

Analysis of financial deepening and poverty reduction in Nigeria

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ABSTRACT

This study sought to examine the effect of financial deepening on poverty reduction in Nigeria. Secondary data from 1999 to 2019 was extracted from Central Bank of Nigeria statistical bulletin and World Development Indicator. Time series properties of the data was tested with ADF and PP unit root test which was followed by a test of the long run relationship among the variables using Johansen-Juselius cointegration test, and granger causality, and OLS was equally conducted to establish short run relationship among the variables. Findings revealed existence of long run relationship among the variables while OLS revealed a positive and significant relationship of financial deepening with poverty reduction and unemployment rate in Nigeria. Granger Causality Test showed that credit to private sector granger causes improvement in National development. The study concluded that financial deepening if well pursued, will contribute to the reduction in poverty level among the people and engender human development in the country. It is thus argued that the more people have access to financial services, the more their welfare improves. The government should therefore embark on policy thrusts to improve financial deepening and formulate financial reform policies that will have a proportionate beneficial welfare impact on the living conditions of the people.

Keywords:

Development, Poverty,
 Finance, Unemployment,
 Financial deepening

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1. INTRODUCTION

Despite numerous measures which have been taken at both macro and micro level to combat poverty, it still remains a burning issue of not only the developing countries but also of the developed world (Ali Khan, Khan, Ahmad & Siraj, 2011). Nations of the world especially developing economies strive to achieve improvement in the well-being of their citizenry by embarking on intervention programs that will lead to the reduction of poverty through well-articulated monetary and fiscal policies, one of which is the financial deepening of the financial sector. It is generally believed that with access to finance in an atmosphere of freedom, people will find what to do, be creative to earn and improve their living. According to Sen, (1999) development is about creating freedom for people and removing obstacles to greater freedom. Way back in year 2000, Nigeria had the target of halving by the year 2015 its poverty incidence ratio to 32.5 per cent from the then prevailing ratio of about 65 per cent. The actualization of this target has remained a mirage. The poverty crisis has however been sustained and intensified by the dominant forces. As at December 2020, 33.3per cent of the labour force was unemployed. This is a large number given that the labour force in Nigeria as at December, 2020 stood at 122 million (National Bureau of Statistics, 2020). Nigeria has become one of the weakest growing economies in the world on a per capita basis especially for the period 1981-2020.

Financial deepening as indicated in Obonyo (2014) "is the increased provision of financial services with a wider choice of services geared to all levels of society. The more liquid money is available in an economy, the more opportunities exist for continued and sustainable growth. It is the accumulation of financial assets at a faster pace than the accumulation of non-financial wealth and total output.". Evidence from the literature suggest that "by mobilizing savings, facilitating payments and trade of goods and services, and promoting efficient allocation of resources, the financial sector is seen as playing a critical role in facilitating economic growth and, directly through broadening access to finance and indirectly through growth, contributing to poverty reduction." (ADB 2009; Obonyo, 2014). However, economists differ in their views regarding the role of finance in poverty reduction as a function of economic development. Akinlo (2014) graphically argued that this development in the financial sector was brought about by the creation of an enabling environment which witnessed increased number of financial institutions including the Deposit Money Banks (DMB) and their network of branches and specialized banks for Agriculture, Industry and Commerce. Other Poverty alleviation programs such as the SMEs loan, Agricultural Development Program (ADP), National Directorate of Employment (NDE), the Directorate of Food, Road and Rural Infrastructure (DFFRI), Better Life for Rural Women, and National Microfinance Policy and Regulatory Framework (NMPRF). All these programs were all put in place to tackle Poverty by providing access to finance. But Dabwor and Abimiku (2016) noted that despite all these efforts, the absolute poverty level in Nigeria has persistently remained above 50% in spite of the nation's enormous wealth.

Since Nigeria's independence in 1960, the successive governments have introduced several initiatives aimed at poverty reduction. The realization of the intended gains on poverty reduction efforts remains elusive as poverty in Nigeria has assumed an increasing trend. The poverty incidence in Nigeria reduced from 46.3 per cent in 1985 to 42.5 per cent in 2020. With a GDP of about \$432 billion in 2020, and a per capita income of about \$2.083, Nigeria has therefore become one of the poorest

