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AGRICULTURAL INVESTMENT AND ECONOMIC GROWTH NEXUS: IMPLICATION FOR POLICY FRAMEWORK

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Abstract
The role of agricultural development in economic progress of developing economies has continuously earned the attention of economists and policy makers. This assertion may not be unconnected to the fact that a large chunk of people within developing economies are largely subsistent farmers. Hence, an effort at turning the sector into a significant growth propelling one requires attraction of funds from surplus spending units to our ill developed agric sector. This study investigated the role of Agricultural investment on economic growth in Nigeria using annual time series data obtained from secondary sources, spanning over a period of 35 years between 1983-2017. The data was subjected to various tests, while analysis was done using Johansen Co-integration test before the error correction model was developed and analysed.The result of the data analysis indicated that public investment in Agriculture has a negative insignificant impact on economic growth in Nigeria while private investment has a positive significant impact on poverty in Nigeria. The study also found foreign private investment in agriculture to be unsustainable to agricultural development. The study recommended that government should expand public investment in Infrastructure and R&D in order to motivate the private sector to participate fully and those broad based policies should be designed for optimal economic growth experience.

Keywords: Broad Based, Agricultural Investment and Economic Growth
JEL Classification: Q14

Introduction

The 21st century macroeconomic policy design for most developing countries of the world is targeted at achieving sustainable growth with agriculture playing a significant role. This policy posture becomes imperative as majority of world's poor are domicile in developing countries with a large chunk of them engaged in subsistent and small holder farming. Positioning the sector for sustainable growth requires that productivity and output from the sector be enhanced which require massive investment fund. Although, the Food and Agricultural Organisation (FAO) endorses that 25 per cent of government capital budget be allocated to agricultural development, it has however remain unachievable by the various administrations of Nigeria, thereby affecting government programmes and policies for the sector (Iganiga and Unemhili, 2011). The Maputo declaration has also remain breached as Nigeria has consistently failed to allocate up to 10 percent of the budget to agriculture, hence, negative implication for food security (Ochigbo, 2012).

Despite the widely acclaimed growth potential of the sector, its contribution to economic growth in Africa is not commensurate. The sluggish expansion in Agricultural sector has turned out to

be a major source of worry to policy makers because of its profound implication on other sectors of the economy. In poor developing countries, agriculture generates on average 29 percent of the gross domestic product (GDP) and employs 65 percent of the labor force; more than half of the developing world's population—3 billion out of 5.5 billion—lives in rural areas; and as much as 75 percent of developing world's poor live in rural areas, most of them dependent on agriculture either directly or indirectly (Kida 2011). It is inline with this that Timmer (2003) posited that it would seem straightforward to argue that the focus of development policies in developing countries should be on promoting Agriculture. But it is not so simple.

The dismal performance of agricultural sector may be connected to the poor funding practices and inconsistencies in investment policies. Udoh (2011) reported that expenditure on agriculture as a percentage of total expenditure fell from an average of 4.57 per cent between1986-1993, to an average of 4.51 per cent per annum between 1994-1998 and later to 3.53 per cent between 1999-2005. Furthermore, cursory look at the trend in agricultural capital investment as a ratio of total capital investment showed a downward trend averaging at 15.4, 7.37, 3.38, and 2.07 per cent between 1981-1985, 1986-1990, 1991-1995 and 1996-2000 subperiod respectively before rising to 12.11 per cent in 2001-2005 subperiod. The downward trend reaching 6.99 percent in 2011-2015 subperiod. This trend is reflective of government effort at degrading the Nigerian agricultural sector development.

Nevertheless, successive governments have over the years attempted to promote investment in the Agriculture sector. Various policies which were expected to positively impact on the flow of public and private investment which in turn is expected to expand the sector, increase productivity, boost the Gross Domestic Product and ultimately improve the standard of living of the people were formulated. Hence, Nigerian agricultural sector programs were designed to enhance economic growth and eventually improve human conditions of the people in Nigeria, and this demand for an investigation into the relationship between agricultural investment and economic growth and its implication for development.

The remaining section of the paper is structured as follows. Section two covers literature review which looks at conceptual issues related to the study. It also covers empirical and theoretical issues. Section three deals with methodology and data estimation techniques. Section four deals with results and policy implication while the last section concludes the paper and suggest general policy guidelines for national economic progress.

