The Effect of Agricultural Output on Economic Growth in Nigeria

Ishaya, Linda Purity., Dr. Anthony Ihuoma., Dr. Chris A.C Ogbonna., Dr Modestus Nsonwu

Veritas University Abuja

DOI: https://doi.org/10.47772/IJRISS.2026.100601253

Received: 30 June 2026; Accepted: 04 July 2026; Published: 16 July 2026

ABSTRACT

The study examines the effect of agricultural output on economic growth in Nigeria from 1986 to 2024. Macroeconomic data on Economic growth rate, Crop Production, Fishing Production, Livestock Production were obtained from the Central Bank of Nigeria statistical Bulletin, National Bureau of Statistics. The methodology adopted in the study is the Auto Regressive Distributed Lag Model since the variables were not all stationary at same order of integration. The regression analysis shows that crop production, fishing production and livestock production have different impact on Economic Growth. The findings revealed that Crop Production had positive and statistically significant long-run relationship with economic growth in Nigeria. Fishing Production had, though negative statistically significant long – run relationship with economic growth in Nigeria. Livestock Production had positive and statistically significant long-run relationship with economic growth in Nigeria. Based in the findings from this study, the following are the recommendations, there should be adequate incentives to the willing farmers and investors through government intervention in form of funding and disease control enable them to create value-added activities that could yield high crop production. There should be plans to establish fish processing centres across the major production areas to avert high production wastes experienced by producers due to lack of processing of fishing produce. The government through the ministry of agriculture should prioritize this recommendation as fishing production has potential to contribute significantly to both domestic and foreign exchange earnings of economy. There should be gracing reserves for livestock production across the country. Similarly, research and development on tropical diseases that affect livestock animals should be a continuum to be able to mitigate major shocks on production output since livestock production has significant positive impact on the Nigerian economy.

Keyword: Agricultural Output, Economic Growth, ARDL

JEL Classification: C12, F63, Q14, Q18

INTRODUCTION

Over the years, agriculture has contributed significantly to the expansion and development of the global economy. This manifests itself in the form of maintaining food security and promoting economic expansion. The agriculture sector is advantageously positioned to have a stronger multiplier effect on any country's pursuit of socio-economic and industrial progress through its numerous subsectors. In nations like Brazil, Malaysia, and China, to mention a few, agriculture has shown to be helpful in transforming rural areas, empowering peasants, and reducing poverty.

According to employment creation and national output, agriculture dominated Nigeria's economy prior to the discovery of oil (Aigbedion and Iyayi 2001). As crops, forests, and fisheries accounted for 80% of the country's GDP, these authors noted that agriculture was the major contribution to the GDP of the country. About 65.0 percent of the adult labour force's total employment was in the agricultural sector, which also provided food for the country's expanding population (Orji-Okoro 2019). The industry met almost all of the country's food needs and was Nigeria's top source of foreign currency.

Nigeria had achieved a number of agricultural accomplishments prior to the country's agricultural productivity declining. Its productivity was continuously increasing. The country was a major producer of cocoa, groundnuts, palm oil, and other agricultural goods worldwide. In Nigeria, agriculture has played a decreasingly

important role in ensuring food security during the past two to three decades, which has resulted in significant food imports of items like wheat, frozen chicken, beans, and rice, among others. This demonstrates how Nigeria's agriculture sector is unable to supply all of the country's food needs. The overall economy has not benefited from the sector's carelessness or the country's resulting dependency on petroleum.

Therefore, starting in 1975, the government actively participated in large-scale agricultural projects like the establishment of grain reserves, livestock development, and river basin authorities as well as other initiatives aimed at large-scale production of food crops in order to lessen this over-dependence on a single product. The Nigerian Agricultural and Cooperative Bank (NACB), which aimed to channel a portion of oil earnings into agriculture by providing loan facilities to agricultural-based enterprises, was founded by the government in order to revitalise the performance of agriculture in the nation. Although the government also implemented a number of agricultural development plans that were generously funded by the budget, agricultural output remained low. Up until August 2019, when the Federal government closed the border to prohibit the importation of products that could be easily manufactured in the nation, Nigeria continued to spend a significant amount of money on importing rice and other food items. This is done to protect the country's domestic producers of these products, prevent dumping, and guarantee long-term food security.

Statement of the Problem

Investigations of the pattern of activity in the agricultural sector of the Nigerian economy have shown that the sub-sector's outputs have made a pitiful and ineffective contribution to the expansion of the economy as well as the poor performance of numerous agricultural policies, strategies, and reform programmes. The federal government of Nigeria, according to Aderemi, O. (2020), has allotted half a trillion naira over the last five years (2017–2020) in an effort to diversify the economy and wean it off its reliance on oil exports and towards non-oil exports, particularly those derived from agricultural and manufactured goods. However, there is minimal evidence of a profit from the industrial investments described above (Aderemi, O., 2020).

In support of the assertion, NBS (2022) reported that agricultural output growth decreased from 2.28% in the third quarter of 2019 to 1.39% for the same period in 2020. According to NBS (2022), agriculture's share of GDP (%) decreases from 25.2% in 2019 to 22.0% in 2020, a 3.2% decrease.

Due to small farm holdings with outdated farm equipment, inadequate financing and limited access to credit facilities, a lack of modernization, and the gradual diversion of intervention funds into private pockets over time, Nigeria's agricultural sector suffers from low productivity (Opara, 2010). The declining role of agriculture in Nigeria in ensuring food security is evident in the massive importation of food products to supplement domestic production (Orgi-Okoro, 2019). For instance, Crop production in 2017 stood at 3.7 million metric tons while total consumption in Nigeria was 6.7 million metric tons, generating a deficit of 3 million metric tons (FAO, 2022). Similarly in fisheries, Nigeria consumes 3.2 million metric tons in contrast to 1 million metric tons total production in 2017 (FAO, 2022). The gap between domestic demand and domestic production of agri-products is filled by such huge importation of food materials across the food value chains. A comparison of agri-products exports and imports in 2018 and 2019 indicates that the revenue generated through export of commodities was 302 billion naira, while Nigeria spent 852 billion on imports, meaning there is a trade imbalance of 550 billion naira. In 2019, Nigeria's revenue from export of agricultural commodities decreased to 270 billion naira while it's imports increased to 960 billion naira (FAO, 2022). The insufficiency of domestic production could be caused by low productivity nature of the agricultural sector resulting from inadequate farm-input supplies, uncontrolled pests and diseases, and land-use restrictions (Sylvester and Aiyelabola, 2012).

The agricultural sector in Nigeria has performed poorly during the past ten years, which is regrettable and is ascribed to negligence on the part of the government in favour of the booming petroleum industry, along with low crop yield, insufficient post-harvest handling, and poorly controlled livestock illnesses. NBS (2022) demonstrates that only 2% of Nigeria's entire export revenues come from agriculture, whereas 76.5% come from crude oil exports. Farmers have suffered losses as a result of inadequate post-harvest processing and preservation of their crops and fisheries, and these subsectors have contributed little to the country's ability to generate money (Opara, 2010).