countries in the world. Similarly, Nigeria is far from achieving the Millennium Development Goal on poverty. The International Development Targets (IDTs) agreed in 2000 by the United Nations membership following a series of summit meetings held by the UN and its specialized agencies, committed the international community to achieving sustainable development by the target date of 2015. The IDT for poverty reduction aims to reduce the proportion of people living below a dollar a day from 30 percent to 15 percent of the developing world's population. In Nigeria, government has been carrying out policies and developmental programs that are tailored towards poverty reduction or eradication. The financial sector on the other hand has also made an appreciable significant improvement over the years. Credit to the Private Sector rose from 8.57 billion Naira in 1981 to 30,149 billion Naira in 2020 and Broad Money Supply rose from 14.47 billion Naira in 1981 to 37,704 billion Naira in 2020 while Market Capitalization increased from five billion Naira in 1981 to 20.446 trillion Naira in 2020 (CBN Statistical Bulletin, 2020). And evidence from the scripture suggested that Nigeria has witnessed a significant growth in the financial deepening variables with improved credit to the private sector to GDP ratio, increased money supply to GDP ratio and improved market capitalization to GDP ratio. Regrettably, in spite of several reforms in the financial sector couple with the relative improvement in financial deepening indicators, these have not translated to poverty reduction in Nigeria. With this evidence from the literature, this study wonders if, Nigeria's level of financial deepening has achieved any significant reduction in poverty. Again, there are different arguments in the literature regarding the influence of finance on poverty leading to the supply-leading hypothesis, demand-following hypothesis and the feedback hypothesis. And the concern of this study is which of these hypotheses is empirically supported in Nigeria?

2. LITERATURE REVIEW

2.1 Concept of Financial Deepening

Financial deepening is defined as an increase in the size of financial system and its role and pervasiveness in the economy. From the monetary policy perspective, the growing diversification of firms' and households' portfolios is especially relevant, as they are more affected by the developments in the financial markets (Visco, 2007). As observed by Abur, Chiawa and Torruam (2013), financial deepening paves the way for better economic performance through greater ability to compete efficiently within the limits of the financial markets by indirectly profiting non-financial sectors (areas) of the nation's economy. Financial deepening brings the greater ability of capital to move quickly from one economy to another and greater risk effects. The resultant effect of this is that the supply of risk capital will grow, which will, in turn, cause a rapid increase in economic development. Economic development can be facilitated if firms have easy access to finance at less cost, for financing working capital needs and investments in the latest technology and other recent innovative operations (Acharya & Xu, 2017). In developing countries, imperfections in the financial market can be specifically relevant in the firm's capacity to import. Firms in an environment with credit constraints and financial market imperfections are unable to borrow that which is much more than their present profit (Abo-Zaid & Garín, 2016).

Financial deepening also refers to liquid money. There are better chances of economic growth when more liquid money is readily available in the economy. Financial deepening forcefully attracts a large amount of savings and funds not in use, and officially gives these funds to the government, firms/industries, households and business entrepreneurs for investments and other plans to make returns which constitute the foundation for economic growth. Financial deepening has not succeeded in attracting foreign investment or putting a stop to capital flight in Nigeria; that is, it has failed to make an impressive performance in the country (Chibuike, 2017). Despite different changes in the Nigerian banking sector, the sector is yet to address the financial pitfalls in the banking system. This is because neither investments nor domestic savings in Nigeria have considerably increased since the introduction of changes in the banking sector as it remains to a greater extent uncompetitive and oligopolistic, as only a small number of the so-called big banks control the more significant parts of the market in terms of total credit, total assets, and total liabilities in the system (Abur *et al.*, 2013).

2.2 Concept of Poverty

There is hardly a universal way of defining poverty because it affects many aspects of human conditions. However, the conventional concept of poverty depicts it as a condition in which people live below a specified minimum income level and are unable to provide the basic necessities of life needed for an acceptable standard of living. Poverty is a plague which affects people all over the world, though generally considered as one of the manifestations of underdevelopment. Poverty, as cited in Aderonmu (2010), was defined as lack of command over basic consumption needs (Ravallion & Bidani, 1994), having inadequate level of consumption (Aluko, 1975), and inability of a person to attain a minimum standard of living and high status in a society (World Bank Report, 1990). Nevertheless, to attempt a compromise definition of poverty, one can see it as a condition "where an individual is not able to cater adequately for his/her basic needs (such as food, clothing and shelter), is unable to meet social and economic obligations, lacks gainful employment, skills, assets and self-esteem; and has limited access to social and economic infrastructure (such as education, health, potable water and sanitation), and consequently has limited chance of advancing his/her welfare to the limit of his/her potentials and capabilities".