Literature Review

This study defines Investment as additions to stocks of capital which could be from either private or public sources. The study looks at investment from a general approach to capital that includes real tangible physical capital which include dams, irrigation structures, grain silos, etc, and social capital such as human capital through education and health, and on-the job training through intergenerational transfer of farming skills.

Public investment is investment done by the government whether through central or other publicly owned organization. The need for Public investment has arisen from the need to provide certain capital intensive goods, such as infrastructure or services that are considered to be of vital national interest. Due it complimentary consequence on the private sector, Public investment has a tendency to intensify the process of industrialization. Hence, it attracts demand for new infrastructure which eventually facilitates the growth of urban communities (Erden. and Holcombe 2005). Private investment on the other hand refers to the total purchase made on capital asset with the expectation of generating future streams of income, value appreciation. It could also simultaneously cause income generation and appreciation in value. In the computation of GDP, private investment is the measure of physical investment which is an important component because it is an indicator of the future productive capacity of the economy (Grimsley 2016).Economic growth on the other hand is a sustained expansion of production possibilities measured as an increase in the real GDP over a given period. Rapid economic growth maintained over a number of years can transform a poor nation into a rich one, as has been the experiences of Hong Kong, South Korea, Taiwan and other Asian economies (Bade & Parkin, 2002).

The relevance of investment in agriculture in Nigeria can be linked to the fact that theoretically and historically, it is assumed that the sector requires robust funding packages for capital investment from all possible sources which inturn translate to growth and development.

A good number of studies have been done Economic growth and Agriculture. While some researchers such as Gollin, Parente and R. Rogerson (2002) have seen the sector as the traditional propeller of growth, others maintained that the linkages between agriculture and other sectors of the economy are not strong enough with inadequate innovative structures capable of

economic growth promotion (Ranis and Fei, 1961; Jorgenson, 1961). For instance Yusuf (2014) in his empirical study on the role of agriculture in development of Nigeria using data spanning between 1981 and 2012. His study was a multivariate study which was premised on the Solow Growth model using data collected on Gross Capital Formation (GCF), post-secondary school enrolment, Agricultural Output, Economic Growth and Development which were proxy by RGDP. The study reveals that the Agriculture plays a significant role in economic development of the nation.

Oboh, and Adeleke, (2016) carried out an assessment on the potential capacity of agricultural sector to propel sustainable broad based growth using data spanning over 34 years between 1981 and 2015. Agriculture was found to led service and industrial sector in their contributions to employment creation in Nigeria. Their recommendations include increase in public investment, availability and access to inputs as well as agricultural programs aimed promoting inclusiveness, through youth friendly and price stabilization strategies. Shenggen and Neetha (2003) reported that the impact of government spending in Africa on Agriculture and Health was particularly strong in promoting economic growth. If poverty is to be reduced rural areas, growth in agricultural production most be vigorously pursued with agricultural spending on human capital development, infrastructural facilities like roads, efficient irrigation system which are strongly related to growth.

While most work done on the role of Agriculture in economic growth adopted either agricultural output, agricultural expenditure or other qualitative variables which do not pay special attention to the investment component of the sector, this study consider investment as key to growth which if properly planned and Implemented will result to sustainable economic development.

Theoretical Review

This study benefited immensely for the structural transformation theory by Lewis (1954) and endogenous growth theory championed by Romer (1986), Lucas (1988), Barro (1990), and Rebelo (1991). For Lewis, agricultural sector output is assumed to be used primarily for consumption, while that of the industrial combine purposes of both consumptive use and for capital accumulation, such that sustained growth depends on industrial expansion. (Kida 2011). Capital accumulation and industrial investment are prime determinants of such expansion which accommodate the movement of labour from traditional agricultural sector to the modern sector. Endogenous theorist argue that such investment should be come from both public and private sources with large chunk of the public investment concentrated on areas with high tendency of motivating the privates sector into investing. Research and development, infrastructure development and human capital development are specific examples of areas demanding public investment. Human capital development through 'on the job learning or learning by doing' and Research and Development are argued to possess significant positive externalities on growth and development.

While most work done on the role of Agriculture in economic growth adopted either agricultural output, agricultural expenditure or other qualitative variables which do not pay special attention to the investment component of the sector, this study consider investment as key to growth.