Given the scenarios, it is necessary to analyse the contributions of the three major agricultural sub-sectors in Nigeria—crop production, fishing production, and livestock production—individually in order to determine which ones have the greatest capacity and potential to contribute to Nigeria's economic growth by increasing the country's gross domestic product. Given the submission above, the study will especially look into how Nigeria's agricultural outputs—including crop, fish, and livestock production—have contributed to the country's economic expansion.

LITERATURE REVIEW

Theoretical Literature Review

The Harrod-Domar Growth Model

The idea is regarded as a development of Keynes' analysis of full employment and income in the short run. It was created to clarify how investment, growth rate, and employment are related in a nation with inactive growth. They believed that production capacity was inversely correlated with capital stock. Although new investments for net additions to the capital stock must be made in order for growth to occur.

Three different techniques have been used to criticise this hypothesis. First, all important parameters are assumed to be exogenous. Second, it ignores technological advancement, and third, it does not take into account diminishing returns as one element increases in comparison to another, according to (Essien 2002) and Woodford (2000). The economic mechanism through which rising investments result in rising growth is described in the model. A nation must redirect a portion of its income from current consumption demands to investments in capital formation in order to achieve growth and development. Savings refers to the removal of these resources from current consumption. Although saving is not the only factor in growth, Harrod-Domar argues that it is essential for growth since every economy needs to save a certain percentage of its national income for reserve purposes and to replace capital that has become worn out. According to the model, saving and growth are directly related, while capital output ratio and growth are indirectly related.

The Endogenous Growth Theory

Paul Romer and Robert Lucas created the endogenous growth theory in 1986 and 1988, respectively. It offers a theoretical framework for analysing endogenous growth, which is persistent GNI growth that is controlled by the system controlling the production process rather than by forces outside of that system and is founded on microeconomic principles. The theory emphasizes that certain internal elements, such as investments in human capital, inventions, and knowledge, accelerate economic growth for a country to accomplish it. According to the hypothesis, increased government and private sector investment in human capital can lead to improvements in productivity, including increases in agricultural output. The primary idea behind endogenous growth theory is that economic growth is a result of wise economic decisions. It offers several explanations of the factors that contribute to economic growth. Governments, on the other hand, promote growth through the provision of inputs, promotion of foreign direct investment (FDI), and enhancement of educational opportunities. Consumers invest in education for the development of human capital and an increase in lifetime wages, whereas Businesses spend resources on research and development to secure profitable inventions. As a result of the combination of these individual decisions, the pace of growth becomes a variable of choice and is susceptible to the tax laws of the various governments.

The idea relates the sources of growth rate of output per capita into efficiency and savings, which endogenizes the rate of technical advancement. In addition, it asserts that if strategic activities do not alter the saving rate, they may still be able to affect the degree of economic growth in the future. As a result, nations tend to have rapid economic growth rates, high levels of efficiency, acceptable economic systems, and comprehensive economic policies. The endogenous growth theory's weakness is that it continues to rely on a number of conventional neoclassical assumptions that are frequently unsuitable for developing countries. It presumes, for instance, that there is only one sector of output or that every sector is symmetrical. This prevents the reallocation of labour and capital among the sectors that are altered during the process of structural change, which would otherwise promote growth.

Additionally, inefficiencies brought on by subpar institutional frameworks, flawed capital and goods markets, and subpar infrastructure typically obstruct economic growth in underdeveloped nations. Endogenous growth theory fails to take into account these crucial variables, which limits its application to the study of economic development, particularly when country-to-country comparisons are involved.

Productivity Theory

This is one of the many adjustments H. Myint made to Adam Smith's theory of absolute advantage in 1958. It primarily benefited the less developed nations. The productivity theory suggests that high-order dynamic indirect advantages of international commerce. Export, to a large extent, promotes the use of machinery, fosters inventions and innovations, eliminates technical indivisibilities, increases labour productivity, and generally enables the trading country to enjoy rising returns and falling costs, which promotes economic growth. Additionally, according to the productivity hypothesis, the process of specialisation entails a trading nation modifying and reorganising its production structure to satisfy its export demand. This focuses on export-oriented production. The nation should move beyond a free trade policy and promote international commerce and economic development since it increases productivity and promotes economic development.

Exogenous Growth Theory

The standard classical and neoclassical growth models created by Solow (1956) and Mincer (1958) in the late 1950s demonstrated that an economy's output increases as capital and labour (all physical inputs) are added at a faster rate. The exogenous growth theory underlines that certain external element, such as capital accumulation, population expansion, and technology, must be attained for an economy to grow in order for a nation to make significant technological advancement. These models do not take into account non-economic elements like human capital or health. This idea demonstrated how capital, especially technology, increases worker productivity and efficiency while also increasing the amount of goods and services produced. This simply means that the advancement of technology is "exogenous" to the system in economic parlance. In conclusion, the traditional "neoclassical" growth theory, which Solow (1956) modelled, believes that economic growth is a result of the accumulation of physical capital and an increase in the labour force, which results in an increase in productivity.

Undoubtedly, several of the theories previously presented have contributed significantly to our understanding of how individual countries expand, but they fall short of explaining the inconsistent growth patterns that some nations encounter. For instance, the neoclassical theory believed that the long-run growth rate of output would be largely governed by the growth rate of the labour force. In other words, because it could be linked to a single source, economic growth was long-term immune to economic policy.

Empirical Literature Review

Ohaegbu (2020) investigated Nigeria's agricultural productivity and economic development. The study used an ARDL model to analyse how different agricultural outputs affected Nigeria's economic growth. His research showed that the sectoral component of agriculture plays a significant role in boosting Nigeria's rate of output growth. He therefore advised that in order to boost agricultural output, the Nigerian government increase budgetary support for the sector and ensure its efficient use. This would result in an annual improvement and growth in output, better agricultural inputs for farmers, a safe and enabling environment for commercial farming, and encouragement for both domestic and foreign investors to invest in agriculture in the nation. Hence the study has produced a novel contribution of establishing cointegration relationship using a relatively robust methodology, the study did not identify what happens to fishery production in Nigeria.

Orji-Okoro (2019) used multiple regression analysis to assess the contribution of the agriculture sector to Nigeria's economic growth between 1986 and 2007. Their findings indicate a favourable relationship between GDP and domestic saving, government spending on agriculture, and foreign direct investment (FDI). Their findings showed that domestic savings, government spending, and foreign direct investment could account for 81% of the volatility in GDP. The study suggested that in order to promote economic growth in Nigeria,

adequate attention should be paid to agriculture. Additionally, it was noted from the study that the author did not include agriculture, livestock, or fishery production as part of the study's factors.

