

Agricultural Sector Growth and Poverty Reduction In Nigeria

DEMEHIN, J. A¹ USHIE, P. O²

*Department of Banking and Finance,
Faculty of Administration and Management Sciences,
Adekunle Ajasin University Akungba-Akoko*

Abstract

The need for concentration on the agricultural sector of every developing economy cannot be overemphasized. The sector is the provider of the solution to the United Nation's zero hunger and zero absolute poverty goals. Thus, the study investigated the effect of agricultural growth to the reduction of poverty in Nigeria using a temporal scope between 1986 and 2020. Agricultural growth was proxied by percentage change in the contribution of agricultural sector to gross domestic product while other independent variables were deposit money banks' sectoral distribution of credits to the agricultural sector, and federal government budgetary allocations to the agricultural sector. Prime lending rate was the controlled variable and incidence of poverty served as the dependent variable. Data were collected from the Central Bank of Nigeria statistical bulletin and were analyzed using the Autoregressive Distributed Lag (ARDL). The result of the study showed that agricultural productivity, deposit money banks sectoral credits, and federal government budgetary allocations had negative and significant effect on incidence of poverty with coefficients -0.353264, -17.59108, and -7.308690 respectively. However, it was also discovered that prime lending rate had positive relationship with incidence of poverty. Coefficient of determination was 0.8386 while the independent variables had joint and statistically significant effect on incidence of poverty. On the issue of causality, there was a unidirectional causal relationship between agricultural productivity and incidence of poverty with the direction of causality running from agricultural productivity to incidence of poverty. It was concluded that agricultural growth was a significant factor in overcoming the menace of poverty in Nigeria. Therefore, recommendations were made that sophisticated technology and equipments should be acquired by the government and well meaning Nigerians so as to spur uproar in the agricultural sector.

Keywords: *Poverty, incidence of poverty, agricultural growth, deposit money banks*

Date of Submission: 26-08-2021

Date of Acceptance: 11-09-2021

I. Introduction

To what extent is agricultural growth important to reducing poverty in a world which is experiencing a decline in the share of farming to total output? In Nigeria, the agricultural sector used to be the mainstay of employment and revenue to the government before the discovery of oil in large quantities. However, the sector has been given little or no attention seeing the revenue from the crude oil. This has reduced the contributions of the agricultural sector to national output and has made poverty a pronounced word in almost all part of the economy. Poverty as described by the United Nations Human Development (1998) has hunger, lack of good health care, lack of well-being, lack of quality education, gross inequality, lack of access to clean water and sanitation, lack of decent jobs, and unemployment as its characteristics.

Different strategies have been adopted by different countries and their governments to alleviate poverty which has been found to be a menace that hinders development. The United Nations as part of the strategy to alleviate poverty introduced some sustainable development goals for the world and eradication of absolute poverty is the first on the list. In Nigeria, IMF (2005) opined that more than two-third of Nigerians was poor, despite the country's vast potential wealth. In 1980, 27 percent of Nigerians lived in poverty and by 1990, 70 percent of Nigerians had income which is less than \$1 a day and the figure has been on the rise since then. The question then is 'why are so many Nigerians poor?' IMF (2005) provided that amongst other reasons for increase in the poverty level in Nigeria is weak and inappropriate public sector, poor economic management, and hostile environment for private sector growth. The government then introduced the National Economic Empowerment and Development Strategy (NEEDS) to create a level and financial environment that will enable most of the country's natural resources be available and flair for business, reform the Nigerian laws, the way government works, and empowering the Nigerian people so that poverty can be eradicated from the economy.

As noted by Olayinka, Olusegun and Babatunde (2015), the pivotal hinge of every government, especially developing economies, rests on the eradication of poverty. In order to reduce the menace of poverty in Nigeria, different types of empowerment programmes were initiated by the government. These include microfinance entrepreneurial financing, agricultural development policies and programmes and youths and women empowerment programmes (Ayodeji&Oladokun, 2018). It is a fact that the mainstay and major source of revenue for the government of Nigeria before the discovery of oil was the agricultural sector. This sector provided more than 85% of the workforce and 93% of food consumed by people (Bank of Agricultural, 2018). The importance of the agricultural sector cannot be overemphasized. The sector has the potential to create sustainable food production and poverty reduction which is why the sector demands considerably huge attention.