Methodology

Description and sources of Data Collection

This study employs time series data on output (RGDP), Public capital Expenditure in Agriculture (Proxy for Public investment in Agriculture PI), Gross fixed capital formation for Agriculture (Proxy for Private investment in Agriculture PR), foreign private investment in Agriculture (FR) and Unemployment rate (UN) spanning over the period of 1983 to 2017 in Nigeria. Secondary sources such as Central Bank Statistical Bulletin and Annual reports for various years, National Bureau of Statistics, Annual Abstract of Statistics for various years, World Bank Data bank and Published Research works were consulted for the data..

Model Specification

The relationship between Agricultural investment, unemployment and economic growth in Nigeria is expressed implicitly as follows:

$$RGDP = f(PI, PR, FR, UN) \quad (1)$$

The above equation is the functional form while the mathematical form showing a liner relationship is as follows:

$$lnRGDP = ln\beta_0 + \beta_1 lnP1 + \beta_2 lnPR + \beta_3 lnFR + \beta_4 lnUN \quad (2)$$

The above gives the long run estimates, while the short run dynamic relationship will be estimated using an error correction model. The error correction term integrates short-run dynamics and

the long-run functions as shown below through error correction model (ECM):

$$\Delta lnRGDP_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta lnRGDP_{t-i} + \sum_{i=0}^{p} \alpha_2 \Delta lnPI_{t-i} + \sum_{i=0}^{p} \alpha_3 \Delta lnPR_{t-i} + \sum_{i=0}^{p} \alpha_4 \Delta lnFR_{t-i} + \sum_{i=0}^{p} \alpha_5 \Delta lnUN_{t-i} + \partial ecm_{t-1} + \mu_t \quad (3)$$

Where, RGDP = economic growth, PI= Public investment in Agriculture proxied by Capital expenditure on Agriculture, PR= Private investment in Agriculture proxied by Gross fixed capital formation for Agricultural sector, FR= Foreign Private investment on Agriculture, UN= Unemployment rate, μ= is the stochastic term in all the equations. Δ = First difference operator, p = Lag length, ∂= Speed of adjustment, ecm = Error correction term, $\alpha_1 - \alpha_5$ = Short run elasticities (coefficients of the first-differenced explanatory variables), and $\beta_1 - \beta_5$ = Long run elasticities (coefficients of the explanatory variables). Data analysis will be executed using E-vievs 8.0

Analytical Framework

Often, untreated times series data drifts from their true means, hence unrealistic for policy formulation and implementation. In order to ensure that results from the analysis are usable for policy recommendation, a number of tests were conducted on them. Thus, the augmented Dickey Fuller unit root test was done to ascertain the level at which each variable is stationary or the order of integration. After establishing the order of integration, the test for long run relationship amongst the variable was conducted using the Johansen co-integration test. The Vector error correction model whose error correction term ties the short-run behavior of the variables to their long run values was estimated using the variables that are shown to be co-integrated. This makes forecasting the speed of adjustment possible.

Furthermore, a serial correlation LM test was conducted to ensure that the models are devoid of serial correlation. A test for stability of the models was done to ascertain if the models are stable using the cusum test, while the Breucsh-Pagan-Godfrey test was used for the test of Heteroskedasticity

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Results

Unit Root Test

Table 1. Results of Augmented Dickey Fuller test

Variable(s)	ADF Statistics	Lag	Test critical value (5%)	Decision
lnRGDP	-2.219401	2	-3.552973	Non-stationary
lnPI	-2.461424	2	-3.557759	Non-stationary
lnPR	-3.536802	2	-3.552973	Non-stationary
lnFR	-1.511726	2	-3.548490	Non-stationary
lnUN	-1.707681	2	-3.548490	Non-stationary
First Difference				
Δ lnRGDP	-3.602994	2	-3.552973	Stationary
Δ lnPI	-9.307987	2	-3.557759	Stationary
Δ lnPR	-3.614985	2	-3.562882	Stationary
Δ lnFR	-5.508440	2	-5.508440	Stationary
Δ lnUN	-4.855088	2	-3.552973	Stationary

NB: ln=natural logarithm, Δ=diference operator.
5% significant level is used for the decision of the unit root.
Source: Author's composition using E-views 8.0

The unit root test was carried out using Augmented Dickey Fuller (ADF) unit root test. The result of the ADF test and as shown in Table 1 indicated that LRGDP, LPI, LPR, LFR and LUN were integrated of order one. Therefore, the variables under study are integrated of the same order and this justifies the use of Johansen co-integration. All the variables are not stationary at level but become stationary after first difference as the ADF statistics values for first difference are higher than test critical values at 5%, but were otherwise at level.

