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Agricultural Productivity and Poverty Alleviation: Evidence from Nigeria

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Abstract
Several attempts have been made by respective government to get a lasting solution to the issues of poverty in Africa. Agricultural sector has envisaged to provide lasting solution to this problem; hence, this study examined the relationship between agricultural productivity and poverty alleviation in Nigeria. The study made use of Auto regressive Distributed Lags (ARDL) and the Causality effect to test for the long run behaviour and the casual effects of the variables respectively. The ARDL result indicate a long-run relationship between agricultural productivity and poverty alleviation in Nigeria. The short-run effect was carried out using ARDL ECM cointegration test, the result shows that about 117% of the disequilibrium in the short-run is corrected in the next period. Therefore, there is short-run relationship between HDI and AVAPW. Hence, there is short-run effect of agricultural productivity on poverty alleviation. Finally, the causality test showed a bi-directional relationship between HDI and AGDP, and there was no causal relationship between HDI and AVAPW. The findings from the ARDL show that agricultural productivity can be used to reduce the poverty level, however, the magnitude was very low. Evidence from the causal test shows that there is bi-directional relationship between poverty and agricultural productivity in Nigeria. This study therefore recommends that the government should embark on commercial farmers development plans which sole aim would be towards the eradication of poverty in Nigeria; this will go a long way in promoting agricultural productivity.

Keywords: Agricultural Sector, Productivity, Poverty, Industry and Nigeria

1. Introduction

The United Nation's number one goal in its Sustainable Development Goals (SDGs) is to "End poverty in all its forms everywhere" by 2030. This goes a long way to indicate how the world at large have noted the risks of poverty, in endangering of developing countries towards achieving this goal of observable development. Thus, intense and further study should be carried out on sectors such as agricultural sector that can improve growth and development through vital influence of policies for nations. The issue of poverty in Nigeria has been very terrific. In a recent update by Nigerian Poverty Statistics (2018), Nigeria is said to have reached 70 percent poverty level in global poverty statistics. Most African countries (including Nigeria) share of agriculture in employment is significantly higher than its share of GDP. This fact is rather underrated, but it has vital inferences. Arithmetically, if agriculture offers a higher job opportunity than value added, the output per worker must be lower in agriculture than in non - agriculture. Rural areas are poor and agricultural labour yields low returns, hence the need to maximize the benefits of agriculture to alleviate poverty in Nigeria. Between 1980 and 1990, Nigeria seems to be worst, as the incidence of poverty increased from 46.3 percent of the population in 1985 to 65.6 percent in 1996, up to 2018 (Asaleye *et al* 2019) [10].

Nearby 70 percent of Nigerian population are engaged in agriculture as a means to meet their ends meet but at subsistence level. In most developing countries, nearly two - thirds or more of the economically active population is allocated primarily to agriculture, although most of these persons also provide labor for other market and non - market activities (World Bank). Agriculture is responsible for large parts of economic activity when measured in value terms. Around 15 to 20 percent of GDP comes from agriculture in sub - Saharan Africa as a region (World Bank, 2020). Although this fraction has experienced little change in the last 40 years, there has been little growth or structural change in the region's economy in general. Sub - Saharan Africa has witnessed little net growth in per capita income since the early 1980s, measured in terms of purchasing power parity (PPP), as stated in World Bank data. This shows that the problem of Nigeria to a large extent is connected to a problem of low output in agriculture. Therefore, the uniqueness of this study is to examine the relationship between agricultural productivity and poverty alleviation in Nigeria.

2. Literature Review

There are various studies on agricultural productivity and poverty alleviation, which have been carried out by various scholars in both developed and developing nations. Poverty has been tagged as a social problem that needs critical attention in any nations of the world. Substantial debates are present among different scholars and different schools of economic thought on how to alleviate or reduce poverty through agriculture. Below are the various views of scholars on the subject matter.