Over the years, the Federal Government of Nigeria (FGN) has initiated and implemented monetary, fiscal, industrial and developmental policies to curb the effect of poverty in the country. In the same vein, Bamiro, Afolabi and Daramola (2012) opined that the contribution of agricultural growth to GDP has not translated to an improvement in the standard of living in the country neither has it reduced, in any way, the high poverty index experienced in the country. The importance of the contribution of agricultural sector to the development of the Nigerian economy transcends what can be substituted by the performance of any other sector. Development in the agricultural sector is capable of injecting developments in other sectors. This would be seen in a high standard of living, low cost of living, strength for labour for better productivity, and improvement in the educational sector through acquired knowledge.

According to the Central Bank of Nigeria statistical bulletin (2020), allocations to the agricultural sector has not produced reduction in poverty incidence rate. It was observed that in 1999, incidence of poverty in Nigeria was 63.10% but had a reduction of 10.5% to stand at 53.5% in 2003. However, between 2007 and 2011, incidence of poverty rose to 54.90%. Incidence of poverty rose continually since 2015 from 55.80% to 67.00%. In 2018, the poverty rate in Nigeria was 39.1% while it maintained 40.1% and 40% in 2019 and 2020 respectively. The statistics shows that incidence of poverty has been on a constant increase despite huge funds and budgets allocated to the agricultural sector in the past years. The introduction of structural adjustment programme in 1986 brought about commercial banks' loans to the agricultural sector at ₦1.83 million and the contributions of the agricultural sector to GDP was ₦35.70. A closer look at the increase in commercial banks' loans to agricultural sector in 1990, 1995, 2000, 2015, 2016, 2017, 2018, 2019, and 2020 to stand at ₦4.22, ₦25.25, ₦41.03, ₦449.31, ₦525.95, ₦528.24, and ₦610.15, ₦772.38, and ₦1,049.68 billion respectively also showed increases in agricultural growth and it is seen in its contribution to GDP at ₦106.63, ₦790.14, ₦1,508.41, ₦19,636.97, ₦21,523.51, ₦23,952.55, and ₦27,371.30, ₦31,904.14, and ₦37,241.61 billion respectively.

From the statistics, it can be seen that agricultural sector growth has the potential to boost the Nigerian economy from its current level of poverty. This also supports that loans given to entrepreneurs who are into agricultural production have the potentials of reducing poverty rate in the country to a very minimal level. Thus, this study looks at the extent to which agricultural growth has influenced reduction in the level of poverty in Nigeria. The broad objective of this study is to examine the effects of entrepreneurial financing and agricultural productivity on poverty reduction in Nigeria. Specifically, the study aims to;

- i. examine the contribution of agricultural growth on incidence of poverty in Nigeria;
- ii. assess the direction of causal relationship between agricultural growth and incidence of poverty in Nigeria.

This study is based on the Nigerian economy whereby data will be collected from 1986 which signifies the advent of structural adjustment programme to 2019 based on the availability of data. The study also covers agricultural growth as proxied by the contribution of agricultural sector to Gross Domestic Product (GDP) and incidence of poverty which will be used to represent poverty. The study is divided into five sections. Section 1 dealt with the introduction to the subject matter while section two looked at a review of relevant literatures. In section three, the data and methods employed in carrying out the study are explained. Section four discussed the results of the study while conclusion and recommendations were provided in section five.

II. Literature Review

A. Agriculture

Harris and Fuller (2014) discussed that agriculture is the most comprehensive word that is employed to denote the different ways in which crop plants and domestic animals sustain the global human population by providing food and other products. According to them, agriculture was coined from the Latin word *ager* which means field and *colo* which means to cultivate. Agriculture is the art and science of growing plants and other crops and raising animals for food, other human needs, or economic gain. Rimando (2004) looked at agriculture as a systematic raising of useful plants and livestock under the management of man. It was defined by Abellanos and Pava (1987) as the growth of both plants and animals for human needs. On the other hand,

agricultural growth is seen as a sustainable increase in the total output derived from agricultural produce over a period of time, say one year.

B. Poverty

Spicker (2010) believed that there is no single definition of poverty but that academic formalism insisted that there must be an agreed core of meaning for the concept. Poverty can be seen as a material concept which could be a lack of material goods and or services. As opined by Baratz and Grigsby (1971), poverty refers to a severe lack of physical and mental well-being, closely associated with inadequate economic resources and consumption. Poverty can also be defined as a pattern of deprivation. As noted by Deleeck *et al.* (1992), poverty is not restricted to one dimension like income but it manifests itself in all domains of life, such as housing, education, and health.

