deals with the methodology of investigation. Section 4 presents the result and the analysis while section 5 deals with the discussions, conclusions and recommendations.

## REVIEW OF RELATED LITERATURE

**Conceptual Review**

A sound financial system is critical to economic growth of a nation. It enhances economic performance of the players by improving the overall welfare of the people. Financial system provides a platform for financial infrastructure to help allocate resources to individuals/units that are potentially more productive to invest those resources. It is a system designed to effectively mobilize financial resources which are transformed into loans to businesses, government, households in order to galvanize economic activities that engender growth and development in the economy.

Alade (2017) describe financial system as a system that provides an enabling environment for economic growth and development, productive activity, financial intermediation, capital formation and management of the payments system. This system vigorously seek out and attract the reservoir of savings and idle funds and allocate same to entrepreneurs, businesses, households and government for investment projects and other purposes with a view of getting returns which forms the bases for economic development (Nzota and Okereke, 2009). The significance of financial systems in an economy has become even more pronounced in recent years because of its ability to improve access to financial services by the poorer segment of the population (Oyewo & Oyewole, 2014)

Commercial banks are the key operators in the Nigerian financial system and act as agents for mobilization of savings and allocation of resources. Through economies of scale and expertise, banks are able to rewards savers with relatively high yield to encourage them to save more. Schumpeter (1934) in Oluyemi (1995) highlighted the impact of commercial banks as vital agents in the process of development. They play dynamic role in stimulating investment and channeling such investments to the different sectors of the economy through the process intermediation. As noted by Adekunle, Salami and Adedipe (2013), the efficiency and effectiveness of financial intermediation is dependent on the level of financial sector development. This concept was further buttressed by Ebiringa and Duruibe (2015) who averred that financial development enhances growth by promoting the efficient allocation of investment through funds pooling; Risk diversification; liquidity management; investment screening and monitoring.

**Role of Finance in Poverty Alleviation**

There appears to be a consensus among scholars and researchers, based on empirical evidences, that provision of finance is crucial in poverty alleviation among the citizenry while lack it may worsen their situation. This is supported by economic theory that suggests that improved access to credit by the poor and less privileged members of the society can have positive implications on poverty alleviation and entrepreneurial activity.

The World Bank (2014) cited in Global Financial Development Report (2014) argued that limited access to credit poses a substantial obstacle to entrepreneurship and firm growth potential, especially small and young firms. Thus, it is believed that one way to alleviate

poverty is to increase the productivity level of the poor and those engaged in small-scale production through micro-credits financing. By so doing, their capacity for entrepreneurship would be significantly enhanced and enable them to engage in economic activities and be more self-reliant; increase employment opportunities; enhance household income and create wealth for the economy (Soludo 2005: 23).

Moreover, the link between financial sector development and poverty reduction has been widely a subject of discussion in theoretical and empirical literature. It is widely believed that the poor in developing countries often do not have access to formal financial services, and are forced to rely instead on a narrow range of often expensive and more risky informal services. This hinders them from participating fully in markets and contributing to economic growth.

The channels (credit or money) through which poor members of the society benefit from formal financial intermediation has been linked to the seminal and pioneering work of Keynes (1937) on the —motive of finance for money demand. This was later revisited by McKinnon (1973) through his 'conduit effect' analysis.  McKinnon (1973) analysis was based on the assumption that the poor who self finances investment offer profitable financial opportunities for savings in spite of the fact that financial institutions do not provide credit to them.

McKinnon (1973) and Shaw (1973) resuscitated the discussion on the effect of financial sector on the economy. Although their assumptions on the real purpose of money in the models differ, both theories have similar implications for financial sector development. Their financial liberalization theory holds that financial repression (i.e. distortion of financial prices such as: interest rates reduces the real size of the financial system relative to non-financial , which leads to slow real rate of economic growth.

The basic proposition in the McKinnon and Shaw (1973) hypotheses is that the relationship between interest rates and economic growth is positive and that low interest rates tend to limit growth.  In a repressed economy, especially at the initial stage, the nominal interest rate is usually administratively fixed and thus the real rate is kept below its equilibrium.