2.3 Perception of Poverty

Poverty have been illustrated using different criteria; such as glaring defects in the economy - evidenced in mass penury, pauperization of the working class, the professional class including artisans, mass unemployment and poor welfare services, absence or lack of basic necessities of life including material wealth, common place regular flow of wages and income and inability to sustain oneself based on existing resources. It is "a situation when the resources of individuals or families are inadequate to provide a socially acceptable standard of living" (Johnson, 1974, cited in Agwu & Kadiri, 2014, p. 2). As cited in Fasoranti (2010:1439), poverty is seen as a state of involuntary deprivation (Odusola, 2001; Ogwumike, 2001), lack of capabilities to carry out certain activities (Desai, 1992) and lack of adequate basic necessities of life (Englama & Bamidele, 1997; Madinagu, 1999; Oladunni, 2001). According to Obayelu and Uffort (2007) poverty has been perceived by many as not just lack of money, food and assets but also as lack of access to education and health care and lack of security, dignity and

independence. However, a person's perception of poverty is a function of his present experience, condition of his environment, the aim of such definition, his vocation and his definition of the good life (Fasoranti, 2010).

Within the Nigerian context therefore, the following conditions are perceived as poor:

- i. Households or individuals below the poverty line and whose incomes are insufficient to provide for their basic needs.
- ii. Households or individuals lacking access to basic services, political contracts and other forms of support.
- iii. People in isolated rural areas who lack essential infrastructures.
- iv. Female-headed households whose nutritional needs are not being met adequately.
- v. Persons who have lost their jobs and are unable to find employment as a result of economic reforms.
- vi. Ethnic minorities who are marginalized, deprived and persecuted economically, socially, culturally and politically.

2.4 Conceptual Framework

The following diagram presents the interconnectivity of the variables of the study. Financial deepening is the independent variable which is measured by Credit to Private Sector (CPS), Unemployment Rate (UR) and Government Grant proxy by Social Expenditure (SEXP) while poverty which is the dependent variable is evaluated by Human Development Index (HDI). The conceptual framework developed by the literature review is illustrated as follows;

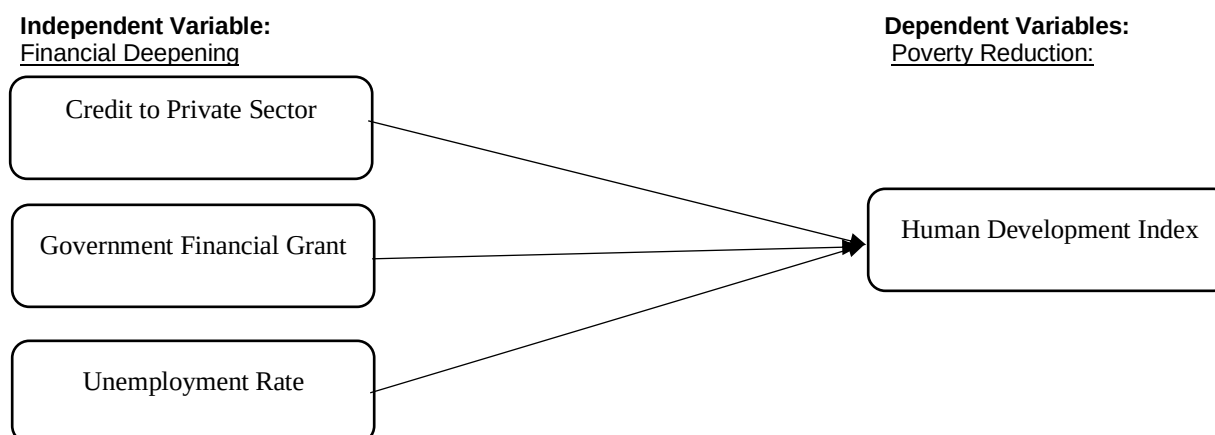


Fig. 1. Conceptual Framework

2.4.1 Credit to Private Sector

It refers to financial resources provided to the private sector by financial corporations such as through loans, purchases and other accounts receivable that establish a claim for repayment. The financial corporations include monetary authorities and deposit money banks as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and saving deposits). Example of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds and foreign exchange companies.

2.4.2 Government Financial Grant

Government grants are assistance by government in the form of transfers of resources to an entity in return for past or future compliance with certain conditions of the entity. They exclude those forms of government assistance which cannot reasonably have a value placed upon them and transactions with government which cannot be distinguished from the normal trading transactions of the entity.

2.4.3 Unemployment Rate

It is the proportion of the labor force that is not currently employed but could be. It is a lagging indicator, meaning that it generally rises or falls in wake of changing economic conditions, rather than anticipating them.

2.4.4 Human Development Index

Human development index is a statistic developed and compiled by the United Nations to measure various countries' levels of social and economic development. It is composed of four principal areas of interest: mean years of schooling expected years of schooling, life expectancy at birth, and gross national income per capita. This index is a tool used to follow changes in development levels over time and to compare the development levels of different countries.