Johansen Cointegration test for long run relationship

Results from the Johansen co-integration test, showed a long run relationship between agricultural investment and economic growth in Nigeria. Following the approach of Johansen and Joselius (Johansen 1998), two likely hood ratio test

statistics were utilized to determine the number of co-integrating equation in the model based on the assumption of no deterministic trend in the data. Data was tested using both trace statistics and Max-Eigen statistics at 5% critical values. The result of the trace Statistics and maximum Eigen values indicates that there are at most two (2) and one (1) co-integrating equations respectively in the model, hence the test rejected the null hypothesis of no co-integrating equation. However the trace statistics tend to have more distorted sizes whereas their power is in most situations superior to that of the Maximum Eigen Value (Helmut etal 2000).

Table 2: Johansen Co-integration test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized N0. CE	Eigenvalue	Trace statistic	Critical Value (5%)	Prob.**
None *	0.811626	105.8639	69.81889	0.0000
At most 1 *	0.519088	50.77612	47.85613	0.0259
At most 2	0.377133	26.61781	29.79707	0.1113
At most 3	0.279841	10.99490	15.49471	0.2118
At most 4	0.004883	0.161546	3.841466	0.6877

Trace test indicates 2 cointegrating eqn(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 N0. CE	Eigenvalue	Trace statistic	Critical Value (5%)	Prob.**
None *	0.811626	55.08782	33.87687	0.0000
At most 1	0.519088	24.15831	27.58434	0.1293
At most 2	0.377133	15.62291	21.13162	0.2476
At most 3	0.279841	10.83335	14.26460	0.1628
At most 4	0.004883	0.161546	3.841466	0.6877

Max-eigenvalue 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 compilation from E-view 8

Regression Analysis

Table 3: Regression Results for the Model
Dependent Variable: LRGDP

Regressors	Coefficient	Std Error	t-statistics
LPI	-0.682334	0.06445	10.587029
LPR	0.789793	0.0845	9.346663
LFR	-0.185087	0.1129	1.639389
LUN	0.191837	0.09948	1.928398

Source: Author's compilation from E-view 8

The result of the estimated coefficients of the long run relationship in Table 4.3 indicated a significant negative and inelastic relationship between economic growth and Public Investment in Agriculture going by the rule of thumb. The rule of thumb for t-statistic holds that coefficient estimate is significant if $t \geq 2$. The estimated coefficient of Public investment on agricultural (-0.682334) implies that 1percent increase in Public investment in agriculture decreases economic growth by approximately the rate of 0.68 percent, all things being equal. Private Investment in Agriculture also has an inelastic, significant but positive impact on Economic growth which follows the a priori expectation. It's estimated coefficient of 0.789793 implies that a unit increase in Private Investment on Agriculture enhances economic growth by approximately 0.79 percent. Foreign Private Investment on Agriculture goes contrary to a priori expectation. It shows an inelastic, negative and insignificant impact on Economic growth. This indicates that a 1% increase in Foreign Private Investment on Agriculture shrinks the economy by approximately 0.18%. Furthermore, Unemployment rate has a positive but insignificant relationship with Economic growth. This means

that as the economy grows, unemployment also grows at an average of 19 percent over the period of the study.

The Short Run Relationship Estimate

Table 4: Results of the Short-run Dynamic Relationship.

Regressors	Coefficient	Std. Error	T-value	p-value
C	0.037558	0.01016	3.69629	0.0011
ΔLRGDP(-1)	0.360835	0.18536	1.94671	0.0629
ΔLPI(-1)	0.000991	0.00968	0.10238	0.9193
ΔLPR(-1)	-0.016443	0.03327	-0.49422	0.6255
ΔLFR(-1)	-0.026548	0.0251	-1.05788	0.3002
ΔLUN(-1)	-0.033976	0.02845	-1.19442	0.2435
ecm (-)	-0.149941	0.05653	-2.65256	0.0137