A study on the effect of agricultural output on economic growth in Nigeria from 1981 to 2015 was conducted in 2018 by Ekine, Lrene, and Catherine Onu. The study's analysis used the Ordinary Least Squares (OLS) methodology. According to the study's findings, the output of fish and cattle was statistically significant at 5%. However, there was no long-run causal link between the dependent and independent variables as revealed by the ECM data. Serial autocorrelation was no longer present in the model, according to the LM test. The study suggested that the government make an effort to support the agricultural industry in order to increase agricultural productivity and, as a result, enhance economic growth. However, the study did not capture crop production as one of the variables in the study and the study was also limited in time frame.

In their 2018 study, Bolaji, Oluwaseyi, Emmanuel, and Shakirat looked at whether improving the agricultural value chain helped Nigeria's economy diversify quickly between 1981 and 2015. The econometric estimating technique used was the autoregressive distributed lag (ARDL) model. The conclusions were reached at a 5% level of significance. The productivity of Nigeria's agricultural industry was found to be positively and significantly impacted by agricultural spending. The results also demonstrated that agricultural land, agricultural machinery, and agricultural raw materials all directly affect Nigeria's agricultural productivity. At a 5% level of significance, agricultural land and equipment were determined to be statistically significant. The empirical findings demonstrated that labour and capital directly affect economic growth. The study came to the conclusion that the Nigerian economy's diversification was greatly aided by the agriculture value chain. While the study focused on the variables that encouraged agriculture, it did not mention how crops, livestock, or fishery production contributed to the agricultural value chain.

Using time series data from 1981 to 2013, Kamil, Sevin, and Bekun (2017) evaluated the impact of the agricultural sector on Nigeria's economic growth. The study's analysis used OLS methodology. Their conclusions showed that there is a long-term equilibrium relationship between real gross domestic product, agricultural output, and oil rents. The production of agriculture had a favourable impact on economic growth, but the speed of adjustment of the variables towards their long-run equilibrium path was slow, according to the results of the vector error correction model. The study suggested that the government and decision-makers should diversify their policies and provide more funding to the agriculture sector. Certain agricultural subsectors that contributed to economic growth were not taken into account in the study.

Eze (2017) used crop and livestock production from 1980 to 2014 to conduct research on the role of agricultural output. The Granger Causality Test, the Vector Error Correction Model (VECM), and the Cointegration Test were all used in the investigation. However, the results also showed that the value of agricultural produce had a small but beneficial contribution to the RGDP. The study therefore suggests that in order to improve the performance of the sector's growth, the government should enhance its budgetary allocation for agriculture. The factors considered in the study did not take fishery production into account.

A empirical research on the "impact of Agricultural Sector output on the Economic Growth in Nigeria" was conducted by Emeh E. Onyiyechika in 2017. The relationship between the Real Gross Domestic Product (RGDP), agricultural output, Deposit Money Bank Loans to Agriculture, inflation rate, and interest rate on agricultural credit in Nigeria from 1984 to 2015 was investigated using the (OLS) technique. The anticipated outcome demonstrates that, whereas interest rates on agricultural credit and bank loans to agriculture have a considerable impact on real gross domestic product, agricultural output and inflation rate do not. Accordingly, the report suggests that the government immediately take proactive measures to increase agriculture and reform the educational system to place a greater emphasis on independent work in agriculture. Analysis of the paper reveals that the author did not explain how the agricultural loan support system benefited the various subsectors of agricultural output.

Theoretical Framework

The theoretical underpin of this paper is the Endogenous Growth theory. The Endogenous Growth hypothesis, which emphasises that economic growth is a byproduct of an economic system rather than the result of

external influences, serves as the theoretical cornerstone for this research. Theories of growth undoubtedly helped explain the emergence of certain nations, but they do not fully account for the varied growth trajectories of different nations. For instance, under the neoclassical approach, the implicit growth rate of the labour force independently dictated the long-run growth rate of output. Furthermore, progress was shielded from economic policy in the future because growth was only seen from one source, "advancement in technology." The endogenous growth theory localises the rate of technological advancement by proposing efficiency and savings as the two key drivers of growth in production per capita. Additionally, it contends that strategic decisions can affect a nation's potential growth rate without affecting its disaggregated saving rate. As a result, nations with high levels of efficiency, good economic systems, and economic policies tend to expand more quickly (Romer, 1994).

METHODOLOGY

Model Specification

The model of this study is adapted and used in specifying our model from the neo classical growth model used by Ekine, lrene, Onu, Catherine (2018) in their study on the Impact of agricultural Output on Economic Growth in Nigeria from 1981 to 2015. The study adopted the Ordinary Least Squares (OLS) methodology in analyzing their study using sub sector agricultural variables like livestock and fishery production. The results of their study showed that, livestock and fish production were statistically significant at 5 percent.

The adaptation of their model shall be followed by slight inclusion of some sub sector agricultural sector output variable which further identified the gap this study wants to fill. The model of their study was specified thus:

$RGDP = f(Livestock, Fishery, Credit facility)$---------- (3.1)

Therefore, based on this model adapted from their study with the inclusion of a new variable, the model of this study is specified as follows:

$RGDP=f(CPR,LSK,FSH)$----------(3.2)

Econometrically, the model is stated thus:

$RGDP=f(\beta_0+\beta_1 CPR+ \beta_2 LSK+\beta_3 FSH+\mu_t)$----------(3.3)

Where;

RGDP = Real Gross Domestic Product (proxy for economic growth)

LSK= Livestock

FSH= Fishing

CPR= Crop Production

The variables is used in the model estimation such that component and sectorial contribution of agricultural output can be estimated. The sectorial contribution of agricultural sector are the predictors in the regression model and their partial contribution to agricultural sector output can be estimated. The Auto Regressive Distributed Lag (ARDL) version of the model takes the following formula:

$$\Delta RGDP = \delta_0 + \delta_1 RGDP_{t-1} + \delta_2 LSK_{t-1} + \delta_3 FSH_{t-1} + \delta_4 CPR_{t-1} + \sum_{i=1} \lambda_1 \Delta RGDP_{t-i} + \sum \lambda_2 \Delta LSK_{t-i} + \sum \lambda_3 \Delta FSH_{t-i} + \sum \lambda_4 \Delta CPR_{t-i} + u_t \quad (3.4)$$

Where δ_0 = Constant Parameter

Δ = First difference operator

δ_i, λ_i = Vector of the parameter of the lagged values of the natural logarithmic values of the explanatory variables.

u_t = Error term

Built on economic intuition and theory, the coefficients of LSK_{t-i} FSH_{t-i} and CPR_{t-i} are anticipated to be positive.

The justification for the choice of the ARDL as the modeling framework can be deduced from the stochastic properties of the time series variables used in the study. As the ARDL accommodates mixture of different order of integration of variables, the natural choice of the model is cointegration analysis. Additionally, the ARDL is capable of capturing the short-run and long-run stochastic relationship existing among the variables.