McKinnon (1973) and Shaw (1973) specifically argue that financial development increases the rate of domestic savings, and this lowers the cost of borrowing and thus stimulating investment. This argument is based on the fact that developing countries do experience financial repression. They therefore recommend that the liberation of these countries from their repressive conditions would engender savings, investment and growth. This is in contrast to the neoclassical theory which posits that investment is positively related to the real rate of interest.

It should be remarked that McKinnon (1973) proposition was based on two premises. First, that all economic agents are independent and capable of self-financing and secondly that each undertaken investment has indivisibilities of considerable value. The implications of these assumptions are that an investor must accumulate money balances before embarking on investment venture. This process of accumulation is enhanced if there is a positive real deposit interest rate. A positive real interest rate lowers the opportunity cost of accumulating balances and encourages individuals to deposit their money in banks. This will increase loanable funds from which investors can borrow to fund their investments. The indivisibilities of investment imply that the larger the demand for money, the greater the share of investment in total expenditures. Hence, money and capital are complementary in this theory. This was the basis for the complementarity hypothesis. Without implying direction of causality, it could be inferred that increased intermediation in the McKinnon and Shaw (1973) model will lead to

increased investment which is capable of bringing about increase in total output and causing economic growth.

Shaw (1973), in his model observed that money is backed by productive investment loans to the private sector. When the private sector credit is large relative to the level of economic activity (i.e private sector credit */GDP)*, the level of intermediation between savers and investors is also larger. Thus, his theory explicitly emphasizes the importance of financial intermediation. Hence, the reform of a repressed financial sector through the removal of interest rate ceilings and other form of controls engenders the higher real rates of deposit. This deepens financial intermediation process and leads to financial development by providing incentives to savers.

Similar to McKinnon (1973) and Shaw (1973) position, endogenous growth theory which holds that the higher the saving rate, the higher the economic growth, to the extent that the financial sector development can affect saving rate by at least three ways namely: lowering the cost of borrowing through providing risk diversification, accommodating liquidity preference and lowering liquidity constraints, lowering informational costs and increasing operational efficiency (Tsuru, 2000).

McKinnon (1973) and Shaw (1973) elaborated on the channels (credit or money) the so-called "conduit effect" through which the poor benefit from formal financial intermediation. Their hypotheses laid the foundation for poverty reduction through the instrumentality of financial sector development.

The United Kingdom Department for International Development (DFID, 2004) upholds the view that the provision of savings facilities enables the poor to accumulate funds in a secure place over time in order to finance a relatively large, anticipated future investment, and can sometimes provide a return on their savings. As observed by Jalilian and Kirkpatrick (2007), the increased access to financial services by the poor will increase their income growth, thus having a direct impact on poverty reduction. The availability of credit can strengthen the productive assets of the poor by enabling them to invest in productivity-enhancing new 'technologies' such as new and better tools, equipment, fertilizers etc., or to invest in education and health which could provide for a higher income in future and thus alleviate their poverty level.

**Theoretical Framework**
The economic theory that underpins this study is that of Joseph Schumpeter (1911)   cited in the work of King and Levine (1993) They argued that the services provided by financial intermediaries which include mobilizing savings, evaluating projects, managing risk, monitoring managers, and facilitating transactions all stimulate technological innovation and economic development. The authors present evidence that supports this view by examining a cross-section of about 80 countries for the period 1960-89 and find that various measures of financial development are strongly associated with both current and later rates of economic growth. Each measure has shortcomings but all tell the same story that emphasizes the significance of finance. They present three main findings, which are robust to many specification tests: The average level of financial development for 1960-89 is very strongly associated with growth for the period. Financial development precedes growth. For example, financial depth in 1960 (the ratio of broad money M2 to GDP) is positively and significantly related to real per capita GDP growth over the next 30 years even after controlling for a variety of country-specific characteristics and policy indicators. Financial development is positively associated with both investment rate and the efficiency with which economies use capital.

Much work remains to be done, but the data are consistent with Schumpeter's view that the services provided by financial intermediaries stimulate long-run growth.