2.5 Empirical Review

Admittedly, there are a number of studies that have focused on financial deepening and poverty reduction across various economies. Such discourses give insights on the subject while the eventual hindsight thereof reveals gaps in knowledge and reason for further studies. The following are some empirical studies related to the subject:

2.5.1 Empirical Review on Other Countries

As observed by Abur, Chiawa and Torruam (2013), financial deepening paves the way for better economic performance through greater ability to compete efficiently within the limits of the financial markets by indirectly profiting non-financial sectors (areas) of the nation's economy. Financial deepening brings the greater ability of capital to move quickly from one economy to another and greater risk effects. The resultant effect of this is that the supply of risk capital will grow, which will, in turn, cause a rapid increase in economic development. Economic development can be facilitated if firms have easy access to finance at less cost, for financing working capital needs and investments in the latest technology and other recent innovative operations (Acharya & Xu, 2017). In developing countries, imperfections in the financial market can be specifically relevant in the firm's

capacity to import. Firms in an environment with credit constraints and financial market imperfections are unable to borrow that which is much more than their present profit (Abo-Zaid & Garín, 2016). The financial depth which means access to finance is the amount of ratio of liquid liabilities to Gross Domestic Product ($M2/GDP$).

Honohan (2004) confirms the position of Li et al. (1998). He shows a robust effect of financial depth (measured as the ratio of private credit to GDP) on headcount poverty incidence (based on both the \$1- and \$2-a-day poverty lines). The regression results suggest that a 10 percentage-point increase in the ratio of private credit to GDP would lead to a 2.5 - 3.0 percentage-point reduction in poverty incidence. While controlling for per capita GDP, the study indicates that there is a direct relationship between financial development and poverty reduction. However, this relationship exists independent of the indirect effect through growth. Similarly, using data for 58 developing countries over 1980 to 2000, Beck et al. (2004) suggest that financial development alleviates poverty beyond its effect on aggregate growth. They posit that countries with better-developed financial intermediaries (measured as the ratio of private credit to GDP) experience faster declines in both poverty and income inequality by disproportionately boosting the incomes of the poor.

In country specific studies, Jeanneney and Kpodar (2008) investigate how financial development helps to reduce poverty directly through the MacKinnon conduit effect and indirectly through economic growth using data for a sample of developing countries from 1966 through 2000. Their results suggest that the poor benefit from having access to financial intermediary services. The poor are able to save but fail to reap the gains from greater availability of credit because of financial instability. In spite of this, the gains of financial development for the poor outweigh the cost. In a State-wise Assessment in India on whether access to banking services is capable of reducing poverty, Bhandari (2009) investigates the drive to financial inclusion in the form of the growth in bank accounts of scheduled commercial banks and the changes in below poverty line population. The study reveals that the growth in bank accounts is not significantly associated with the reduction in below poverty line population across states. The author concludes on the ground that providing banking services to maximum number of people is unsuccessful as a poverty reduction strategy.

In Ethiopia, for instance, Geda et al. (2006) use the rich household panel data of urban and rural Ethiopia that covers the period from 1994 to 2000, the authors attempted to establish the link between finance and poverty in Ethiopia. Their results show that access to finance is an important factor in consumption smoothing and hence poverty reduction. Odhiambo (2010a) focused on the Kenyan economy to analyze the relationship between financial deepening, savings and poverty reduction. He used time series data between 1968 and 2006 and the dynamic trivariate granger causality model based on error correction mechanism. His main findings were that there is a distinct causal flow from financial deepening to both poverty reduction and savings, and that there is bi-directional causality between savings and poverty reduction implying unemployment reduction as well. Odhiambo (2010b) investigated financial deepening and poverty reduction in Zambia. He used the Autoregressive Distributed Lag Bounds Testing procedure on three proxies of financial development, Broad Money Supply ratio to GDP ($M2/GDP$), Domestic Credit to Private Sector to GDP (DCP/GDP) and Deposit Money Bank Assets and found out that when Broad Money Supply ratio ($M2/GDP$) is used as a proxy for financial Sector development, poverty reduction seems to cause development of the financial sector. But when Direct Credit to the Private Sector and Deposit Money Bank Assets (DMBA) are used financial development seems to cause poverty reduction and by extension unemployment reduction. Obonyo (2014) studied financial deepening, Savings Mobilization and Poverty reduction in Kenya. Using $M2/GDP$ as financial deepening indicator and the Johansen Cointegration model and Granger Causality Test, he found that first, financial deepening granger causes both savings and poverty reduction in Kenya. Second, the effect of financial deepening on poverty reduction in Kenya was positive, though not significant, and that there was a long run relationship between financial deepening, savings mobilization and poverty reduction and by implication to unemployment reduction. In his study of the relationship between financial development, savings mobilization, and poverty reduction in Ghana, Quartey (2008) finds that financial sector development has a positive impact on poverty reduction, although the impact is insignificant in view of the fact that financial intermediaries have not adequately channeled savings to the pro-poor sectors of the economy mainly due to government deficit financing, high default rate, lack of collateral, and lack of proper business proposals.