DATA ANALYSIS AND DISCUSSION OF FINDINGS

Descriptive statistics

Before applying inferential statistic, which can enable the researcher make inferences and/or predictions/recommendations based on the data collected, the study applied descriptive statistics to understand the behaviour of the data. The results of the data. The results obtained from the descriptive statistics are presented in table 1.

Table 1: Descriptive Statistic

	RGDP	CPR	FSH	LSK
Mean	39619.78	7786.024	238.9196	676.9199
Median	33004.80	4161.566	81.00874	299.2245
Maximum	71387.83	33177.54	1657.910	2121.371
Minimum	17007.77	25.97239	0.664765	7.389413
Std. Dev.	19628.61	9089.018	366.6836	738.1753
Skewness	0.456873	1.152894	2.366731	0.842305
Kurtosis	1.596886	3.434647	8.643568	2.208487
Jarque-Bera	4.088673	8.028969	79.12263	5.052260
Probability	0.129466	0.018052	0.000000	0.079968
Sum	1386692.	272510.9	8362.186	23692.20
Sum Sq. Dev.	1.31E+10	2.81E+09	4571532.	18526694
Observations	35	35	35	35

Source: Computed using Eviews 9

The descriptive statistic covers measures of central tendency which include mean, media and measures of dispersion like standard deviation as well as the skewness and kurtosis of the data. The real GDP has a mean value of 39619.78 with a standard deviation of 19628.61 indicating that the data is clustered around its mean. But the standard deviation of crop contribution to the GDP (CPR), contribution of fishery to the GDP (FSH) and contribution of livestock to the GDP (LSK) were 9089.018, 366.6836 and 738.1753 with a corresponding mean of 7786.024, 238.9196 and 676.9199. These standard deviations are slightly higher than their corresponding mean values which implies that the data are spread out in the series.

Unit Root Test

As a precondition for applying the ARDL bound testing technique to cointegration, the need to ensure that none of the variables is beyond being integrated of the first order i.e. I(1) requires unit root tests of each of the variables in the model. The outcome of the unit root tests using the Augmented Dickey Fuller (ADF) test reveal that all the variables satisfy this condition.

Table 2: Unit Root Test

VARIABLE	ADF STAT	CRITICAL VALUES	STATIONARITY STATUS
RGDP	-4.006638	1% Critical Value (-4.296729) 5% Critical Value (-3.568379)** 10% Critical Value (-3.218382)	*I* (1)
LSK	-3.312991	1% Critical Value (-3.661661) 5% Critical Value (-2.960411)** 10% Critical Value (-2.619160)	*I* (0)
FSH	5.942681	1% Critical Value (-3.653730)*** 5% Critical Value (-2.957110) 10% Critical Value (-2.617434)	*I* (0)
CPR	3.044590	1% Critical Value (-3.646342) 5% Critical Value (-2.954021)** 10% Critical Value (-2.615817)	*I* (0)

Note: *Significant at 1% (***), 5% (**) and 10% (*)*

Source: Computed using Eviews 9 (See appendices)

Table 2 below shows the unit root test results of the logged variables. From the table, if the absolute value of the ADF (Augmented Dickey-Fuller) statistic is greater than the critical value, either at 1%, 5% and 10%, the variable is said to be stationary at that point. From the results, only Real Gross Domestic Products (RGDP) is stationary at 1st difference, i.e. integrated of order one (1) denoted as *I*(1), Contribution of Livestock to the GDP (LSK), contribution of fishing to the GDP (FSH) and contribution of crop production to the GDP (CPR), i.e. *I*(0). This satisfy the condition for adopting ARDL approach to cointegration as stated by Pesaran and Shin (1996) and Pesaran and Pesaran (2001) which implies that none of the series is *I*(2) and can all be included in the ARDL estimation.

Regression Results

The ARDL estimation was done using ARDL 1,2,2,0. It begins by examining the relationship between Real Gross Domestic Products (RGDP) and Contribution of Livestock to the GDP (LSK), contribution of fishing to the GDP (FSH) and contribution of crop production to the GDP (CPR).

Lag Selection Criteria

The model was used to test the existence of long-run relationship among the variables which includes RGDP, LSK, FSH and CPR. In the ARDL procedure employed, the optimum lag length selection criteria was carried out in order to determine the number of lag(s) to be included in the ARDL models prior to the bound test. The results are presented in Table 3.

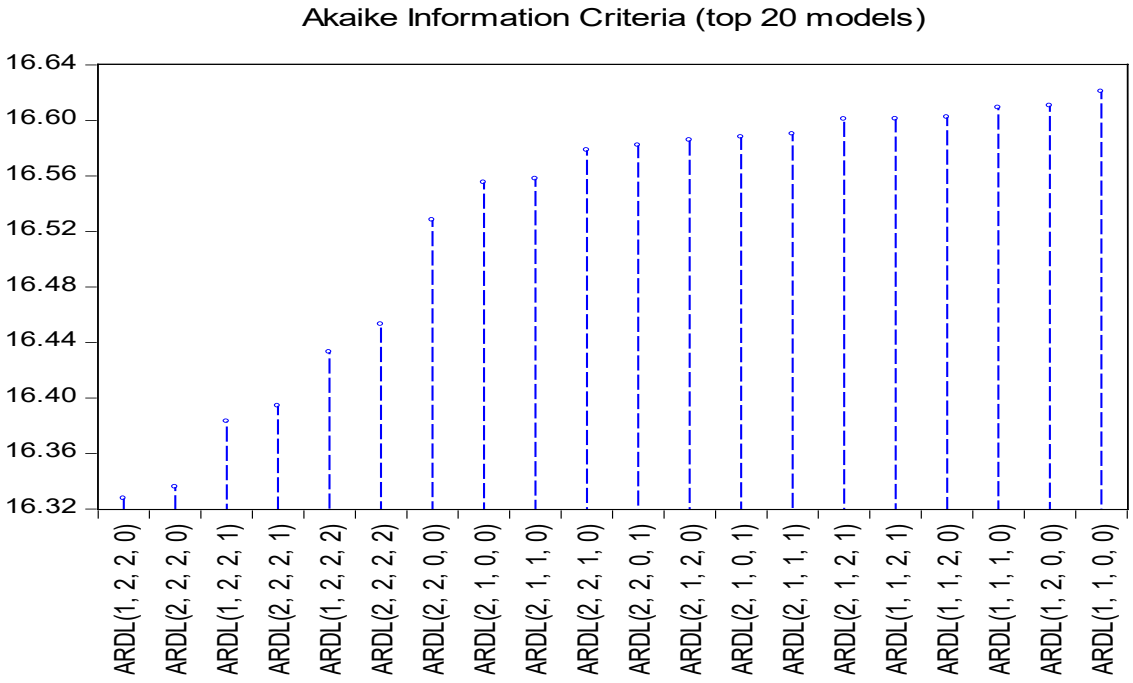
Table 3: Lag Length Selection for ARDL Model

Lag	AIC	SC	HQ
1	16.327637*	16.735775*	16.464963*
2	16.335895	16.789382	16.488479

Source: Authors' computation using E-views 9

From Table 3, the Akaike Information Criterion (AIC), Shwarz Criterion (SC) and Hannan-Quinn Criterion indicate that one maximum lag is optimal for inclusion in the ARDL model. Also, the ARDL 1,2,2,0 selection is further buttressed by the graph below which supports the selection as it has the shortest vertical line based on AIC.