Akther *at al* (2016) [2] examined the various policies embarked by the Bangladesh since her independence to reduce the intensity of poverty on the rural agricultural people. The writers wrote on "does agricultural credit play any role in reducing rural poverty among the people?". The essential variables used include: agricultural sector credit, rural employment, agricultural production, per capita income, female employment among others. Sample (data) were collected from 1984 to 2014 while OLS regression analysis was used to process the data. The result showed that the variables are very important to poverty reduction while credit lending played important role in reducing poverty. According to them, one percent increase in agriculture will reduce rural poverty by 0.27 percent on average. The study suggested financial inclusion through rural financial would reducing poverty in the country. Ogundipe *et al* (2017) [9] examined the effect of agricultural output on poverty reduction and inclusive growth in African countries between 1991 and 2015. The study looked into the rural area and its poverty levels. Time series data with Dynamic panel and system-GMM technique were used to analyze the data. The result of their findings showed that agricultural value added per workers contributed adequately to the reduction in rural poverty in the continent. In addition, GDP per capita and food production index were important factor to reduce urban and rural poverty. Also, domestic credit to the private institutions and farmers are importation factors that can be used to increased productivity and to combat poverty in the rural areas. Finally, the writers suggested that appropriate macroeconomics policy and institutional factors are essential tools to boost social services and credit facilities to the rural farmers in order to encourage agricultural productivity in African countries.

Ayodeji and Oludokun (2018) [4] studied the effect of agricultural productivity on poverty reduction in Nigeria from 2000 to 2016. Secondary data were collected form the world Bank Development indications and from the Central Bank of Nigeria. Data were processed using regression analysis and Johansen co-integration analysis. The result of their findings showed a long-run relationship exists between agricultural productivity and poverty reduction, it also revealed that commercial bank credit to agriculture and agriculture budg*et al*location did not translate to reduction in poverty and hunger reduction. They recommended that government should increase the annual agricultural budgets, and funds released for agricultural development purposes should be thoroughly monitored for proper implementation and to avoid misappropriations. In their contribution to knowledge, Olayemi *et al* (2019) [13] worked on the role of agriculture in poverty reduction in Nigeria. Secondary data adopted from the central Bank and the Nigerian Bureau of Statistics. The study made use of DOLS and granger causality approach to process data, such variables like employment in agriculture, agricultural output and inflation rates were included in the variables used. Findings showed a significant positive relationship exists between employment in agriculture and the poverty level, and a negative relationship between inflation rate and the poverty level. Also, agricultural output has a negative significant relationship with poverty level. The paper advised government to revamp the agricultural sector in order

The need for African to provide food and remove poverty for her citizen is the work of Gassner *et al* (2019) [5], the study made use of descriptive to analyze the importance of agricultural support to the farmers small-holders sector. They wrote on the importance of growing sufficient crops to support their families as well as having enough as surplus to sell. The study emphasized the need for technological involvement to increase their productivity yields in 3 or 4 times. The study further argued for differentiated policies for agricultural development in Africa. It advised governments to focus more on agriculture which can potentially increase farmers income, food security, provide raw materials and a contribution to a wider economic growth. Warr and Suphannachant (2020) [19] studied the relationship between agricultural productivity growth and rural poverty incidence in Thailand. Secondary data on regional-level were collected while regression analysis was adopted for the analysis. Variable used in the analysis include, the annual rate of change in regional total agricultural productivity, regional non-agricultural income and the real price of food. The result of their findings showed that the estimated co-efficient on the change in agricultural productivity was significant negative which means that agricultural productivity growth does not reduce rural poverty.The paper advised government to put more interest in agriculture by developing rural overhead infrastructure and increased funding to agricultural sector in Thailand.