**Empirical Review**

Dandume (2014) examined the causal relationship between financial sector development, economic growth and poverty reduction in Nigeria. The study uses Autoregressive Distributed Lag model (ARDL) and Toda and Yamamoto No causality test, using a time series data covering the period of 1970-2011. The study includes poverty into the ongoing competing finance growth nexus hypothesis, in order to ascertain whether the poor segment of the Nigerian society have access to financial resources and also fully participate in the economic growth process in the country. Empirical results of the study reveal that financial sector development does not cause poverty reduction. This implies, increased in the supply of loan able funds due to financial sector development is not enough to ensure poverty reduction. Certain measures are important. Therefore, the results reveal, that economic growth causes financial sector growth. Implies that economic growth lead and financial sector follow. This implies that for financial sector development, economic growth is necessary, even though not sufficient for poverty reduction.

Dauda and Makinde (2014) examine the nexus between financial sector development and poverty reduction in Nigeria using Vector autoregressive (VAR) model (1980 –2010). The choice of the study has been motivated by the alleged failure of the financial sector development in bringing about a reduction in the worsening trend in poverty incidence in Nigeria. The evidences from both the VAR and impulse response show that the indirect effect of economic growth exerts the strongest influence on poverty reduction in the short run but could be detrimental to the poor in the long run due to the adverse effect of income inequality. Furthermore, the relationship between poverty and the financial deepening proxied by broad money supply ($M_2$) is negative and significant. Hence, the McKinnon conduit effect is the likely main transmission channel through which the poor benefit from the financial sector development in the long run. The study, however, concludes that credits to private sector, contrary to the general belief, have failed to cause a reduction in the incidence of poverty in Nigeria.

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) examine 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 implement 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.

Zahonogo (2016) investigates how financial development affects poverty indicators in developing countries. The analysis is carried out with a poverty model using data from 42 Sub-Saharan 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 shows 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 are then promising and support the view that the relation between financial development and poverty reduction is not linear for sub-Saharan countries.

Rewilak (2015) examine the role of financial development in poverty reduction using three different components of the financial system. These components include financial deepening, financial breadth and financial stability. Financial deepening is measured by credit to the private sector as a ratio of GDP. Financial access is measured by the number of automated teller outlets (ATMs) and bank branches per 1,000km2 and financial stability is measured using a country-level Z - score (distance to insolvency). Using a variety of estimation techniques the researcher find that a 10% increase in private credit to GDP reduces poverty by approximately 2%, and a 10% increase in financial breadth may reduce poverty by approximately 1%. Financial stability entered the specifications insignificantly. These findings suggest that the deepening of the financial sector may play a greater role in poverty reduction than increasing outreach, complementing a recent study on India. Furthermore, when an aggregate measure of financial development was constructed using each of the three components above, that too was negatively and significantly related to poverty reduction.

## METHODOLOGY
**Research Design**
The study employed the *ex-post facto* design. This was considered necessary because the study used secondary data in its analysis. Data for the study were sourced from the Central Bank of Nigeria statistical bulletins and annual reports, the National Bureau of Statistics (NBS), and World Bank Development Indicators.  The main tool of analysis was the Ordinary Least Squares (OLS) using the multiple regression technique.

**Model Specification**
The model for the study was based on the empirical work of Dandume (2014) with modification. Per capita income (PCI) was used as proxy for poverty alleviation and serves as the dependent variable while ratio of money supply to GDP ($M_2$/GDP), private sector credit to GDP (CPS/GDP) and interest rate spread (IRS) were the independent variables.  Thus, the base model is given as follows:

$$PCI = f(M_2/GDP, CPS/GDP, IRS) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:
| | | |
|---|---|---|
| PCI | = | Per capita income, proxy for poverty index |
| $M_2$/GDP | = | Financial development indicator |
| CPS/GDP | = | Financial intermediation indicator |
| IRS | = | Financial efficiency indicator |

The econometric equation from functional model was generated thus:

$$PCI)_t = \beta_0 + \beta_1 M_2/GDP_t + \beta_2 CPS/GDP_t + \beta_3 IRS_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

The above equation serves as the estimable equation for the hypothesis of the study, where all coefficients of the variables are as defined. The theoretical basis for the model is the established nexus between financial sector development, economic growth and poverty reduction. According to the financial repression based theory, the financial sector provides capital for economic growth and access to information to take it up (Levine, 2002). A sound and liquid financial sector serves as an engine of economic growth which in turn transmits into poverty reduction.