World Bank Report (1999) considered poverty as hunger, lack of shelter, being sick and not being able to go to school, not knowing how to read, not being able to speak properly, and not having a job; fear for the future, losing a child to illness brought about by unclean water, powerlessness; lack of representation and freedom. The World Bank definition of poverty is found to be so broad. Poverty can involve not only lack of the necessities but also the denial of opportunities for living a tolerable life. There are different ways through which poverty can be measured. Incidence of poverty refers to the extent to which vast majorities of the population live below a particular threshold. Incidence of poverty focuses on the degree of poverty experienced by the people in an economy. The indicator that measures the incidence of poverty will be the percentage of poor people (under the relative poverty threshold) within the total population. This percentage is called the poverty rate or the poverty risk rate (PR) and it is calculated in the following way; $Poverty\ rate\ (PR) = p/n$. Where p is the number of poor people and n is the total number of people, poor or not, in the group within which the poverty rate is being calculated. Intensity of poverty is perhaps another measurement of poverty in an economy. This looks at poverty in two types; relative and absolute. The GINI index is another measure of poverty which measures the extent to which income is unevenly distributed among individuals and householders. The GINI index could have a coefficient that ranges between 0 and 100. Another fundamental measurement of poverty is the human development index (HDI). The HDI is a composite index that measure the average achievement in a country by evaluating life expectancy at birth, adult literacy rate, and GDP per capita using the purchasing power parity yardstick. Others include poverty index, incidence of poverty, GDP per capital, and poverty line.

C. Solow Growth Model

The theoretical underpinning of this study is the Solow-Swan growth model, which was independently developed by Robert Solow and Trevor Swan in 1956. It is an exogenous growth model of long-run economic growth within the framework of neoclassical economics. The model attempts to explain long-run economic growth by looking at capital accumulation, labour or population growth, and increase in productivity (commonly referred to as technological progress). Therein, output is produced using two factors of production; namely, Capital (K) and Labour (L), in an aggregate production function that satisfies the Lagrangian conditions (which assumes the stability of an economic growth path in a neoclassical growth model), and which implies that, the elasticity of substitution must be asymptotically equal to one. The theoretical model described is presented as an equation thus: $Y(t) = K(t)^\alpha [A(t)L(t)]^{1-\alpha}$; where t is time; $0 < \alpha < 1$ is the elasticity of output; Y(t) represents total production; A refers to labour augmenting technology or knowledge; and AL represents effective labour. The Solow-Swan growth model can be expanded to contain variables to capture the endogenous macroeconomic environment like interest rate and economic growth. In line with the nature of the present study, capital accumulation results from appropriate financing whilst labour input results into output to give productivity.

D. Empirical Review

A study conducted by Nwankwo and Akonu (2019) on the relationship between agricultural cooperative and rural poverty reduction in Anambra state, Nigeria revealed that cooperative credit, cooperative farm inputs, cooperative farm extension services and agricultural cooperative marketing have positive and significant effect in reducing poverty in the state. Ouedraogo (2019) examined food crop yield and poverty reduction in a developing country like Burkina Faso using descriptive and logit regression model. It was discovered in the study that low food crop yields and commercialization can lead to welfare loss while food crop intensity is a fundamental factor of poverty reduction in the country. According to Anjum and Tarique (2017), agricultural GDP per worker elasticity of poverty reduction is significant in India.

Katsushi (2017) assessed the effects of agricultural transformation on poverty, hunger, inequality and productivity in 105 countries over four decades. The study sourced secondary data from World Development Indicators (WDIs) and World Bank poverty rates. Poverty was proxied by poverty head count ratio at \$1.90; food security was proxied by agricultural total food production; and agricultural transformation

was proxied by commercialization index, agricultural openness index, and product diversification index. Using panel model, the study found that, transformation and growth of agricultural productivity significantly reduced national, rural and urban poverty; and agricultural openness significantly improved food security.

Kadir and Ratna (2016) examined the role of the agricultural sector growth as the main driving machine in rural economy and assessed the role of the rural agricultural growth in reducing poverty in rural Indonesia with a terminal scope of 2002 to 2008. Linear regression was employed in the study with poverty reduction as the dependent variable and real gross domestic product, non-agricultural GDP, wages in the agricultural sector, non-agricultural labour in rural area, area of agricultural land, etc. were the independent variables. The study collected data from the BPS statistics, Indonesia and were analyzed using simultaneous equation and panel regression model. The result of the study indicated that growth in the rural agricultural sector influences growth in the rural non-agricultural sector and that productivity growth in both the agricultural and non-agricultural sectors in rural areas significantly reduced poverty rate in Indonesia.