In their contribution to the problem of hunger and extreme poverty in West Africa countries, Mouayadi *et al* wrote impact of Agricultural productivity on economic growth and poverty in ECOWAS countries. The researchers looked for data in 13 ECOWAS countries from 1990 to 2015. Panel data were used while Cobb-Douglas production function using fixed effects was adopted to process the panel data. The result

of their findings showed a positive and significant relationship between lands cultivated, financial and physical capitals against to labour employed on agricultural productivity. The result also revealed that agricultural productivity can pro-growth and counter-poverty tools. The study advised the policy makers in the West African States to understand the linkages and pathways through which agricultural productivity affects the economy of the sub-region. The study suggested financial inclusion through rural financial would reducing poverty in the country. In their contribution to agriculture productivity growth, Ogunjobi *et al* (2022) [12] examined the impact of exchange rate on agriculture export in Nigeria. Data were collected from 1981 to 2019 from the Nigeria Bureau of Statics and the central Bank of Nigeria. The auto-regressive distributed lag and granger causality test were used to analyses the data, such variables as interest rate, total export, loans to the agricultural sector, inflation rate and exchange rate were used in the analysis. The study established a positive relationship between the exchange rate and agricultural exports in the long-run, but there was no causality between the two. Therefore, an increase in the exchange rate will subsequently increase the agricultural exports in the long-run.

Ndibe (2022) [8] examined the role of human capital development on the sustainability of agricultural productivity. It showed how unman capital can be used to improve the sustainability of productivity in agriculture. He made use of desk research approach where he consulted many journals and other research papers on the research topic from the reviewed papers it was established that human capital development played important roles in agricultural productivity in Nigeria. The study urged the government to take critical assessment of Nigerian educational sector in a way to prepare skilled agricultural graduates to be involved in agriculture. Obiakor *et al* (2022) [11] examine the benefits of agriculture to the society through food security and elimination or reduction of poverty. Secondary data from the World Development Indicators and from the Central Bank of Nigeria were used while co-integration and ganger causality approach were equally adopted to process the data. The result of the findings show there exists a long-run relationship among agricultural value added, food production index the GDP per capita. Also, one-way causality flows from poverty reduction to agriculture value added in Nigeria. The study therefore recommended that to reduce poverty, policies that will encourage agricultural value added and food production should be put in place and encouraged.

The work of Julio *et al* (2023) [6] examined the impacts of improved agricultural productivity on poverty and the structural transformation in Guinea Bissau in 2014 and 2030. Time series data and dynamic computable general equilibrium (CGE) model was adopted for their analysis. The result of their findings showed a positive relationship exist on improved agricultural productivity on growth and sectoral output. According to their findings, increased wealth accumulation and labour savings in agriculture would reinforce reinvestment in other sectors of the economy. Also, the findings revealed a long-term positive welfare effects from the increased real income and the household consumption. The study suggested an agricultural agenda that would ginger structural transformation in the country. Umar, Rotimi and Kolawole (2023) [18] researched on the relationship between agricultural productivity and poverty alleviation in Nigeria between 1981 and 2020, data were collected from the World Data Base and Central Bank of Nigeria Statistical Bulletins. The study made use of Philips Patron test and auto-regressive distributed lag model (ARDC) to process its raw data. The variables used includes agricultural output, agricultural loans, per capital income and real gross domestic product. (RGDP). The result of their findings showed that increase in agricultural output have significant positive effect on per capita income which is used as proxy for poverty rate while the same increased in agricultural output reduces the poverty level. The study concluded that improvement in agricultural output can reduce poverty.

Based on the existing literature, this work made use of human development index (HDI), agricultural value added per worker, (AVAPW) and mechanization of agriculture in Nigeria (MEC). These three variables have not been used jointly for agricultural productivity in any study. The importance of skilled workers and its contribution per labour, with the effect of mechanization on productivity level added more value to the study.

3. Aims & Hypotheses

The aim of this study is to explore the relationship between agricultural productivity and poverty alleviation in Nigeria. Based on the literature review this study formulated the following hypotheses:

H_{01}: There is no significant relationship between agricultural productivity and poverty alleviation in Nigeria.

H_{02}: Agricultural productivity has no causal effect on poverty alleviation in Nigeria.