R-squared	0.490505	Mean dependent var	0.046285
Adjusted R-squared	0.347847	S.D. dependent var	0.041594
S.E. of regression	0.03359	Akaike info criterion	-3.741967
Sum squared resid	0.028207	Schwarz criterion	-3.379177
Log likelihood	69.74245	Hannan-Quinn criter.	-3.619899
F-statistic	3.438317	Durbin-Watson stat	1.959944
Prob(F-statistic)	0.010274		

Source: Author's compilation from E-view

The results of the short run dynamic coefficients associated with the long run relationships obtained from the Error Correction Model in Table 4.4 shows that Public investment in Agriculture has positive impact on economic growth in the short run while Private investment in Agriculture, Foreign Private investment In Agriculture and unemployment have negative impact on economic growth in the short run. However, none of these variables is significant in the short run as they require a lag of time to effectively interact in order to make significant impact. The estimated error correction coefficient of -0.149941 is highly significant at 5 percent probability level, has the correct sign, and imply a slow speed of adjustment to equilibrium after a shock. Approximately 15 percent of disequilibria from the previous year's shock converge back to the long run equilibrium in the current year.

A look at the overall fitness of the model revealed an R-squared of 0.490505; hence 49% of the systemic variation in the dependent variable is explained by the ECM. The F-statistic of 3.438317 with probability (F-statistic) of 0.010274 is highly significant implying joint significant of the explanatory variables captured in the model.

Granger Causality Test

The granger causality test results revealed that while there is no causality running from LPI, LPR, and LFR to LRGDP, LUN granger cause LRGDP. There is also causality running from LRGDP to LPI.

Table 5: Granger Causality Test Results for Model 1

Model 1			
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
LPI does not Granger Cause LRGDP	34	1.84144	0.1846
LRGDP does not Granger Cause LPI		6.21718	0.0182
LPR does not Granger Cause LRGDP	34	2.57570	0.1187
LRGDP does not Granger Cause LPR		0.17813	0.6759
LFR does not Granger Cause LRGDP	34	0.05994	0.8082
LRGDP does not Granger Cause LFR		0.81370	0.374
LUN does not Granger Cause LRGDP	34	6.78290	0.014
LRGDP does not Granger Cause LUN		1.50976	0.2284

Source: Author's compilation from E-view 8

Diagnostic Tests

The outcome of the normality test based on the Jarque Bera test of normality showed that all the samples are from a normally distributed population while the Lagrange multiplier test for serial correlation based on the Breusch-Godfrey LM test,

test for Heteroscedasticity based on the Beusch-Pagan-Godfrey test as well as the Cusum test of Stabilty for the Model as presented in Tables 4.5a and 4.5b indicates that the models passed all the tests.

Table 6: Jarque-Bera Test of Normality on Samples

Variables	LRGDP	LPI	LPR	LFR	LUN
Jarque-Bera	3.303632	2.996355	2.806877	3.972256	2.772546
Probability	0.191701	0.0223537	0.24575	0.137226	0.250005

Source: Author's compilation from E-view 8

From table 4.5a above, the corresponding p-value for Jarque-Bera test of normality for all the explanatory variables are greater than 5 percent. This implies that each data sample came from a normally distributed population. Table 4.5b below showed that the probability value of the observed X^2 is greater than 5percent which implies absence of serial correlation and heteroscedasticity.

Table 7: Langragian Multiplier Test

LM Test Statistics	***Observed X^2***	**Prob.**
A:Serial Correlation	1.301602	0.2539
B:Heteroscedasticity	9.114343	0.5213

Source: Author's compilation from E-view 8

The cumulative sum (CUSUM) plots from the recursive estimations of the data are shown in Figures 1 below. This figure indicates stability in the coefficients over the sample period as the plot of the CUSUM statistic fall inside the critical bands of the 5% confidence interval of parameter stability.