2.5.2 Empirical Review on Nigeria

Fowowe and Abidoye (2011) examine the effect of financial development as measured by private credit on the growth of poverty and inequality in Sub-Saharan African countries. Their findings show that private credit has no significant influence on poverty in these countries. However, empirical results show that macroeconomic variables such as low inflation and trade openness engender reduction of poverty. In a study on financial deepening and economic development by Nzotta and Okereke (2009), financial deepening is described as the ability of financial institutions in an economy to mobilize savings for investment purposes effectively. Financial deepening also refers to liquid money. There are better chances of economic growth when more liquid money is readily available in the economy. Financial deepening forcefully attracts a large amount of savings and funds not in use, and officially gives these funds to the government, firms/industries, households and business entrepreneurs for investments and other plans to make returns which constitute the foundation for economic growth. Financial deepening has not succeeded in attracting foreign investment or putting a stop to capital flight in Nigeria; that is, it has failed to make an impressive performance in the country (Chibuike, 2017). Dabwor and Abimiku (2016) studied Poverty Incidence in Nigeria: Does Financial Deepening Matter? They used the Classical Ordinary Least Square Regression (OLS) on three equations for Rural, Urban and National levels of poverty and found out that poverty is still endemic in Nigeria but financial deepening guarantees financial inclusion to Nigerians and by extension reduces poverty.

A study by Nwanna and Chinwudu (2016) analyzed the relationship between economic growth and financial deepening in Nigeria for the period beginning 1985 and ending in 2014. The findings showed that both stock market and money market depth proxies had statistically significant and positive influence on economic growth. Despite different changes in the Nigerian banking sector, the sector is yet to address the financial pitfalls in the banking system. This is because neither investments nor domestic savings in Nigeria have considerably increased since the introduction of changes in the banking sector as it remains

to a greater extent uncompetitive and oligopolistic, as only a small number of the so-called big banks control the more significant parts of the market in terms of total credit, total assets, and total liabilities in the system (Abur et al., 2013).

2.6 Theoretical Framework

This study is based on the theory of financial liberalization pioneered by Mac Kinnon (1973) and Shaw (1973) advocates for the liberalization of the financial sector as an effective way to accelerate growth. The theory suggests that the liberalization of financial markets allows financial deepening which reflects an increasing use of financial intermediation by savers and investors as well as the monetization of the economy. Financial Liberalization refers to the process to liberalize the financial sector of a country with an aim to create favorable environment to increase the money demand in the economy. This is assumed to take place in two ways;

- i. By increasing the financial resources to lead the supply-induced demand for money
- ii. By creating suitable environment to make investments in the economy.

In other words, by lowering financial market frictions, domestic savings are increased and foreign capital is attracted. The theory is based on the premise that the higher the real rate of interest, the greater the degree of financial deepening, the more saving there will be, and financial saving will be allocated and invested more efficiently than if saving is invested directly in the sector in which it takes place, without financial intermediation (Thirlwall 2005).

3. METHODOLOGY

The study employed ex-post facto research design. The data obtained for this study was mainly from secondary source of data and the study utilized time series data from 1999 - 2019. The data was sourced from Central Bank of Nigeria statistical bulletin, World Bank, World Development Indicator and National Bureau of Statistics. The econometric analysis was conducted with E-views 9.0 software package.

3.1 Model Specification

Poverty is the dependent variables and was proxied as Human Development Index while the independent variable was financial deepening and proxied by Credit to Private Sector (CPS), Government Financial Grants (measured by Social Expenditure SEXP) and Unemployment Rate (UR). Krishnaswamy (2009) note that the first step to establish a relationship between variables is to express it in mathematical forms. Thus, the model variables are expressed as;

$$HDI = f [CPS, SEXP, UR] \dots \dots \dots (1)$$

which was in line with Krishnaswamy (2009) and Saudners (2009) who stated this formula as general formula for regression model specification. By expansion, we have the followings

$$Y = \beta_0 + \sum^n \beta_1 X_{it} + e \dots \dots \dots (2)$$

Where;

Y = dependent variables; β_0 = the intercept of equation; n = number of independent variables; $\beta_1 \dots \beta_n$ = coefficient of independent variables; X_{it} = period covered 1, 2, 3.....10years; e = error term. From above function, we derived the following structure:

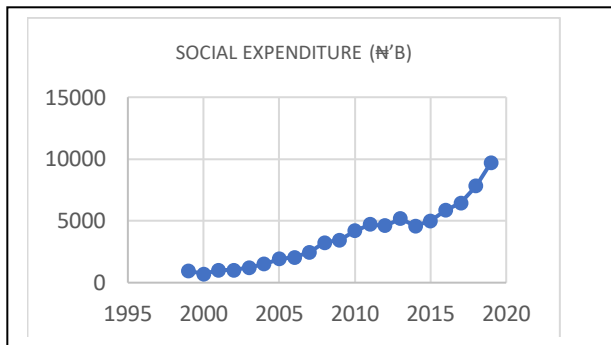
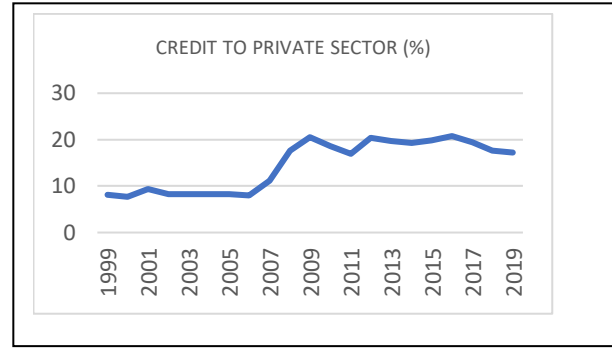
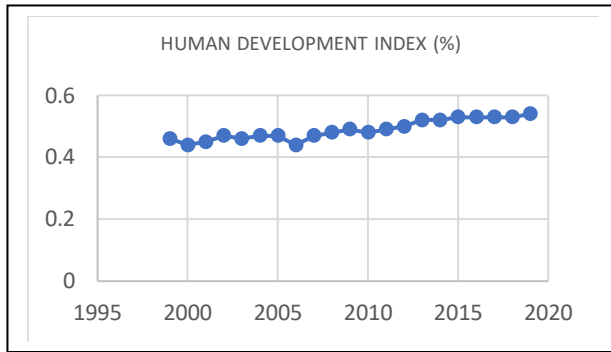
$$HDI = \alpha_0 + CPS + SE + UR + \epsilon \dots \dots \dots (2)$$

Where; HDI = Human Development Index; CPS = Credit to Private Sector; SE = Social Expenditure; UR = Unemployment Rate, the a priori expectation is $\beta_1, \beta_2, \beta_3 > 0$

The dependent variable which is poverty reduction is represented with human development index (HDI) as proxy for reducing Poverty due to its multidimensional nature, while the independent variable which is financial deepening is measured by Credit to Private Sector to GDP, and Social expenditure. Credit to Private Sector is financial resource provided to the private sector by financial corporations such as through loans, purchases and other accounts receivable that establish a claim for repayment. Government Financial Grant are assistance by government in the form of transfers of resources to an entity in return for past or future compliance with certain conditions of the entity. Unemployment Rate is the proportion of the labor force that is not currently employed but could be. Human Development Index (HDI) is a statistic developed and compiled by the United Nations to measure various countries' levels of social and economic development.

4. FINDINGS

The figures display the trend analysis of the study variables and reveals that there is non-stationary in the data as a result of variation such as seasonal variation, cyclical variation and irregular variation. Both the credit to private sector and human development indicators flow averagely and steadily with any sharp change with the study period. The social expenditure over the period has been consistently rising showing a huge commitment of the various government regime to social development of the citizen. The unemployment rate has however remained appreciably stationary until around 201/2012 when there was a rise in the unemployment rate and the rise has since been continuously and dishearteningly sustained.



4.1 Correlation result

Table 1 shows the correlation analysis among the variables. From the result shown below, there was a positive correlation between credit to private sector and human development index with the value of 0.827036. This positive correlation implied that an increase in the credit to private sector will result to an increase in human development index and vice versa. The correlation result indicated a negative association between unemployment rate and human development index with the value of 0.791675. This negative association indicated that an increase in unemployment rate will lead to a decrease in human development index and vice versa. The result also showed a positive relationship between social expenditure and human development index with value of 0.894543. This positive relationship indicated that an increase in social expenditure will lead to an increase in human development index and vice versa.

Table 1. Correlation Analysis

	HDI	CPS	UR	SEXP
HDI	1.000000	0.827036	0.791675	0.894543
CPS	0.827036	1.000000	0.476619	0.874446
UR	-0.791675	0.476619	1.000000	0.666783
SEXP	0.894543	0.874446	0.666783	1.000000

Source: Author's computation

4.2 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 stationarity 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. 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 (H0) i.e. data is non-stationary and reject the alternative hypothesis (H1) i.e. data is stationary. From the result in Table 2, it is clear that all the variables have ADF test statistics value less than the MacKinnon critical value both in absolute terms and at 5% level (i.e) 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 2 below.