Fig 2: ARDL Bound Testing Selection Based on AIC



Source: E-views 9

Bound Test for Cointegration

The results of the ARDL bounds testing approach are shown in Table 4.

Table 4: ARDL Bounds Test for Cointegration

Dependent Variable: ΔRGDP		
F-Statistics (K = 3)		4.807154**
Critical Value	Lower Bound	Upper Bound
1%	4.29	5.61
5%	3.23	4.35
10%	2.72	3.77
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%. Critical values are obtained from Pesaran et al. (2001).		

Source: Authors' computation using E-views 9

Having conducted the unit root test and the optimum lag selection, F-statistic test for cointegration is required to determine whether there is cointegration among the variables captured in the unrestricted error correction version of the ARDL model. This has been estimated using the bound testing approach and the results presented in Table 4 above. The bound test results revealed the existence of long run relationship among the variables. In the function (ARDL 1,2,2,0), the null hypothesis that there is no cointegration is rejected at 5% level as the F-statistic; 4.80715 is greater than the critical value, 4.35, at the 5% upper bound indicating that there is cointegration among the variables. Next step is to examine the long run impacts of agricultural sector output components on the Real GDP of Nigeria using OLS technique.

Estimated Long-Run Coefficients

The bound test has revealed the existence of cointegration among the variables. Therefore, the long-run relationship between Real GDP and agricultural output variables has also been estimated using the ARDL approach with ARDL (1.2,2,0) specification selected based on Akaike Information Criterion and the results are presented in Table 5.

Table 5: Estimated Long Run Coefficients of ARDL Model

Dependent Variable: RGDP		
Independent Variables	Coefficients	P-values
C	6835.754	0.0099***
RGDP(-1)	0.682102	0.0000***
LSK	31.15385	0.0072***
LSK(-2)	53.21474	0.0050***
FSH	-48.37780	0.0057***
FSH(-2)	-139.4032	0.0028***

CPR	1.879349	0.0000***
R2 = 0.998853 F-Statistic = 2612.910 (0.000000***)		
Durbin-Watson Statistic = 1.928620		
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%		

Source: Authors' computation using E-views 9

The estimated long run relationship between the variables using ARDL is reported in Table 5. From the results, it is revealed that contribution of livestock farming (LSK) is positively related to the real GDP in Nigeria in the long-run, and the result is statistically significant at 1%. On the other hand, the contribution of fishing to the real GDP has negative but statistically significant impact on the real GDP of Nigeria in the long run. The contribution of crop production to the real GDP is was found to have a positive and significant impact on the real GDP at 1% in the long run. The coefficient of determination (R^2 adjusted) is 0.998853. The result shows that 99.9% of the changes in the real GDP are caused by variations in the explanatory variables of the regression in the long run. The Durbin Watson statistics is 1.928620 which shows the absence of serial correlation because the value is approximately equals to 2. The F-statistic (2612.910) is significant at 1% which means that the model is adequate.

Estimated Short-Run Coefficients

The short-run relationship between Real GDP and agricultural output variables is estimated using the error correction model and the results are presented in table 6 as follows.

Table 6: Estimated Short-Run Coefficients of the Selected ARDL Model

Dependent Variable: ΔRGDP		
Independent Variables	Coefficients	P-values
C	-66.56104	0.8026
ΔLSK	28.67546	0.0024***
ΔFSH	-34.26268	0.0236**
ΔCPR	1.699035	0.0004***
ECM(-1)	-1.087138	0.0005***
R2 = 0.823286 F-Statistic = 11.38832 (0.000002***)		
Durbin-Watson Statistic = 1.931539		
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%		

Source: Authors' computation using E-views 9

The result of the short run relationship is estimated and reported in Table 6. The error correction coefficient (ECM) which is approximately -1.09 not only has the expected negative sign but it is also statistically significant even at 1% considering the probability value which is 0.0005. The value of the ECM implies a fairly high speed of adjustment to equilibrium after a shock. Approximately 109% of disequilibrium from the previous year's shock converge back to the long-run equilibrium in the current year. For the explanatory variables, their differenced one period values revealed results similar to the long-run estimation as reported above in terms of the signs of coefficients. The results of the short-run estimation shows that contribution of livestock to the real GDP, contribution of fishing to the real GDP and the contribution of crop production to the real GDP were statistically significant at 5%. This implies that in the short run, these variables exert significant impact on the value of the real GDP and as such on the economic growth at large.

Like in the Long-run estimation, the coefficient of determination (R^2 adjusted) is 0.823286. The result shows that 82% of the changes in the real GDP are caused by variations in the explanatory variables of the regression. The Durbin Watson statistics is 1.931539 which shows the absence of serial correlation as it is close to 2. The F-statistic (11.38832) is significant at 1% which means that the model is adequate.