## Estimation Techniques

This study adopted the quantitative method of data analysis. First, The Augmented Dickey-Fuller (ADF) test was conducted for stationarity i.e. to determine the order of integration as well as satisfying the economic theory which asserts that certain variables must be integrated, random walk or martingale process. The rule of thumb for unit root tests is that t-statistics must be greater than the critical values for stationarity to be attained. This could be realized at level 'I(0)' or at $1^{st}$ difference 'I(1)' of the data. Following this, a cointegration test was conducted to ascertain if the time series variables have a long-term or equilibrium relationship among them.

## RESULTS AND DISCUSSION OF RESULTS

### Tests for Stationarity - Unit Root Test

In econometrics, time series data are often assumed to be non-stationary and thus, it is necessary to perform unit root test to ensure the stationary of the data. Unit root test are usually conducted to avoid problem of spurious regression. The study uses the Augmented Dickey Fuller (ADF) statistic to test for unit root and the Durbin Watson (DW) and Correlation Matrix (CM) statistics to test for autocorrelation in the time series data. The decision rule is that Augmented Dickey-Fuller (ADF) test statistics must be greater than Mackinnon Critical Value at 5% and at absolute term i.e. ignoring the negativity of both the ADF test statistics and Mackinnon critical value, before the variable can be adjudged to be stationary, otherwise we accept the null hypothesis ($H_0$) i.e. data is non-stationary and reject the alternative hypothesis ($H_1$) i.e. data is stationary. The results of the ADF unit root tests are reported in table 4.1 and 4.2.

### Table 4.1 Result of ADF Unit Root Test

| Variables | ADF Test Statistics Value | 5% McKinnon Critical Value | Decision Rule | | Remarks |
|---|---|---|---|---|---|
| | | | $H_0$ | $H_1$ | |
| PCI | -2.675452 | -3.0114 | Accept | | Non-stationary |
| CPS_GDP | -1.433125 | -3.0114 | Accept | | Non-stationary |
| M$_2$_GDP | -.1.887654 | -3.0113 | Accept | | Non-stationary |
| IRS_GDP | -2.322456 | -3.0113 | Accept | | Non-stationary |

**Source: Author's computation**

From the result in table 4.1 it is clear that all the variables have ADF test statistics value less than the McKinnon critical value both in absolute terms and at 5% level - that is before differencing. Therefore, to ensure the stationarity of data for these variables, there is need to further test for stationarity at first difference. The result of first difference ADF unit root test is presented in table 4.2 below.

### Table 4.2 Result of ADF Unit Root Test

| Variables | ADF Test Statistics Value | 5% McKinnon Critical Value | Decision Rule | | Remarks |
|-----------|---------------------------|----------------------------|---------------|---------------|---------|
| | | | $H_0$ | $H_1$ | |
| PCI | -3.345776 | -3.0199 | Reject | Accept | Stationary |
| CPS_GDP | -3.843889 | -3.0199 | Reject | Accept | Stationary |
| $M_2$_GDP | -3.965743 | -3.0199 | Reject | Accept | Stationary |
| IRS_GDP | -4.23054 | -3.0199 | Reject | Accept | Stationary |

**Source: Author's computation**

From the result in table 4.2, it could be seen that all the variables were stationary at first difference. We therefore reject null hypothesis because their respective ADF test statistics value is greater than McKinnon critical value at both in absolute terms and at 5%. The order of integration for all the variables is therefore is 1(1).

## Summary of Order of Integration

| Variable | Order of Integration |
|----------|---------------------|
| PCI | I(I) |
| CPS_GDP | I(I) |
| $M_2$_GDP | I(I) |
| IRS_GDP | I(I) |

## Tests for Cointegration

The econometric concept of co-integration is related to the problem of determining the long-run equilibrium relationship. In other words, co-integration is the statistical analysis that tests the existence of a long-run equilibrium relationship between variables in a model. The condition for a long run co-integrating vector is that likelihood ratio must be greater than 5% critical value. Table 4.3 shows the result of co-integration result.