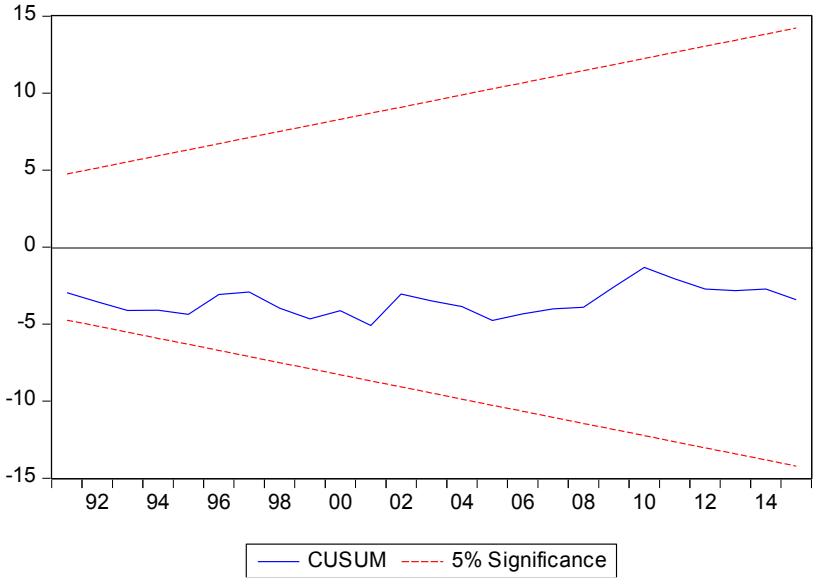

Fig. 1: CUSUM Test for the model

In addition to the above tests, the fact that the Jarque-Berra test of normality on fig. 2 returned a p-value of 55 percent which is greater than our 5 percent working critical value showed that residuals from the model are normally distributed hence making the model not only useful for forecasting and policy formulation, it can also be used to predict desired future values for economic variables of interest.

Jarque-Berra Test of Normality of Residuals

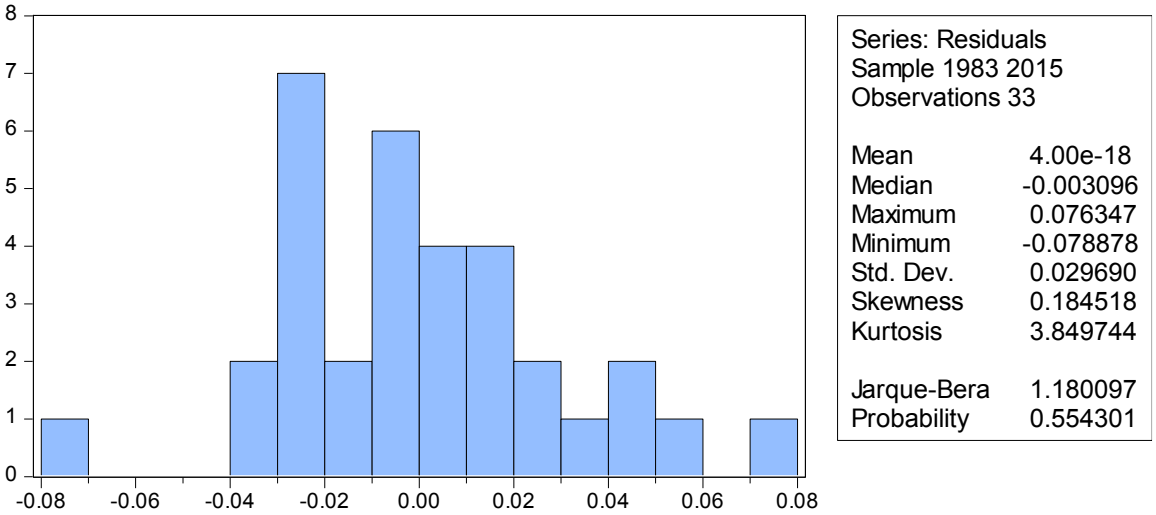

Fig. 2: Jarque-Berra test of Normality of residuals for the Model

Policy Implications for Poverty Alleviation

It is not surprising that the study found that Public investment in agriculture has not being growth friendly, hence not having the desired significant impact on economic development in Nigeria over the period considered in the study. One probable reason for this is the inadequacy of public investment as well as mismanagement. Although, the private sector performs better, it however requires extensive support from Government on infrastructure, Research and development and other factors which could compliment Private investment in Agriculture to sustain the momentum for growth and development. Foreign investors are also out for profit and wouldn't want to jeopardize their interest, hence repatriate their profit to their home country when general cost of doing business is too enormous. Redressing these ugly trend require a broad based holistic plan which encourages extensive participation of farmer in agricultural investment and production. Such strategy should also be able to attract the youths by providing gainful employment opportunity for them. The whole idea is to position such farmers as profitable income earner and also as investment catalyst whose income earning power redistribute income to the rural area and whose investment capabilities promote employment and productivity.