4. Methodology

The theoretical framework of this study is based on the theory of structural change developed by Lewis Arthur on the assumption that the growth of an economy is subject to the progress of both the agricultural sector and the industrial sector. The theory of structural change entails components such as; agricultural sector, represented by agricultural productivity, for which agricultural value added per worker (AVAPW) will serve as proxy, and the industrial sector of which agricultural machinery, tractors (MEC) will serve as proxy. AGDP, which is a common measure of development in agriculture. Also, indicators such as recurrent government spending on agriculture (GREA) and inflation (INF) are also indicators of poverty propensities. The Human Development Index (HDI) will serve as a proxy for poverty, as it is a combination of healthy life computations, knowledge and decent living standards. In other words, it is a composite statistical index of life expectancy, education and GNI per capita (PPP). Using this approach to measure poverty has been encourage in empirical studies due to unavailability of data. The index has been developed and recommended by Amartya Sen and Mahbub Ul Haq. It was also recommended by the United Nations Development Programme as a relevant tool for measuring people's well- being, and can therefore be used to assess not only economic progress, but also improvements in human well- being (Todaro & Smith).

Implicit form:

$$HDI = f(AVAPW, AGDP, MEC, GREA, INF) \quad (1)$$

Expressed in log linear form:

$$lnHDI = \alpha_0 + \beta_1 AVAPW + \beta_2 lnAGDP + \beta_3 lnMEC + \beta_4 lnGREA + \beta_5 lnINF + \varepsilon_t \quad (2)$$

Where; HDI: Human Development Index, AVAPW: Agricultural Value Added per Worker, AGDP: Agricultural Gross Domestic Product, MEC: Mechanization of agriculture in Nigeria, GREA: Government Recurrent Expenditure on Agricultural sector, INF: Inflation rate

Long-run Approach

In this study, to investigate the long-run relationship and short-run dynamic interactions among the variables of interest, the Auto Regressive Distributed Lag (ARDL) co integration technique is applied as a general vector autoregressive model (VAR). ARDL co-integration approach of Pesaran and Shin (2001) [15] which also encompasses the error correction model is used in the study. The ARDL unrestricted ECM are presented as follows:

$$\Delta HDI_t = \beta_0 + \beta_1 HDI_{t-1} + \beta_2 AVAPW_{t-1} + \beta_3 MEC_{t-1} + \beta_4 AGDP_{t-1} + + \beta_5 GREA_{t-1} + \beta_6 INF_{t-1} + \sum_{i=1}^{p} \alpha_{1i} \Delta HDI_{t-1} + \sum_{i=1}^{p} \alpha_{2i} \Delta AVAPW_{t-1} + \sum_{i=1}^{p} \alpha_{3i} \Delta MEC_{t-1} + \sum_{i=1}^{p} \alpha_{4i} \Delta AGDP_{t-1} + \sum_{i=1}^{p} \alpha_{5i} \Delta GREA_{t-1} + \sum_{i=1}^{p} \alpha_{6i} \Delta INF_{t-1} + \varepsilon_{it} \quad (3)$$

In equation 4, the coefficient with the summation signs signifies the short-run dynamics while the ones without the summation signs are the long-run multiples corresponding to the long-run relationship (Pesaran *et al*, 2001) [15]. The lag length for the unrestricted error correction model is represented by the variable p.

Causal Effects Approach

To investigate the causality between the chosen variables, this work will follow Toda and Yamamoto (1995). This method shows how possible it is to formulate VAR at levels form. It also carried out some restrictions on the parameters matrices.The lag length in the causality process is represented by K while $(k + d_{\max})^{th}$ order VAR represents the lag length plus the maximal of order of integration. That is, the $d_{\max}$ represents the maximal level of integration. The estimation is carried out on $(k + d_{\max})^{th}$ while the coefficient $d_{\max}$ lagged vectors are not involved, they are ignored. Assuming, if two variables are given as J and T, the model is given as:

$$J_t = a_0 + \sum_{i=1}^{K} a_{1i} J_{t-i} + \sum_{m=k+1}^{d\max} a_{2m} J_{t-m} + \sum_{i=i}^{k} \phi_{1i} T_{t-i} + \sum_{m=k+1}^{d\max} \phi_{2m} T_{t-m} + \partial_{1t} \quad (4)$$

$$T_t = b_0 + \sum_{i=1}^{K} b_{1i} T_{t-i} + \sum_{m=k+1}^{d\max} b_{2m} T_{t-m} + \sum_{i=i}^{k} \vartheta_{1i} J_{t-i} + \sum_{m=k+1}^{d\max} \vartheta_{2m} J_{t-m} + \partial_{2t} \quad (5)$$