Table 2. Unit Root Test @Level

Variables	Adf t-Statistics Value	5% Mackinnon Critical Value	P-Value @ Level	Decision Rule H0	Remarks
HDI	-0.479250	-3.020686	0.8762	Accept	Non-stationary
CPS	-1.202346	-3.020686	0.6521	Accept	Non-stationary
UR	0.683340	-3.020686	0.9884	Accept	Non-stationary

Source: Author's computation

From the result in table 3 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 MacKinnon critical value at both in absolute terms and at 5%. The order of integration for all the variables is therefore is 1(1).

Table 3. Unit Root Test @First Difference

Variables	ADF t-Statistics Value	5% Mackinnon Critical Value	P-Value @First Difference	Decision Rule H0	Remarks
HDI	-6.125516	-3.029970	0.0001	Reject	Stationary
CPS	-3.501800	-3.040391	0.0204	Reject	Stationary
UR	-3.461465	-3.029970	0.0214	Reject	Stationary

Source: Author's computation

4.3 Johansen's Co-integration Test

The first two panels of Table 4 show the results for the trace statistic and max-eigen statistics respectively. The second column in each case presents the ordered Eigenvalues. The trace statistic of 54.83 exceeds the critical value (of 47.86). But, besides, the probability of the trace statistic (0.0096) is more than 5%; therefore, the null of no cointegrating vectors is accepted. If we then move to the next row, the traces statistic (of 22.50) is less than the critical value (of 29.80) so that the null of atmost one cointegrating vector is also accepted. A look at the second panel, which presents the Max-eigen statistic test, confirms this result that the variables are cointegrated. Hence, there is a long run relationship between the dependent variable and the independent variables.

Table 4. Johansen Test for Cointegration Result

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. Of CE(s)	Eigenvalue	Trace Statistics	0.05 critical value	Prob.**
None *	0.817599	54.83031	47.8513	0.0096
At most 1	0.520446	22.50092	29.79707	0.2714
At most 2	0.324773	8.537848	15.49471	0.4098
At most 3	0.055079	1.076417	3.841466	0.2995

Trace test indicates 1 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. Of CE(s)	Eigenvalue	Max-Eigen Statistics	0.05 Critical Value	Prob.**
None *	0.817599	32.32939	27.58434	0.0113
At most 1	0.520446	13.96307	21.13162	0.3680
At most 2	0.324773	7.461431	14.26460	0.4361
At most 3	0.055079	1.076417	3.841466	0.2995

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level,

* denotes rejection of the hypothesis at the 0.05 level,

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's computation

4.4 Granger Causality Test

This test reveals the extent at which a variable can be predicted using the histories of its combination with other variable rather than using the history of such a single variable alone. As revealed in Table 5, credit to private sector does not Granger cause human development index (P Value = 0.3996), and there is also no feedback from human development index to credit to private sector. Likewise, unemployment rate does not granger cause human development index, no causality runs from human development index to unemployment rate. Finally, the third panel explains that social expenditure is not granger causal for human development index and vice versa.

Table 5. Granger Casualty Test
Pairwise Granger Causality Tests
Date: 09/06/21 Time: 22:55
Sample: 1999 2019
Lags: 2

Null Hypothesis:	Obs	F-statistics	Prob.
CPS does not Granger Cause HDI	19	0.98002	0.3996
HDI dos not Granger Cause CPS		0.17533	0.8410
UR does not Granger Cause HDI	19	0.07077	0.9320
HDI does not Granger Cause UR		3.78351	0.0486
SEXP does not Granger Cause HDI	19	3.86111	0.3129
HDI does not Granger Cause SEXP		0.35789	0.8014

Source: Author's computation

4.5 Regression Results

The regression results in Table 6 shows that 90% of the deviation in HDI can be explained by these variables: Credit to Private Sector (CPS), Unemployment Rate (UR) and Social Expenditure (SEXP). The F-statistic measures the level of overall significance of the relationship between financial deepening and poverty reduction in Nigeria. As shown in the Table 6 F statistics is 51.15272 with 0.000000 level of significant. The estimated parameters are statistically significant at 5% level of significance. Therefore, there is a linear relationship between the HDI and the three independent variables. The general model can be fitted as follow:

$$\text{HDI} = 0.329177 + 0.0333\text{CPS} + 0.0010\text{UR} + 0.1736\text{SEXP}$$