Conclusion and Recommendations

This study has been able to establish that public investment in agriculture is negatively related to economic growth while private investment has a positive impact on economic growth in the long run. The study also showed that foreign private investment in Agriculture does not enhance economic growth in Nigeria. Poor funding, insufficient budgetary allocation and poor implementation has been adduced as some of the probable reason for the poor performance of investment components of agricultural funding. The study also showed that unemployment rises as economy grows. This implies that the growth witnessed in Nigeria in recent past has been un-inclusive.

Redressing these ugly trend require a broad based holistic plan which encourages extensive participation of farmer in agricultural investment and production. Such strategy should also be able to attract the youths by providing gainful employment opportunity for them. The whole idea is to position such farmers as profitable income earner and also as investment catalyst whose income earning power redistribute income to the rural area and whose investment capabilities promote employment and productivity.

It is however recommended that a broad based agricultural investment policy should be designed to make life meaningful to over 60% Nigerian farmers whose majority engage in subsistence Agriculture to survive, while Government expand investment on factors that tend to motivate the private sector in general and utilize funds in line with global best practice. Investment in R&D as well as infrastructural facility such as roads, electricity and storage facilities. It is also important that government ensures that the atmosphere is conducive for both domestic and foreign investors in order to improve investors' confidence and also encourage on ground investors to plough back their profit. This will eventually impact poverty incidence in Nigeria inversely through the trickledown effect of the policy implementation.

References

Aghion, P and P. Howitt (1998) Endogenous Growth Theory. Cambridge. Mass, MIT Press.

Akande SO, Falokun GO, Taiwo SO, Ogunwale AO, Adeoye BW (2009). Budget Process in Selected Countries, Lessons for Nigeria, NISER Monograph Series No 1, 2009.

Aliyu R. S. (2014). Monetary policy and Inclusive Growth: how costly are Disinflation to inclusion in Nigeria. Proceedings of the 2015 conference of the Nigeria Economic Society.

Barro, R. J., (1990). Government spending in a simple model of endogenous growth, Journal of Political Economy 95 (5), 103-125.

Briones R M. (2013) Agriculture, Rural Employment, and Inclusive Growth. DISCUSSION PAPER SERIES NO. 2013-39 ,Philippine Institute for Development Studies.Makati City, Philippines

Cervantes-Godoy, D. and J. Dewbre (2010), "Economic Importance of Agriculture for Poverty Reduction", OECD Food, Agriculture and Fisheries Working Papers, No. 23, OECD Publishing. doi: 10.1787/5kmmv9s20944-en

Erden, L., and Holcombe R. G., (2005). The Effects of Public Investment on Private Investment in Developing Economies.‖ *Public Finance Review 33 (5):* 575–602.

Fan, S., Hazell, P., and Thorat S. (1999). Linkages between Government spending, Growth and poverty in rural India. Research report 110,Washington DC:IFPRI.

Federal Ministry of Agriculture (FMA) &Rural Development (RD), (2001). National Policy on Integrated Rural Development. Abuja: Federal Ministry of Agriculture and Rural development.

Gimsley S. (2016, Jan 9). What is Private investment. (web log post). Retrieved from July 17, 2017, from https://study.com

Gollin, D., S.L. Parente and R. Rogerson (2002): The role of agriculture in development. In: *American Economic Review 92 (2):* 160-164.

Helmut L., Pentti S., Garsten T. (2000). Maximum Eigenvalue Versus Trace tests for the Cointegrating Rank of a VAR Process. *Institute for Statistics and Econometrics, Humboldt-University, D-10178* Berlin, Germany

Irz, X, Lin L, Thirtle, C and Wiggins, S. (2001) Agricultural Productivity Growth and Poverty Alleviation, Development Policy Review, 19(4):449-466.

Iganinga, B.O and Unemhili, D. O.(2011) The Impact of Federal Government Agricultural Expenditure on Agricultural Output in Nigeria, *Journal of Economics*, Vol. 2, no. 2, pp. 81 – 88.

Johansen, 1998. Statistical Analysis of Cointegrating Vectors. Journal of Economic Dynamics and Control, Vol. 12, pp.231-254.