Abdelhafidh (2014) investigated the role for technological innovation on agricultural productivity and poverty alleviation using annual time series data through ordinary least square method. The study discovered that agricultural growth contributes significantly to the reduction in poverty while change in technological innovation leads to a decrease in poverty rate. Dhrifi (2014) examined agricultural productivity and alleviation of poverty in sub-Sahara Africa between 1990 and 2011. The study's dependent variable was proxied by household final consumption expenditure to GDP and independent variables were agricultural output, income inequality, and GDP per capita growth. It was found out in the study that agricultural productivity had positive and significant contributions to the reduction of poverty rate in Sub-Sahara Africa. Furthermore, Ogundipe, Oduntan, Ogunniyi, and Olagunju (2017) developed three models with rural poverty, urban poverty, and dollar poverty to investigate the relationship between agricultural production, poverty reduction and inclusive growth in Africa. The study used panel regression and discovered that GDP per capital contributed significantly to urban poverty and dollar poverty reduction.

Mbah, Mgbemena and Ejike (2016) examined the poverty situation in Awka metropolis of Anambra State, Nigeria using the P-alpha class of poverty measure. The study revealed that 49 percent of respondents were considered to be poor, with 0.17 poverty gap index and a 0.03 severity of poverty index. The indicators were considered to be modest when compared with the national statistics. The causes of poverty in Awka metropolis from the findings include: lack of inadequate supply of some identified basic necessities of life such as shelter, portable water and sanitation, basic healthcare services, electricity and educational services.

Jamal, Sani, Muhammad and Abdulwahab (2018) investigated the role of agriculture towards poverty reduction in Nigeria within a temporal scope of 1980 - 2013. It was revealed from the review that more than 70% of Nigerians were poor in the year 2001 and more than 60% in 2010. The review showed that more than 60% of Nigerians were employed in agricultural sector. Improving agriculture will help to create jobs which will lead to poverty reduction. A unit change in agricultural output will cause 34.4% change in GDP. It was also revealed that the incidence of poverty increased from 54% in 2009 to 69% in 2012. The review concluded that, agriculture is very significant in poverty reduction via income generation and job creation.

III. Data And Methods

This study adopts a quantitative type of research design with two variables; the dependent variable, incidence of poverty, and independent variables, agricultural growth, deposit money banks' sectoral credits to the agricultural sector, federal government recurrent expenditure to the agricultural sector, and prime lending rate.

A. Model Specification

Time series data were extracted from the Central Bank of Nigeria statistical bulletin from 1986 to 2020. The base year was selected because the year marks the beginning of the implementation of the structural adjustment programme (SAP). In order to determine the method of data analysis, the study will first run a pre-test of stationarity to discover the level of stationarity of the variables; thereby information as to what method of data analysis best suits the study is revealed. The model is specified as follows:

$$IP_t = \alpha_0 + \alpha_1 AG_t + \alpha_2 DMBCA_t + \alpha_3 FGEA_t + \alpha_4 PLR_t + \mu_t \quad (2)$$

Where; IP – Incidence of poverty, AG – agricultural growth, DMBCA – deposit money bank credit to the agricultural sector, FGEA – federal government recurrent expenditure on agricultural sector, and PLR – prime lending rate.

$\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$, are parameters to be estimated while μ is the error term.

D. DATA ANALYSES AND INTERPRETATION OF FINDINGS

A. Pre-Analysis Test

Unit Root Analysis

In order to avoid spurious regression, there is a need to first examine the level of stationarity of the variables. The study employed the Augmented Dickey Fuller (ADF) unit root test to check for the levels of stationarity of the variables so as to be guided on what method of data analysis best soothes the study.

Table 1: Summary of the Results of the ADF Unit Root Test

Var	Level			First Difference			Stationarity
	t-stat	Cri-val	Prob	t-stat	Cri-val	Prob	
PI	-2.24	-2.95	0.1961	-6.80	-2.95	0.0000	I(1)
LAGPRO	-3.31	-2.95	0.0225	-	-	-	I(0)
LDMBAG	-1.14	-2.95	0.6890	-6.60	-2.95	0.0000	I(1)
LFGAGR	-2.29	-2.95	0.1816	-8.00	-2.95	0.0000	I(1)
PLR	-4.53	-2.95	0.0010	-	-	-	I(0)

Source: Author's Computation, 2021.