Toda and Yamamoto (1995), the standard asymptotic distribution still valid in the causality process. The study uses secondary data comprising of time series data between 1981 and 2016, sources of data are from CBN Annual Report, World Bank Development Indicators and United Nations Development Programme Database.

4. Data Analysis

Table 1: Summary of ADF Unit Root Test Results

Variables	ADF Result		Mackinnon Critical Value			Order of Integration
	Level	First Diff	1%	5%	10%	
HDI	-1.144651	-5.440297)***	-4.243644	-3.544284	-3.204699	I(1)
AVAPW	-5.891251***	-	-4.243644	-3.544284	-3.204699	I(0)
AGDP	1.156917	-5.169273***	-4.243644	-3.544284	-3.204699	I(1)
AMEC	-2.557102	-5.520640***	-4.243644	-3.544284	-3.204699	I(1)
GREA	-5.411510***	-	-4.243644	-3.544284	-3.204699	I(0)
INF	-12.88271***	-	-4.243644	-3.544284	-3.204699	I(0)

(*)(**)(***) indicates significance at 1%, 5%, 10%
***Sources*:** Authors' computation

Table 1 shows results of the unit root test for the series in level and in first difference forms. The The result of the ADF shows that all AVAPW, GREA, and INF are stationary at level while HDI, AGDP, and MEC were stationary at first difference at 5% level of significance. Since the variables in the table 1 are I(0) and I(1), the ARDL boundary check is more appropriate.

Long-Run Behaviour Results

In order to achieve the objectives of this study, normalization will be done on HDI to establish long-run equations for human development index

Table 2: HDI Long-Run Equation: ARDL (3, 3, 3, 3, 2, and 1)

Significance levels	Critical Bounds		F-Statistics Value	K_{max}	Hypothesis Testing
	I0 Bound	I1 Bound			
At 10 percent	2.26	3.35	14.58	6	Cointegration exist
At 5 percent	2.62	3.79	14.58	6	Cointegration exist
At 2.5 percent	2.96	4.18	14.58	6	Cointegration exist
At 1 percent	3.41	4.68	14.58	6	Cointegration exist
Diagnostic Checks				**Probability**	**Hypothesis Testing**
Breusch-Godfrey Serial Correlation				0.0592	Rejected
Heteroskedasticity Test: ARCH				0.0015	Rejected
Histogram – Normality Test				0.2996	Rejected

***Source*:** Authors' Computation 2024

The table 2 above shows the ARDL bound test with Human Development Index (HDI) as dependent variable. From the result above the model selection criteria used indicate that the accurate ARDL model is, using 3 lags for HDI and with 3, 3, 3, 2 and 1 lags for AVAPW, AMEC, GREA, and INF respectively. Hannaz Quinn criterion was used as the appropriate lag length. The result shows that Cointegration exist at the levels of 10, 5, 2.5 and 1 percent. The F-statistics is 14.58 and it is greater than the upper bounds of 3.35, 3.79. 4.18 and 4.68 for 10, 5, 2.5 and 1 percent respectively; this revealed the long-run relationship among the various variables. The determine the validity of the model, diagnostic checks were carried out. The Breusch-Godfrey Serial Correlation LM with probability value of 0.0592, heteroskedasticity and Histogram-test with probability of 0.0015 and 0.2996 were not normally distributed and therefore, were rejected at 5% significance level respectively.