### Table 4.3 Result of Johansen Co-integration

| Eigen Value | Likelihood Ratio | 5% Critical Value | 1% Critical Value | Hypothesized No of CE(s) |
|-------------|------------------|-------------------|-------------------|--------------------------|
| 0.876534 | 115.9788 | 90.65 | 97.44 | None** |
| 0.745786 | 62.44 | 53.12 | 70.78 | At most 1* |
| 0.654881 | 54.55 | 50.33 | 62.34 | At most 2 |
| 0.543356 | 40.67 | 48.33 | 54.72 | At most 3 |
| 0.122876 | 2.65433 | 6.32 | 8.65 | At most 4 |

**\*(\*\*)** denotes rejection of the hypothesis at 5% (1%) significance level\
L.R test indicates 3 co-integrating equation(s) at 5% significance level

**Source: Researcher's computation**

It is clear from the result in table 4.3 that co-integration or long-run relationship exist among the variables, that is, per capita income, private sector credit to GDP, interest rate spread and $M_2$/GDP. The result shows that the critical value at 5% is less than the likelihood ratio in row 1 and 2. Therefore, we reject the hypothesis of no co-integration at 5% significance level.

## Table 4.4: Summary of the OLS Result

| | | | | |
|---|---|---|---|---|
| **Dependent Variable: Per capital income ($Y_g$)** | | | | |
| | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Constant | -0.117270 | 0.036743 | -3.191653 | 0.0020 |
| CPS_GDP | 1.073788 | 0.027618 | 38.87956 | 0.0000 |
| $M_2$_GDP | 0.104024 | 0.028773 | 3.615345 | 0.0005 |
| IRS_GDP | -0.008909 | 0.003819 | -2.332563 | 0.0221 |
| R-squared | 0.64887 | | | |
| Adjusted R-Squared | 0.61665 | | | |
| Durbin-Watson | 1.32111 | | | |
| F-statistic (probability) | 138.236 (0.0000) | | | |

*:indicates significant at 1% level; **:indicates significant at 5% level,
***;indicates significant at 10% level

Result from Table 4.4 was  used to test the effect of financial sector development on poverty alleviation in Nigeria. Growth in per capita income ($Y_g$) was used as dependent variable while credit to the private sector (CPS), broad money aggregates (M2) and interest rate spread (IRS), all scaled to the gross domestic product (GDP) were used as independent variables.  The resultant coefficients for per capita income at constant rate and interest rate spread were negative and significant.  The coefficients for credit to the private sector and broad money aggregates were positive and significant. Therefore, we reject the null hypothesis and accept the alternate hypothesis and conclude that financial sector development had impacted positively and significantly on poverty alleviation in Nigeria.   This result meets a priori expectation under the financial development theory of Schumpter (1936).

The $R^2$ is the summary measure that tells us how well the sample regression line fits the data. From the results in Table 4.4, $R^2$ of approximately 0.62 means that 62 percent variations (growth) in per capital income is attributable to financial sector development proxied by credit to the private sector, broad money aggregates and interest rate spread.  The Durbin Watson (DW) statistics as shown in table 4.4 shows the absence of no serial autocorrelation as the DW statistics (1.32) falls below the critical value of 2. The F-value of (138.236) is significant (P-value = 0.000) 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 growth in per capita income in Nigeria for the period under review.

### Interpretation of Short run test and Error Correction Model
Having established that a Cointegrating relationship exists among the variables, a Vector Error Correction Model (VECM) was therefore, estimated to determine the dynamic behavior of the growth equation in the short-run.  The study estimated the short-run VECM based on the following specifications derived from a general-to-specific modeling:

$$\Delta PCI_t = Log\Sigma PCI = \beta_0 + \beta_1\Sigma LogCPS + \beta_2\Sigma LogM_2 + \beta_3\Sigma LogIRS + \Sigma_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

All the variables are already defined except $\Delta$ which represents change and $\Sigma GDP_{t-1}$ which is the one period lagged error correction term estimated from equation (2).  The coefficient measures the speed of adjustment to obtain equilibrium in the event of shocks to the system. PCI is the natural logarithm of the initial level of per capita income.  This is used in the study as

the exogenous variable in the VECM to capture the conditional convergence effect and is expected to have a significant negative influence on the growth.