Kida M (2011). Agriculture and inclusive growth—Key questions and diagnostic tools for country economists. Retrieved from:http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1316457581843/TPIGandAgriculture.pdf

Kolawole, B.O and Omobitan, O.A. (2014) Raging Poverty and Agricultural Output in Nigeria: An Empirical Investigation, Journal of Economics and Sustainable Development 5(6).

Le, M.V., Suruga, T., (2005). Foreign Direct Investment, Public Expenditure and Economic Growth: The Empirical Evidence for the Period 1970-2001. Applied Economic Letters 12, 45–49.

Nwosa P. I (2014). Impact of Macroeconomic Policies on Poverty and unemployment rates in Nigeria:Implication for Attaining Inclusive Growth. Proceedings of the 2015 conference of the Nigeria Economic Society.

Oboh, V. U., Adeleke, A. I (2016). Accelerating inclusive Agricultural growth in Nigeria: an examination of strategic issues, challenges and policy options. *International Journal of Development and Economic Sustainability*. Published by European Centre for Research Training and Development UK.

Ochigbo, F.(2012) 'Nigeria's Agriculture Budget under 10%'. The Nation Newspaper, Nigeria.http://www.thenationonlineng.net/2011/business/60002-%E2%80%98nigeria%E2%80%99s-agric-budget-under-10%25%E2%80%99.html Accessed 1st September, 2012.

OECD (2012), Agricultural Policies in OECD Countries: Monitoring and Evaluation, OECD, Paris.

Oni, L.B. (2014) An Assessment of Agriculture and Poverty Reduction Nexus in Nigeria, Journal of African Macroeconomic Review 4(1).

Oyakhilomen O. and Rekwot G. Z (2014). Agricultural Production and Economic Growth in Nigeria: Implication for Rural

Poverty Alleviation. Quarterly Journal of International Agriculture 53 (2014), No. 3: 207-223.

Oyakhilomen O., Zakari A Rekwot G. Z (2013). Agricultural Budgetary Allocation and Economic Growth in Nigeria: Implications for Agricultural Transformation in Nigeria *The Journal of Sustainable Development. Vol. 10, Iss. 1*, Pp. 16 – 27

PHETSAVONG K., ICHIHASHI M. (2012). The Impact of Public and Private Investment on Economic Growth: Evidence from Developing Asian Countries Graduate School for International Development and Cooperation, Hiroshima University 1-5-1 Kagamiyama, Higashi Hiroshima, Hiroshima 739-8529, Japan.

Ranis, G., & Fei, J. (1961). A theory of economic development. *The American Economic Review , 51 (4),* 533-565

Romer, P (1986) "Increasing Returns and long-run Growth". Journal of Political Economy 94. Romer, P (1990).

Sanusi, L. S. (2010). Growth Prospects for the Nigerian Economy. Convocation Lecture delivered at the Igbinedion University Eighth Convocation: Research Department, Central Bank of Nigeria.

Schultz, T. (1979), "The Economics of Being Poor", The Journal of Political Economy, Vol. 88, No. 4, pp. 639-651.

Sen, B., Mustafa, K. M. and Quazi, S. (2004) Operationalizing Pro-Poor Growth: Bangladesh as a Case Study, BIDS, Dhaka/IDPM.

Shenggen, F. and Necha,R (2003). Public Spending in Developing Countries: Trends, Determination and Impact. Washington D.C. International Food Policy Research Institute.

Timmer, C. (2005). "Agriculture and Pro-Poor Growth: An Asian Perspective." Center for Global Development Working Paper, No. 63.

Udoh, E. (2011). An examination of Public Expenditure, Private investment and Agricultural Sector Growth in Nigeria: Bounds Testing Approach. *International Journal of Business and Social Science Vol. 2 No. 13.* [Special Issue -July

UNDP (2009), Human Development Index Database.

USAID (United States Agency for International Development) (2009): AgCLIR: Nigeria.

Commercial Legal and Institutional Reform Diagnostic of Nigeria's Agriculture Sector. Washington, D.C.

Yusuf S.A. (2014). Role of agriculture in economic growth and development: Nigeria perspective. *Munich Personal RePEc Archive, No 55536;* Available:http://mpra.ub.unimuenchen.de/55536

World Bank (2005), "Economic Growth in the 1990s: Learning from a Decade of reform".