The equation shows that the statistical contribution of independent variable to the change in dependent variable. As shown in the Table, credit to private sector has both positively significant effect of HDI and with coefficient value of 0.002, it implies that an increase in CPS by one percent will increase HDI by 0.002286 holding other variables constant. Thus, credit to private sector significantly drives poverty reduction in Nigeria. The result equally shows that an increase in UR by one percent will lead to an increase in HDI by 0.006956, holding other variables constant. To verify the significance of the relationship, hypothesis two which states that there is no significant effect between unemployment rate and poverty reduction in Nigeria is tested. Given the p-value of 0.0010, which is significant at 5% confidence level, we therefore reject the hypothesis. Thus, unemployment rate significantly influences the level of poverty reduction in Nigeria. The result equally shows a positive but insignificant relationship between SEXP and HDI and an increase in SEXP by one percent will lead to an increase in HDI by 0.026756, holding other variables constant. To verify the significance of the relationship, hypothesis three which states that there is no significant association between social expenditure and poverty reduction in Nigeria is tested. Given the p-value of 0.1736, which is not significant at 5% confidence level, we therefore fail to reject the hypothesis. Thus, social expenditure does not significantly accelerate poverty reduction in Nigeria.

Table 6. Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.329177	0.048533	6.782595	0.0000
CPS	0.002286	0.000987	2.315409	0.0333
UR	0.006956	0.001761	3.949976	0.0010
SEXP	0.026756	0.018837	1.420378	0.1736
R-squared	0.900269	Mean dependent var		0.489048
Adjusted R-squared	0.882669	S.D. dependent var		0.032389
S.E. of regression	0.011094	Akaike info criterion		-5.995110
Sum squared resid	0.002092	Schwarz criterion		-5.796153
Log likelihood	66.94865	Hannan-Quinn criter.		-5.951931
F-statistic	51.15272	Durbin-Watson stat		1.501993
Prob(F-statistic)	0.000000			

Source: Author's computation

5. DISCUSSION OF FINDINGS

From the regression result above, it was observed that two measures of financial deepening have significant effect on poverty reduction in Nigeria. This finding goes in line with Dabwor and Abimiku (2016) who found out that poverty is still endemic in Nigeria but financial deepening guarantees financial inclusion to Nigerians and by extension reduces poverty. In other words, financial deepening has the capacity to reduce poverty in two different ways - through the indirect channel of economic growth and through the direct channel of access to finance by the poor and the vulnerable in the society (Claessens & Feijen, 2006 cited in ADB, 2009). By effectively providing these services, financial deepening will bring benefits to the poor through the transmission mechanisms of extending credit to the private sector, the poor and the vulnerable in the society.

6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Provision of improved standard of living for the citizens is a key rationale for the existence of government. Thus, government at all times, embark on policies that address the needs of the people. Financial deepening is believed to be very relevant in poverty reduction. In order to confirm this perception, the study was carried out basically to assess the relationship between financial deepening and poverty reduction in Nigeria. From the results obtained, there exists a long run positive and significant relationship of financial deepening with poverty reduction and unemployment rate in Nigeria. Granger Causality Test showed that credit to private sector granger causes improvement in poverty reduction. The study therefore suggests that policy experts should discourage the national government from pursuing financial regulations like interest rate regulations that tend to crowd out the poor from accessing finances for investment aimed at poverty eradication. The government should reinforce existing policies that will go a long way in encouraging the public to save more money with commercial banks therefore creating a pool of savings within the money market. The study further recommends the intensification of financial inclusion policies through increased access and usage of formal banking services while reducing banks transaction costs. This will encourage more people to participate in economic activities, to borrow and invest more.

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APPENDIX

Table 7. Aggregate Values of Dependent and Independent Variables

YEARS	HUMAN DEVELOPMENT INDEX (%)	CREDIT TO PRIVATE SECTOR (%)	UNEMPLOYMENT RATE (%)	SOCIAL EXPENDITURE (K'D)
1999	0.46	8.12	3.85	948
2000	0.44	7.69	3.83	701
2001	0.45	9.40	3.82	1018
2002	0.47	8.21	3.85	1018
2003	0.46	8.24	3.84	1226
2004	0.47	8.21	3.83	1504
2005	0.47	8.26	3.77	1920
2006	0.44	7.99	3.69	2038
2007	0.47	11.12	3.62	2451
2008	0.48	17.67	3.59	3241
2009	0.49	20.55	3.75	3453
2010	0.48	18.60	3.77	4195
2011	0.49	16.93	3.74	4712
2012	0.50	20.43	3.70	4605
2013	0.52	19.67	4.56	5185
2014	0.52	19.24	4.31	4587
2015	0.53	19.84	7.06	4989
2016	0.53	20.77	8.39	5859
2017	0.53	19.43	8.45	6457
2018	0.53	17.63	8.53	7814
2019	0.54	17.28	9.01	9715

Source: CBN Statistical Bulletin and World Development Indicator