The ADF unit root test conducted revealed that incidence of poverty, natural logarithm of deposit money banks' credit to the agricultural sector and the natural logarithm of federal government allocation to the agricultural sector are stationary after first difference while natural logarithm of agricultural productivity and prime lending rate were found to be stationary at level.

Thus, having found out that there is a mixture of stationarity among the variables between level I(0) and first difference I(1), the study therefore employed the use of the Autoregressive Distributed Lag (ARDL) as its method of data analysis. Bounds test was also conducted to check for the order of long-run cointegration. However, before the ADRL test is conducted, Gujarati (2004) suggested that the required lag length to be employed in an ARDL test should be found from the unrestricted Vector Autoregression (VAR) lag length criteria.

B. Lag Length Criteria

Table 2: Summary of the Lag Length Criteria Test

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-269.6300	NA	34.08265	17.71806	17.94935	17.79346
1	-176.2930	150.5434*	0.425100*	13.30923	14.69696*	13.76159*
2	-149.4163	34.67962	0.431738	13.18815*	15.73232	14.01749

Source: Author's Computation, 2021.

Gujarati (2004) opined that the lag at which either the Akaike Information Criterion (AIC) or the Schwarz Information criterion (SC) has the smallest number be used as the required lag length for the ARDL test. From the result of the lag length criteria, AIC is smallest at lag 1 with 13.30923 and this result is corroborated with other criteria which signified that lag is the required number of lag to be used in the ARDL test.

C. Presentation of Results

The results of the ARDL test conducted using Lag 1 is presented in Table 3.

Table 3: Summary of ARDL Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49.51942	5.557169	8.910908	0.0000
AGPRO	-0.353264	0.094734	-3.729020	0.0218
DMBAG	-17.59108	2.951583	-5.959880	0.0051
FGAGR	-7.308690	7.656545	-3.954568	0.0177
PLR	0.290620	1.848164	7.077670	0.0001
R-squared	0.838625	Mean dependent var		56.41059
Adjusted R-squared	0.819814	S.D. dependent var		5.368569
S.E. of regression	3.315116	Akaike info criterion		6.314040
Sum squared resid	19.2633	Schwarz criterion		6.538504
Log likelihood	-102.3387	Hannan-Quinn criter.		6.390589
F-statistic	91.16671	Durbin-Watson stat		2.494949
Prob(F-statistic)	0.005832			

Source: Author's Computation, 2021.

The result reveals that agricultural productivity showed a negative relationship with incidence of poverty in Nigeria. This means that an improvement in the productivity experienced in the agricultural sector has a way of reducing incidence of poverty in Nigeria. The coefficient showed that when agricultural productivity is increased by 1 unit, incidence of poverty will reduce by 0.35 units and this reduction is found to be significant at 5% level of significance. The result also showed that funds made available by deposit money banks to the agricultural sector has a negative effect on incidence of poverty such that a unit increased in the funds made to the agricultural sector will produce about 17.59 units reduction in incidence of poverty in Nigeria. This relationship is also found to be statistically significant at 5% level. In the same vein, the federal government budgetary allocation meant for the agricultural sector is found to show the appropriate negative sign. This indicates that there is a negative relationship between federal government allocation to the agricultural sector and incidence of poverty in Nigeria. The coefficient of -7.30 shows that units increase in the allocation to the agricultural sector from the federal government will reduce poverty in Nigeria by 7.30 units and this reduction is found to be statistically significant at 5%. On the relationship between the control variable, prime lending rate, and incidence of poverty, the ARDL result reveals that a positive and significant relationship exists between them. This indicates that when prime lending rate is increased in the country, incidence of poverty will also increase.

D. Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to measure the extent to which variations in the dependent variable is explained by variations in the independent variables. In the result of the ARDL test, it was showed that the coefficient of determination is 0.8386 which indicates that about 83.86% of the variations experienced in the dependent variable (incidence of poverty) is explained by variations in the independent variables (agricultural productivity, deposit money banks sectoral distribution to the agricultural sector, federal government budgetary allocation to the agricultural sector, and prime lending rate). However, the remaining 16.14% of the variations in the dependent variable are explained by factors that are not captured in this model.