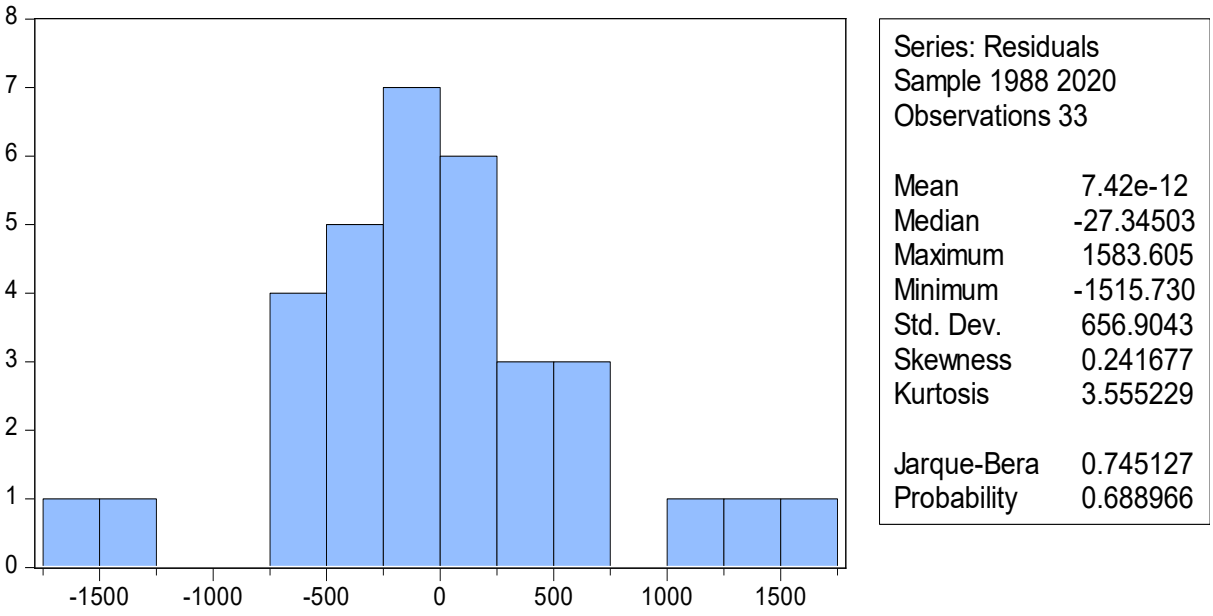
Post Diagnostics Tests

The post diagnostic tests were conducted to test the adequacy and reliability of the ARDL model used in this study. The tests conducted include; Residual Normality test, Heteroskedasticity test, Serial Correlation test and Ramsey error test.

Residual Normality Test

The method adopted for testing the normality of the residual is the Jarque-Bera test statistic. The null hypothesis is to be accepted if the absolute value of the Jarque-Bera statistic surpasses the observed value under the null hypothesis. On the contrary, the null hypothesis is to be rejected if the absolute value does not surpass the observed value. The result obtained is presented in figure 3.

Fig. 2: Jarque-Bera Test Statistic Results



Source: E-views 9

Based on the Jarque-Bera test conducted, the probability of 0.69 which is greater than 0.05 indicating that the null the hypothesis should be accepted. This result implies that the disturbances are normally distributed in the regression.

Heteroskedasticity Test

The study also conducted the heteroscedasticity test which seeks to establish that whether or not there is a difference between the variance of the population, i.e. constant variance. The null hypothesis is to be accepted if the LM statistic exceeds the observed value under the null hypothesis. On the contrary, the null hypothesis is to be rejected if the LM statistic does not surpass the observed value. The result is as shown in table 7.

Table 7: Results of the Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey		
L M Version	CHSQ (8)	2.713943 (0.9510)
F Version	F (8,24)	0.268831 (0.9701)
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%. Critical values are obtained from Pesaran et al. (2001).		

To test for heteroscedasticity, autoregressive conditional heteroscedasticity test was carried out and the null hypothesis which says that the model is homoscedastic could not be rejected going by the p-value (0.9510). This indicates that the model is not heteroscedastic.

Serial Correlation Test

The serial correlation test is to ascertain whether or not there is correlation between successive variables in the model. The null hypothesis should be rejected if the computed coefficients and are found to be statistically significant otherwise it should be accepted. The results obtained are given in table 8.

Table 8: Results of the Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test		
L M Version	CHSQ (2)	0.345323 (0.8414)
F Version	F (2,22)	0.116325 (0.8907)
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%. Critical values are obtained from Pesaran et al. (2001).		

From table 8, the Langrange Multiplier (LM) test was adopted and the p-value is 0.8414 which is not significant and indicating that the null hypothesis of no serial correlation is accepted. This is indeed a desirable result proving the adequacy of the estimated ARDL model.

Model Specification Test

To test that the model is well specified, the Ramsey error test was conducted and the results are given in table 9.

Table 9: Results of the Regression Error Specification Test (RESET)

Ramsey RESET Test		
t-statistic	df = 23	1.025011 (0.3160)
F-statistic	df (1,23)	1.050647 (0.3160)
Note: *** Statistical significance at 1% level; ** statistical significance at 5%;		
* Statistical significance at 10%. Critical values are obtained from Pesaran et al. (2001).		

Table 9 shows the results obtained from the Ramsey error test. From the results, both the t-statistic and the F-statistic is not statistically significant as the probability values are greater than 0.05. This implies that the estimated model is free from specification errors and as such is reliable and inferences can be made from the model.

Implication of Findings

The findings of this study revealed that there is long run cointegration between the real GDP and the explanatory variables. This finding is in line with the study conducted by Bolaji, Oluwaseyi, Emmanuel and Shakirat (2018) which revealed that by the there is a long run relationship between agricultural sector and the economic growth through the impact of agricultural expenditure. Also, the finding form the study by Kamil, Sevin and Bekun (2017) collaborated this finding that in the long run, the contribution of agriculture to the GDP is significant.

The contribution of livestock, contribution of fishing and the contribution of crop production to the real GDP in the long run and in the short run were statistically significant which implies that agricultural production has significant impact on the economic growth both in the short run and in the long run. This is in contrast to the findings from the work of Eze (2017) whose study covered the period of 1980 to 2014. The findings from the study by Eze (2017) revealed that agricultural output has positive but statistically insignificant impact on the real GDP within the period covered by the study. Another study which followed this path is that of Emeh E. Onyiyechika (20l7). According to their findings, agriculture did not significantly impact real GDP. Although, contrary to expectation, the contribution of fishing to the real GDP in the short run and long run have negative relationship with the real GDP, the relationship is statistically significant all through the analysis. This finding is in agreement with the findings from Rekwot and Oyinbo (2014) which indicated that agricultural production was significant in influencing the favorable trend of economic growth in Nigeria.

The implication of these findings reemphasized the fact that agricultural production and its attendant contribution to the Real Gross Domestic Products (RGDP) of Nigeria is significant in determining the level of economic growth of the country both in the short run and in the long run. This has revealed the need for improvement and increase in agricultural spending which has significant impact on the agricultural productivity by increasing output, the real GDP is in turn increase vis-a-vis the economic growth.

CONCLUSIONS

This research has ascertained the interactions between agricultural production and economic growth in Nigeria, with specific reference to crop production, fishing production and livestock production. Empirical findings

from the Autoregressive Distributed Lagged Model estimation results revealed that crop production and livestock production had significantly impacted on economic growth in Nigeria within the period under review. This means that the agricultural products are determinants of economic growth in Nigeria. However, fishing production had significant negative impact on economic growth. The implication of the findings on fishing, is that the negative impact might have resulted from inability of farmers to process the produce in commercial quantities, leading to high wastage of fishing produce in the country. It should be noted that the outcome is useful for both policy and planning as concerns the development of Nigeria's agricultural sector.

In conclusion, it is therefore hoped that strategies are being designed by the government to ensure implementation of requisite reforms aimed at facilitating agricultural production and processing across the country.