The result of VECM is presented in Table 4.5

### Table 4.5: Short-Run Error Correction PCI Growth Equation

| Dependent Variable: $\Delta CPI_t$ | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Constant | 0.01156 | 0.00059 | 1.960919 | 0.0701 |
| $\Delta PCI_{t-1}$ | -1.00285 | 0.016156 | -62.0736 | 0.000* |
| $\Delta CPS_{t-1}$ | 0.01365 | 0.002453 | 5.56567 | 0.000* |
| $\Delta M2_{t-1}$ | -0.05551 | 0.003916 | 3.971338 | 0.0014* |
| $\Delta IRS_{t-1}$ | -0.00214 | 0.00756 | 0.564638 | 0.5813 |
| Adj $R^2$ | 0.7905 | | $\chi^2_{Norm}$ | 0.703 |
| F-statistic | 967.304* | | $\chi^2_{Reset}$ | .560 |
| Log Likelihood | 112.124 | | $\chi^2_{Auto}$ | 0.0139 |
| Akaike info criterion | -8.967 | | $\chi^2_{ARCH}$ | 1.618 |
| Schwatz criterion | -8.523 | | $\chi^2_{White}$ | 2.183 |

Note: * denotes statistical significance at the 1% level

Result from Table 4.5 shows that the model has correct signs for the explanatory variables with the exception of per capita income variable which is incorrectly signed against theoretical expectation a priori. All the variables are significant. The signs on the interest rate spread variable supports theoretical expectation. The significant positive sign on credit to private sector implies that financial development promotes economic growth and in turn reduces poverty.

## SUMMARY, CONCLUSION AND RECOMMENDATIONS
### Summary
This study has examined the effect of financial sector development on poverty alleviation in Nigeria using annual time series from 1986 to 2016. The empirical modeling was based on Vector Error Correction Model (VECM). Poverty alleviation was proxied by per capita income growth while financial sector development was proxied by credit to the private sector, broad money aggregates and interest rate spread. The resultant coefficient for private sector credit and broad money supply (M2) were positive and significant. This result confirms the McKinnon (1973) conduit effect as the likely main transmission channel through which the poor benefit from the financial sector development in the long run.

However, the coefficient for interest rate spread is negative which confirms that interest rate in Nigeria is high for borrowers and low for deposits. High lending rate discourages borrowers from using banking sector credit to fund their investment operations while low deposit rates also discourages savers from saving their excess liquidity and may instead invest in other high yielding non-banking investment vehicles.

### Conclusion
From the foregoing, the study concludes that financial sector development which has made more credit available to the private sector has led to poverty alleviation in Nigeria, though not at a level that is significant and substantial due to high lending rates and low deposit rates.

## Recommendations

Based on the findings of the study, the study recommended as follows:

1. That monetary authorities in Nigeria especially the 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. The CBN should also continue to liberalize the financial sector to allow nominal interest rates to rise to market-clearing levels. This would cause real interest rates to rise to positive levels; thus removing the explicit interest–rate subsidy accorded to preferred borrowers and drastically reducing the wide gap between the lending and borrowing rates. The higher real interest rates would generate more domestic saving and investment. More importantly, saving accumulation will later improve access to credit and make some borrowers to shift from informal to formal credit market.

2. The CBN should continue in the various interventions funds it has mapped out that are targeted at the pro-poor sectors. The essence of these intervention funds is to ensure that credit facilities are made available to the hitherto neglected key sectors of the economy. The CBN should also ensure that commercial banks key into these interventions and also make credit available to the poor and often-neglected members of the society.

3. To avoid crowding out the real sector, government should minimize its borrowing activities most especially from domestic financial market. This would make more loanable fund available to financial intermediaries for on-lending to the pro-poor sector of the economy as against the present huge investment expenditure locked up in government securities such as: treasury bills and government bonds.

## References

Adekunle, Salami & Adedipe (2013), Impact of Financial Sector Development on the Nigeria Economic Growth; *American Journal of Business and Management; 2(4): 347-356*

Ajayi S I (1995); Role of Central Banks in Economic Development; CBN Economic and Financial Review, 33 (3)

Alade, S. O (2017); Nigerian Financial System at a Glance*; Monetary Policy Department, Central Bank of Nigeria.*

Creane S, et-al (2003), Financial Development & Economic Growth in the Middle East and North Africa; *Newsletter of the Economic Research Forum for the Arab Countries, Iran and Turkey, 10(2), Summer*

Dandume, M Y (2014); Financial Sector Development, Economic Growth and Poverty Reduction: New Evidence from Nigeria; Journal of Faculty of Economics & Administration Sciences 201; 4 (2) 1 – 20.