E. F-Statistics

The F-statistic is used to measure the joint significance of the independent variables on the dependent variable. That is, it is used to measure the collective significance of all the independent variables (agricultural productivity, deposit money banks sectoral distribution to the agricultural sector, federal government budgetary allocation to the agricultural sector, and prime lending rate) on incidence of poverty, the dependent variable. The result showed that F-statistic has a coefficient of 91.16671 with a probability of 0.005832 which is less than the required 5% level of significance. This signifies that all the independent variables have joint significance on the dependent variable.

F. ARDL Bounds Test

The ARDL Bounds test is used to check for the long-run cointegration among the variables. This is required to understand the relationship among the variables in the long-run for strategic and long-term planning and forecasting. The result is presented in Table 4.

Table 4: ARDL Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	2.112461	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's Computation, 2021.

ARDL Bounds test has a null hypothesis that states that there is no long-run relationship or cointegration among the variables. The test is either validated or rejected using the I(0) and I(1) Bounds in comparison with the value of the F-statistic. The ARDL Bounds test has a F-statistic value of 2.112461 with values of I(0) and I(1) Bounds at 2.56 and 3.49 respectively at 5% level of significance. Thus, from the result of the ARDL Bounds test, it was discovered that F-statistic has a lower value when compared to the value of I(0) and as such, it can be said that there is no long-run cointegrating relationship among the variables. Therefore, the null hypothesis of no long-run cointegrating relationship is accepted.

G. Granger Causality Test

The study, in order to provide answer to the second questions asked and to provide an answer to the second hypothesis test, the Granger causality test was employed. The summary of the result of the test is presented in Table 5.

Table 5: Result of Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
AGPRO does not Granger Cause PI	32	3.17769	0.0576
PI does not Granger Cause AGPRO		0.47815	0.6251
DMBAG does not Granger Cause PI	32	0.31712	0.7309
PI does not Granger Cause DMBAG		0.08570	0.9181
FGAGR does not Granger Cause PI	32	1.11073	0.3439
PI does not Granger Cause FGAGR		0.09331	0.9112
PLR does not Granger Cause PI	32	1.26591	0.2982

Source: Author’s Computation, 2021.

The result of the Granger causality test revealed that agricultural productivity and incidence of poverty possessed a unidirectional causal relationship with the direction of causality running from agricultural productivity to incidence of poverty. That is, agricultural productivity granger causes incidence of poverty. This corroborates the regression result which signifies that the better agricultural productivity, the lower will be the percentage of incidence of poverty in the country. Deposit money bank sectoral distribution to the agricultural sector and incidence of poverty has no causal relationship. This is revealed in the probability of the result as they appeared not to be significant. In the same vein, federal government allocation to the agricultural sector also does not have any causal relationship with incidence of poverty just as prime lending rate possessed no causal relationship with incidence of poverty. Therefore, it can be said that only agricultural productivity had causal relationship with incidence of poverty and this causal relationship flows from agricultural productivity to incidence of poverty.

H. Diagnostic Tests

The summary of the Breusch-Godfrey autocorrelation and Heteroskedasticity test is reported in Table 6.

Table 6: Summary of Autocorrelation and Heteroskedasticity Test Result

Breusch-Godfrey Autocorrelation			
F-stat	0.341886	Prob. F (2,20)	0.7415
Obs*R-Squared	1.057868	Prob. Chi-Square (2)	0.5892
Heteroskedasticity Test			
F-stat	0.351550	Prob. F (2,20)	0.9461
Obs*R-Squared	4.023466	Prob. Chi-Square (2)	0.9099

Source: Author’s Computation, 2021.

The Breusch-Godfrey autocorrelation test result revealed that the model is free from the problem of serial correlation at Prob. Chi-Square (2) value of 0.5892. The null hypothesis states that variables are not serially correlated. Thus, the study cannot reject the null hypothesis given the probability value being greater than the level of significance. In the same vein, the Heteroskedasticity test result revealed that the errors in the model are homoskedastic. Therefore, the model is fit for forecasting and policy making.

IV. Implications of Findings

The result of the regression revealed that agricultural productivity is an important and significant tool that can significantly reduce incidence of poverty in Nigeria by, on the least, 3.5% if properly utilized. The implication of this is that an increase in the amount of concentration channeled at increasing agricultural productivity has also an effect on reducing the extent of poverty indexes in the country. This is because, in the process of increasing agricultural productivity, many farmlands are acquired and workers are employed to work on those farms. These workers are not only paid but would also be able to earn a living and be lifted out of the poverty line. Also, increase in agricultural productivity can lead to increase in value-added agricultural line whereby transformations can be done to farm produce and this will take the efforts of both man and machine, thereby creating employment opportunity.