RECOMMENDATIONS

Based in the findings from this study, the following recommendations are advanced forward for consideration:

i. There should be adequate incentives to the willing farmers and investors through government intervention in form of funding and disease control to enable them create value-added activities that could yield high crop production.

ii. There should be plans to establish fish processing centers cross the major production areas to avert high production wastes experienced by producers due to lack of processing of fishing produce. The government through the ministry of agriculture should prioritize this recommendation as fishing production has potential to contribute significantly to both domestic and foreign exchange earnings of economy.

iii. There should be gracing reserves for livestock production across the country. Similarly, research and development on tropical diseases that affect livestock animals should be a continuum to be able to mitigate major shocks on production output since livestock production has significant positive impact on the Nigerian economy

REFERENCES

1. Aderemi, O., (2020). Despite the N592.9 billion Budget on Agriculture in the last five years- there is less to show for it. Dataphyte. Https://www.dataphyte.com/latest-reports/agriculture.
2. Ahungwa, G., Haruna, U., & Abdsalam, Y.R. (2012), Trend analysis of the contribution of agriculture to gross domestic product (1960-2012). Journal of Agricultural and Veterinary Science, 7(1), 50-55.
3. Amino, F.B and Anono. M (2012), Budget deficit and inflation in Nigeria: A CausalRelationship, Journal of Emerging Trends in Economics and Management Sciences, 2 (1),1-8
4. Ammani, A.A. (2012). An investigation into the relationship between agricultural production and formal credit supply in Nigeria. International Journal of Agriculture and Forestry 2(1), 46-52.
5. Apeh, M. and Adseshina, A. (2017). Analysis of the relationship between agricultural output and economic growth in Nigeria. International Journal of Agriculture and Forestry, 2 (1),46-52.
6. Alabi, R.A. (2014). Impact of agricultural foreign aid on agricultural growth in Sub-Saharan Africa: A dynamic specification. AGRODEP Working Paper 0006.
7. Aina, G.O. & Omojola, J. T. (2015). Assessment of the effect of government expenditure on agricultural output in Nigeria**.** International Journal of Innovative Agriculture & Biology Research, 5(4),1-7
8. Akintunde, W.A.(2013). An analysis of federal government expenditure and monetary policy on agricultural output in Nigeria. International Journal of Economics, Finance and Management Sciences 1(6),310-317.
9. Adetiloye, A.K. (2012). Agricultural financing in Nigeria: An assessment of the agricultural credit guarantee scheme fund (ACGSF) for food security in Nigeria (1978-2006). Journal Economics 3(1),39-48.

10. Anderson, Kym, editor. (2009). Distortions to Agricultural Incentives. A Global Perspective, 1955 – 2007. New York and Washington D.C.: Palgrave Macmillan and World Bank.
11. Aigbedion and Iyayi (2001). Diversifying Nigeria's petroleum industry. International Journal of physical sciences 2 (10), 263-270
12. Anyanwu J.C. (1999). Analysis of agricultural production in Nigeria. African Journal of General Agriculture, 2(1),35
13. Abayomi, O. (1997). The agricultural sector in Nigeria: The way forward. CBN Bullion, 21(1), 14-25.
14. Ayres, R. U. & Warr, B. (2006). Economic growth, technological progress and energy use in the U.S. over the last century: Identifying common trends and structural change in macroeconomic time series, INSEAD.
15. Ahmed, Y. O. (1993). Bank of the North Pamphlets on Agricultural Financing. Various circulars and Policy Guidelines on Agricultural Financing in Bank of the North Limited. A Paper delivered at Seminars at Bank of the North Human Resources and Development Centre by (Agric. Officer, Bank of the North Limited).
16. Akinboyo, O.L. (2008). Five decades of agricultural policies: What role has statistics played? CBN Bullion, 32(2),134 – 165.
17. Apeh and Adesina, M.O. (2004). New perspectives in financing Nigerian agriculture. Enugu: Fourth Dimension Publishing Company
18. Bell, C., P. Hazell and R. Slade (1982). Project evaluation in regional Prospective. Baltimore: John Hoplcins University Press.
19. Bresciani, F. and Valdés, A. (2007).Beyond food production: The role ofagriculture in poverty reduction. Food and Organization (FAO), Rome.
20. Bidemi, A.T. (2013). The impact of development finance on agricultural growth in Nigeria: Being a Research Project Submitted to the Department of Banking and Finance, University of Abuja in Partial Fulfillment of the Requirement for the Award of Bachelor of Sciences Degree in Banking and Finance.
21. Bolaji, S. Oluwaseyi, K. Emmanuel, D and Shakirat,F. (2018). The Impact of agricultural output on economic growth in Nigeria. IOSR Journal of Economics and Finance. 9(4), 10-14
22. Christiaensen, L. and L. Demery (2007).Down to earth agriculture and poverty reduction in Africa', The World Bank Group.
23. Chen, S. and M. Ravallion (2008), The Developing World is Poorer than We thought, but no Less successful in the fight against poverty. World Bank Policy Research Working Paper Series.
24. Conquest, Robert. (1987). The harvest of sorrow: Soviet collectivization and the terror-famine. Oxford:' Oxford University Press.
25. CBN Bullion (2006), Overview of Exchange Rate Management in Nigeria.3, 3. July-September
26. Central Bank of Nigeria (1999). Issues in agricultural inputs policy. An empirical distribution and price subsidy in Nigeria. CBN Bullion,2(5),10
27. Daramola, E. (2008). Agricultural export potential in Nigeria. American Journal of Experimental Agriculture 7 (1),17-35 Retrieved from https://www.csae.ox.ac.uk/materials/data/777/agriculturalexportpotentialinnigeria
28. Ezeabasili, L.I and Herbert, H (2010).Budget deficit, money supply and inflation in Nigeria. European Journal of Economics, Finance and Administrative Sciences. 10(19),145-227
29. Ewubare, D. B., & Eyitope, J.A. (2015). The effects of public expenditure on agricultural . production output in Nigeria. Journal of Research in Humanities and Social Science 3(11), 7-23.
30. Eze, O.M (2017), Agricultural sector performance and Nigeria's economic growth. Asian Journal of Agricultural Extension, Economics and Sociology 15(1), 1-13.
31. Essien, N. and Woodford, T. (20oo) Financial intermediation and growth: causality and Causes, Journal of monetary economic, 46(2), 31-77.
32. Ebere, C., & Osundina, K. (2016). Government expenditure on agriculture and economic. growth in Nigeria. International Journal of Science and Research. 3(8),23-49.
33. Eboh E.C (2003). An analysis of competitiveness and performance in the Nigeria agriculture sector. Study report submitted to World Bank country office, Abuja.
34. Ekpo, A.H. and Umoh, O.J. (2012).Overview of the Nigerian economic Growth and Development. Belpot Publishers, Port Harcourt