Estimated Long-run Behaviour (Coefficients)

Table 3: Long-run Coefficients and Error Correction Mechanism

Dependent Variable	Regressors					
	HDI	GREA	AMEC	INF	AGDP	AVAPW
HDI		-0.32819 (-1.34563)	-0.33942 (-0.07507)	0.20871 (-2.06742)	0.11236 (10.18034)	0.82614 (4.70613)
C	-0.005671 (-5.48463)					
ECM	-1.17555* (-4.77378)					

***Source*:** Authors' Computation 2024

The above table shows the cointegration equations where HDI is the dependent variable. The result shows that GREA, AMEC, INF, AGDP and AVAPW are all significant at 5% level of significance. HDI has a positive relationship with INF, AGDP and AVAPW while it has a negative relationship GREA and AMEC. The level of adjustment in relationship with ECM is given as -1.175, which is negative and significant, likewise it shows that about 117% of the disequilibrium in the short-run is corrected in the next period.

Causality Test Results

Table 4: Causality Test Result

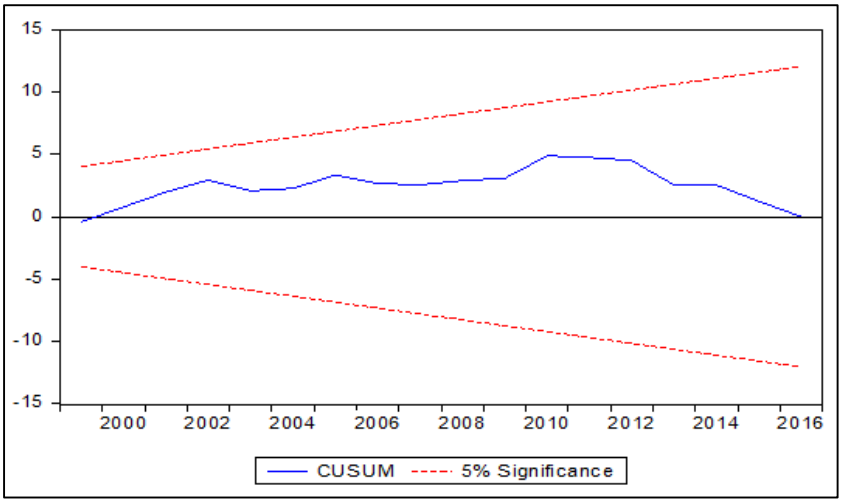
Variables	Direction of Causality	D_{max}	Optimal Lag	Probability Value	Evaluation of Hypothesis
HDI & AGDP	$HDI \rightarrow AGDP$	1	2	0.0273	Bilateral Causality
	$AGDP \rightarrow HDI$			0.0176	
HDI & GREA	$HDI \rightarrow GREA$	1	2	0.9632	Independent
	$GREA \rightarrow HDI$			0.7398	
AVAPW & AGDP	$AVAPW \rightarrow AGDP$	1	2	0.3103	Independent
	$AGDP \rightarrow AVAPW$			0.8829	
AVAPW & GREA	$AVAPW \rightarrow GREA$	1	2	0.0490	Bilateral Causality
	$GREA \rightarrow AVAPW$			0.0267	
HDI & AVAPW	$HDI \rightarrow AVAPW$	1	2	0.6952	Independent
	$AVAPW \rightarrow HDI$			0.9157	
AGDP & GREA	$AGDP \rightarrow GREA$	1	2	0.0324	Bilateral Causality
	$GREA \rightarrow AGDP$			0.0088	

***Source*:** Authors' Computation 2024

The table 4 above shows the causality test result; some of the variables involved are HDI, AVAPW, AGDP, and GREA. The causality result suggests bidirectional causation between: human development indicator (HDI) and agricultural gross domestic product (AGDP); agricultural productivity (AVAPW) and government recurrent expenditure on agriculture (GREA); and agricultural gross domestic product (AGDP) and government recurrent expenditure on agriculture (GREA). No causal relationship between: human development indicator (HDI) and government recurrent expenditure on agriculture (GREA); agricultural productivity and agricultural gross domestic product (AGDP); and

agricultural gross domestic product (AGDP) and government recurrent expenditure on agriculture (GREA).