In the same manner, the contributions of deposit money banks to the agricultural sector as well as federal government budgetary allocations to the agricultural sector exerted negative relationship with incidence of poverty. This implies that every penny spent on the agricultural sector by both the deposit money banks in form of credits and loan made available to agricultural investors and every budgetary allocation to the sector has

significant effect in reducing incidence of poverty in Nigeria. However, prime lending rate showed a positive relationship with incidence of poverty. This implies that increase in lending rate will naturally prevent investors from access to finance, especially from the deposit money banks and this will also affect investment in the agricultural sector which will ultimately affect incidence of poverty. The results of this study are in line with what Nwankwo and Akonu (2019), Anjum and Tarique (2017), Katsushi (2017), Kadir and Ratna (2016), Abdelhafidh (2014), and Dhrifi (2014) discovered.

V. Conclusion And Recommendations

It can be concluded from the findings of the study that agricultural growth creates an avenue for poverty reduction in Nigeria. In line with the findings of this study, the following suggestions are provided as recommendations.

1. The government and other well meaning private enterprises should invest into modern and sophisticated equipments that aid agricultural output. This will increase agricultural productivity and reduce costs so that agricultural produce can be affordable and the sustainable development goal achieved.
2. Deposit money banks should sustain the relationship established with agricultural investors. In fact, they should make funds available to this sector a priority and also reduce the stringent conditions at obtaining loans so as to attract more people into investing in the agricultural sector.
3. The federal government should also, as a matter of urgency, increase the budgetary allocation to the agricultural sector. This will make funds available to the investors in the sector and also corroborate funds made available by the deposit money banks.
4. Prime lending rate by the Central Bank should be discriminated when investing in the agricultural sector. This will make people have access to funds for agricultural investments.