Dauda, R. O. S & Makinde, K O (2014) Financial Sector Development and Poverty Reduction in Nigeria; A Vector Auto-regression Analysis (1980 – 2010). *Asian Economic and Financial Review, 2014, 4 (8): 1040 – 1061.*

Ebiringa O T & Duruibe S C (2015), Financial Systems development and Economic Growth, Evidence from Nigeria; *American Journal of Economics, Finance & Management; 5: 329-335*

Imala, O. I (2005), Challenges of Banking Sector Reforms & Bank Consolidation in Nigeria, Bullion, 29(2).

Jhingan, M L (2003), Macro Economic Theory, 11th Revised Edition, Delhi, *Vrinda Publications (P) Ltd.*

Kasali T A; Ahmad S. A. & Lim H A (2015), Role of Microfinance in Poverty Alleviation: Empirical Evidence from South-West Nigeria; *Asian Social Science; 11(21) 2015.*

King Robert, G & Levine Ross (1993) Finance and Growth: Schumpeter Might be Right; *Policy Research Working Paper Series – The World Bank*

Klapper, L & Hess, J (2016) 5 Way digital Finance Can Help People escape Poverty; *Development Research Group, World Bank.*

Kehinde, J. S & Adejuwon, K. D (2011), Financial Inclusion as catalyst to economic development: the Nigerian experience, *European Journal of Humanities & Social Science,* 8(1):13 -18

Ndung'u, N & Ngugi, R (2000) Banking sector interest rate spread in Kenya. *The Kenya Institute for Public Policy Research*, Issue 5(5):120-125.

Nnamdi, I S (2015) Private Vs Public Sector Bank Credit & Economic Growth Nexus in Nigeria: Where Does Efficacy Rest? *Research Journal of Finance & Accounting, 6 (3) 2015*

Nwaeze, C. (2017) Impact of Financial Intermediation on Economic Growth in Nigeria; *University of Nigeria Institutional Repository*

Nzotta, S M & Okereke, E J (2009) Financial deepening and economic development of Nigeria: An empirical Investigation; *African Journal of Accounting, Economics, Finance and Research 5(5) 2009.*

Omoruyi, S. E. (1991); The Financial sector in Africa: overview and reforms in economic adjustment programmes, *CBN Economic and Financial Review,* 29(2):110 – 124*.*

Omotunde, M; Sunday T & John – Dewole A T (2013), Impact of Cashless Policy in *Nigeria; Greener Journal of Internet, Information & Communication System, 1(2):040-043.*

Onyeiwu, C (2012); Domestic Debt and the Growth of the Nigerian Economy; *Research Journal of Finance and Accounting* 3(5):18-34

Oriavwote, V and Eshenake, S. (2014) "An Empirical Assessment of Financial Sector Development and Economic Growth in Nigeria", *Department of Social Sciences, Economic and Development Studies Programme, Federal University Otuoke, Bayelsa State.*

Oyewo, M. B & Oyewole, O.S (2014), Financial System, Financial Inclusion & Economic Development in Nigeria: *International Journal of Management Science. 2(3):139 – 148.*

Philip, A (2017), The Impact of Domestic Debt on Private Credit in Nigeria: A Structural VAR  Approach (1981 – 2015); *Research & Review: Journal of Social Science.*

Sanusi, L S (2012), Banking Reforms and Its Impact on the Nigeria Economy; Being a Lecture Delivered at Warwick's Economic Summit, UK on 17th February, 2012.

Sheyin, S H (2011), Impact of treasury Bills Returns on Financial Intermediation in Nigeria – *A  thesis submitted to Ahmadu Bello University Zaria, in fulfillment of the requirement for the award of Masters Degree in Economics.*

Rewilak, J (2015); The Role of Financial Deepening, Breadth & Stability in Poverty Reduction

Takele, Y. (2013); A Dynamic and Multivariate Analysis of Treasury Bills Behavior in a Bank Asset Portfolio; *European Scientific Journal*, 9(7):34-54

Zahonogo, P (2016) Financial Development & Poverty in Developing Countries: Evidence from Sub-Saharan Africa.