Stability Test



***Source*:** Authors' Diagram

The above graph is used for assessing the stability of parameters with the cumulative sum of recursive residuals (CUSUM). The projections show consistency in parameter as the CUSUM plot dropped below the critical limits of 5%. The model then fills the stability condition test at 5 percent.

4. Discussion of Findings

This study examines the nexus between agricultural productivity and poverty alleviation in Nigeria. In this study, we used autoregressive distributed lags to examine the relationship between agricultural productivity and poverty alleviation. The outcome of the stationarity test shows that some of the series are integrated of order zero while some are integrated of one. The ARDL bounds test was used to test for the long run relationship between agricultural productivity and poverty alleviation. The study shows that an increase in AVAPW will cause increase in HDI; this means that an increase in GREA should significantly decrease HDI but over the years has failed, due to some possibilities such as; insufficient funds, inefficiency in the implementation of funds, mismanagement, uneven distribution and so on. The result also revealed a positive relationship between the following AGDP and HDI; INF and HDI. The short-run effect was carried out using ARDL ECM cointegration test, which shows the co-integration equation with the value of -1.175551 and a probability value of less than 5% significant level. It shows that about 117% of the disequilibrium in the short-run is corrected in the next period. Therefore, there is short-run relationship between HDI and AVAPW. Hence, there is short-run effect of agricultural productivity on poverty alleviation. Finally, the causality test showed a bi-directional relationship between HDI and AGDP, and there was no causal relationship between HDI and AVAPW.

The federal government should provide funds to acquire advanced technology to the agricultural sector in order to increase productivity and efficiency. The government should embark on development plans which sole aim would be towards the eradication of poverty in Nigeria with its major strategy drafted in favour of the agricultural sector. Gross domestic product per capita (GDPPC) contributes significantly to the reduction of poverty, therefore government should focus on how to consistently sustain the increase in GDP per capita to increase incomes and standard of living of Nigerians. One of the ways to sustain the increase in GDP per capita is to increase productivity. The country should process more of its product for exports rather than relying only on exportation of raw materials. Average individuals practising commercial agriculture should however try to be in collaboration with industries that require their products for further production, to establish a ready market; this will go a long way promoting agricultural productivity.

5. Conclusions

The purpose of this study is to examine the relationship between agricultural productivity and poverty alleviation in Nigeria. The theoretical and empirical literature have stated that increasing agricultural financing will reduce poverty rate and others have questioned if agricultural finance can alleviate poverty. In Nigeria context, poverty rate has been on the increasing trend. A large percentage of Nigerian population have no access to good food, housing, health and safety. Nearby 70 percent of Nigerian population are engaged in agriculture as a means to meet their ends meet but at subsistence level.

In most developing countries, nearly two - thirds or more of the economically active population is allocated primarily to agriculture, although most of these persons also provide labor for other market and non - market activities. In an attempt to examine the connection between agricultural productivity and poverty reduction in Nigeria; this research adopts the theory of structural change with some of its components. Such as; agricultural sector, represented by agricultural productivity, for which agricultural value added per worker serves as proxy, and the industrial sector of which agricultural machinery, tractors serve as proxy. Agricultural productivity is used to measure by the sector contribution to aggregate output. Also, indicators such as recurrent government spending on agriculture and inflation are also indicators of poverty propensities. The Human Development

Index is used as a proxy for poverty, as it is a combination of long and healthy life computations, knowledge and decent living standards. The findings from the ARDL show that agricultural productivity can be used to reduce the poverty level, however, the magnitude was very low. The result of the causal test revealed a bi-directional relationship between agricultural productivity and poverty in Nigeria.

6. Recommendations

This study advises the federal government to provide funds to acquire advanced technology in the agricultural sector for an increased productivity and high level of efficiency. The government should embark on development plans which sole aim would be towards the eradication of poverty in Nigeria with its major strategy drafted in favour of the agricultural sector. Lastly, average individuals practicing commercial agriculture should however try to be in collaboration with industries that require their products for further production, to establish a ready market; this will go a long way promoting agricultural productivity.

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