References

- [1]. Abellanos, A. L. &Pava, H. M. (1987).Introduction to crop science. Central Mindanao University, Musuan, Bukidnon: Publications Office.
- [2]. Afolabi, B., Ogundele, B., Olusegun, I. F., &Owoseni, B. (2017). Agricultural output and economic growth in Nigeria. *Journal of Agricultural Economics and Rural Development*, 3(2), 203-214.
- [3]. Ahmed, Y. O. (1993). Various circulars and policy guidelines on agricultural financing in Bank of the North Limited. Bank of the North pamphlets. A paper delivered at seminars at Bank of the North Human Resources and Development Centre.
- [4]. Akinboyo, O. L. (2008). Five decades of agricultural policies: What role has statistics played? CBN Bullion, 32, 134 – 165.
- [5]. Ali, Y. A & Abdel, H. A. (2013). Entrepreneurship Development and Poverty Reduction. Empirical Survey from Somalia. *American International Journal of Social Science*, 2(3), 108-113.
- [6]. Anjum, S., Tarique, Md. (2017). Agriculture and poverty reduction in India: An empirical study. *Asian Journal of Research in Social Sciences and Humanities*, 7(9), 35-48.
- [7]. Anowor, O. F., Ukweni, N. O., &Ezekwem, S. O. (2013). Agricultural productivity and poverty alleviation: An econometric analysis. *American Journal of Sustainable Cities and Society*, 2(1), 109-129.
- [8]. Ayodeji, E. A. &Oladokun, B. S. (2018). Small and medium enterprises and economic growth in Nigeria (1999-2017). *The International Journal of Business and Management*, 6(10), 249-256.
- [9]. Azuh, D., Matthew, A. O. (2010). The role of agriculture in poverty alleviation and national development in Nigeria. *African Journal of Economy and Society*, 10(1-2), 18-32.
- [10]. Bamiro, O. M., Afolabi, M. & Daramola, F. (2012). Enterprise combinations in cassava-based food crop farming system in Nigeria: Evidence from Ogun state. *Greener Journal of Agricultural Science*, 2(1), 13-20.
- [11]. Baratz, M. S. & Grigsby, W. G. (1971).Thoughts on poverty and its elimination.*Journal of Social Policy*, 1(2), 119 – 134.
- [12]. Barder, O. (2009). What is poverty reduction? Working Paper 170, 1-24.
- [13]. Beck, T. (2007). Financing constraints of SMEs in developing countries: Evidence, determinants, and solutions. *Journal of International Money and Finance*, 31(2), 401-441.
- [14]. Deleeck, H., Van den Bosch, K. & De Lathouwer, L. (1992).Poverty and the adequacy of social security in the EC.Aldershot: Avebury.
- [15]. Farrell, M. J. (1957). The measurement of production efficiency. *Journal of the Royal Statistical Society, A*, 120, 253-281.
- [16]. Gordon, J., Zhao, S., &Gretton, P. (2015). On productivity: Concepts and measurement. Productivity Commission Staff Research Note. Australian Government Productivity Commission. 1-21.
- [17]. Harris, D. R. & Fuller, D. Q. (2014). Agriculture: Definition and overview. *In Encyclopedia of Global Archaeology (Claire Smith, Ed.)*.Springer, New York, 104 – 113.
- [18]. Joseph Rowntree Foundation (2013). Monitoring poverty and social exclusion 2013. Joseph Rowntree Foundation and the New Policy Institute.
- [19]. Kadir, S. &Ratna, R. A. (2016). Economic growth and poverty reduction: The role of the agricultural sector in rural Indonesia. *International Conference on Agricultural Statistics*, 7, 1-8.
- [20]. Mbah, S. I., Mgbemena, G. C. &Ejike, D. C. (2016). Urban poverty in Nigeria: A study of Awka metropolis Anambra state, Nigeria. *International Journal of Business and Social Science*, 7(5), 374-388.
- [21]. Miller, R. E. & Blair, P. D. (1999). Input-output analysis. Foundations and extension.2nd Edition. Cambridge University Press.
- [22]. Nwankwo, F. O &Akonu, S. C. (2019). Agricultural cooperative and rural poverty reduction among rural farmers in Anambra state, Nigeria. *International Journal of Trend in Scientific Research and Development*, 4(1), 1185-1194.
- [23]. OECD (2001). Poverty reduction: The DAC guidelines, OECD Publishing. <http://dx.org/0.1787/9789264194779-en>.
- [24]. Ogundipe, A. A., Oduntan, E. A., Ogunniyi, A. I., &Olagunju, K. O. (2017). Agricultural productivity, poverty reduction and inclusive growth in Africa: Linkages and pathways. *Asian Journal of Agricultural Extension, Economics & Sociology*, 18(1), 1-15.
- [25]. Okereke, N. (2018). Microfinance: A practicable antidote to poverty reduction in Nigeria. *Journal of Economics and Sustainable Development*, 9(8), 233-36.

- [26]. Olayinka, I., Olusegun, A. K. & Babatunde, S. J. (2015). Entrepreneurship and poverty reduction in Nigeria: An empirical analysis. *IOSR Journal of Business and Management*, 1(3), 16-19.
- [27]. Ouedraogo, S. A. (2019). Smallholders' agricultural commercialization, food crop yield and poverty reduction: Evidence from rural Burkina Faso. *African Journal of Agricultural and Resource Economics*, 14(1), 28-41.
- [28]. Oyakhilomen, O. & Zibah, R. G. (2014). Agricultural production and economic growth in Nigeria: Implication for rural poverty alleviation. *Quarterly Journal of International Agriculture*. 3(1), 207-223.
- [29]. Rimando, T. J. (2004). Crop science 1: Fundamentals of crop science, U. P. Los Banos: University Publications Office.
- [30]. Shehu, U. A., Ibrahim, A. I., Hassan, T., & Bello, M. (2017). Analysis of resource use efficiency in small-scale maize production in Tafawa-Balewa local government of Bauchi state Nigeria. *IOSR Journal of Agriculture and Veterinary Science*, 10(1), 59-65.
- [31]. Ukwu, U. I. (2002). Towards effective poverty eradication strategies. NCEMA.
- [32]. UNDP. (1998). Human Development Report 1998: Consumption for human development. <http://www.hdr.undp.org/en/content/human-development-report-1998>.
- [33]. United Nations (1995). Reflecting on seventy years of development. United Nations Publication.
- [34]. United Nations (2007). Eradication of poverty. World Social Summit General Assembly.
- [35]. World Bank, (2008). African Development Indicators. Washington, DC: World Bank.

DEMEHIN, J. A. "Agricultural Sector Growth and Poverty Reduction In Nigeria." *IOSR Journal of Business and Management (IOSR-JBM)*, 23(09), 2021, pp. 34-42.