35. Eicher, C& Witt, L. (1964). Agriculture in economic development. New York: McGraw Hill, London.
36. Emeh, E.B.Onyiye, C. N.(2017). Banking sector credit and the performance of the agricultural sector in Nigeria. European Journal of Scientific Research, 23(2),35 – 55
37. Ekine, S.Ireni,P.,Onu, A. and Catherine ,C.(2018).The impact of banking sector reforms and credit supply on agricultural sector: evidence from Nigeria. Proceedings of the Asia Pacific Conference on Business and Social Sciences 2015, Kuala Lumpur (in partnership with the Journal of Developing Areas of Principles for Responsibility.
38. Enobong, E.(2003). Banking sector credit and the performance of the agricultural sector in Nigeria. European Journal of Scientific Research, 23(2):35 – 55
39. FAO (2006). Nigeria at a glance. Food and Agriculture Organization of the United Union. Available online http://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/
40. Felicia, A. (2017), Exchange rate policy and Nigeria economic growth: A Granger causality impact assessment. International Journal of Applied Economics, Finance and Accounting. 1(1),1-3.
41. Fleisher, B.M. and Wang, X. (2001). Efficiency, wages and work incentives in urban and rural china. Journal of Comparative Economics. 29(4), 645-62.
42. Fatukasa. E (2005). Analysis of budget deficit and Nigeria's economic development challenges within the context of Ecowas convergence criteria. Study report submitted to ECOWAS country office, Abuja.
43. Gokal, D, L. & Hanif, R. (2002). The role of agriculture in development. American Economic Review 92(2), 160-164
44. Han, D. (1999), The Hukou System and China's Rural Development, The Journal of Developing Areas, 33(6), 355-78.
45. Hayami, Y., and V. Ruttan. (1985).Agricultural development: An international perspective." Baltimore: Johns Hopkins University Press.
46. Ishola, S.A., & Olaleye, S.O., (2013). Government expenditure on agricultural sector and. economic growth in Nigeria (1981 – 2010). IOSR Journal of Humanities and Social Science (IOSR-JHSS). 8(4), 62-67.
47. Iganiga, B.O. and Unemhilin, D.O. (2011).The Impact of Federal Government agricultural expenditure on agricultural Output in Nigeria. Journal of Economics, 2(2), 81-88.
48. Illyas, M. & Siddiqi, M. W., (2010): The Impact of Revenue Gap on Economic Growth: A Case Study of Pakistan, International Journal of Human and Social Sciences. 5 (11),24-40
49. Jargque-Bera, G. (1987). Theory of Econometrics: (2nd ed). Palgrave Publisher
50. Johnson B.F, (1966).Agriculture and structural transformation in developingcountries: A survey of Research. Journal of Economic literature. 8(2),67-75
51. Jonathan and Andrew Dorward. (2004). Implications of market and coordination failures for rural development in least developed countries. Journal of International Development 16 (7), 951 – 970.
52. Krueger, Anne, Maurice Schiff and Alberto Valdes (1991-1992). The Political Economy of agricultural pricing. Washington D.C.: The Johns Hopkins University Press for the World Bank.
53. Kuznets, Simon, (1966). Modern economic growth: rate, structure, and spread. New Haven.
54. Karl, M. (1933). Economic Development (11th Edition) Harlow: Pearson Education Limited, .150
55. Kamil,N. Sevin, P. and Bekun, L(2017). Measuring performance through capital structure: evidence from banking sector of Pakistan, African Journal of Business Management,5(5),1871-1879.
56. Lawal, W.A. (2011). An analysis of government spending on agricultural sector and its contribution to GDP in Nigeria. International Journal of Business and Social Science, 2(20), 244-250.
57. Lewis, A. (1955). The Theory of Economic Growth. R.D. Irwin. Homewood, Illinois, 1955.
58. Labonte, M. A. (2011). Fiscal Deficit and Private Consumption Behavior in Nigeria: 1970-2001. The Indian Journal of Economics; 100(335), 597-607.
59. Ligon, E. and E. Sadoulet (2008). Estimating the effects of aggregate agricultural growth on the distribution of expenditures .Background paper for the World Development Report 2008, World Bank.
60. Meijerink, G. & P. Roza. 2007. "The role of agriculture in development. Markets, Chains and Sustainable Development Strategy and Policy" Paper, no. 5. Stichting DLO: Wageningen. Available at: http://www.boci.wur.nl/UK/Publications/
61. Mellor, A. John W. (2001). Faster more Equitable Growth – Agriculture, Employment Multipliers and Poverty Reduction. Research Report prepared for USADD.

62. Mcgregror, G.(1981). The role of finance in economic development; benefits, risks and politics. European Banking Centre Discussion Paper No 211-038http://www.unitus.it
63. Myint.H (1958). Investment in human capital and personal income distribution, journal of political economy.66 (4), 281
64. Mankiw, V. U (2013): The empirical analysis of agricultural output and economic growth in Nigeria, African Journal of Business Management, 9(16),599-607,
65. Muhammad, L.A. and Atte, O.A. (2016). Analysis of Agricultural production in Nigeria. African Journal of General Agriculture.2 (1),10-20.
66. Ohaegbu, E.N .2020). Effects of agricultural output and economic growth in Nigeria. Unpublished M.Sc Dissertation, Veritas University Abuja.
67. Ogwuma, J. (2018). Analysis of Government Expenditure on Agriculture. International Journal of Agricultural Policy.10 (2),23.
68. Ofili, O. (2014).Why policies fail in Nigeria: An evaluation of agriculture policies made from 1972-1985, OIDA International Journal of Sustainable Development, 1(1), 84-86.
69. Omawale and Rodriguez A.M, (1979). Agricultural credit related to nutrition and national development in the Caribbean": A case study of the Guyana Agricultural Cooperative Bank in tropical agriculture.56 (1),369.
70. Obadan, M. I. (1993), Nigeria Exchange Rate Policy and Management. NCEMA Monograph series, 5.
71. Odi,K.(2013). The composition of public expenditure and economic growth inflow and middle-income countries. raul chamorro-narvaez, Universidad Nacional de Colombia.
72. Okezie, A. I., Nwosu, C. & Njoku A.C (2013). An assessment of Nigeria expenditure on the agricultural sector: Its relationship with agricultural output. Journal of Economics and International Finance. 5(5),12-23
73. Oji-Okoro, I. (2019). Analysis of the contribution of agricultural sector on the nigerian economic development. World Review of Business Research, 1(1), 191 – 200.
74. Oioma, C. and Ozzubulu E. (2004). Nigerian Economy: Structure, Growth and Development. Benin City: Mindex Publishing.
75. Okolo, D. A. (2004). "Regional Study on Agricultural Support: Nigeria's Case," being Special Study Report prepared for Food and Agricultural Organization (FAO).
76. Paul, R. and Robert, L. (1986).). A contribution to the theory of economic growth, Quarterly Journal of Economics, 7(70),65-94
77. Pesran, M. Shin, P.(1999). Introduction to Econometrics, New York: McGraw-Hill.
78. Pewok, L. and Oyinlola, O.(2014).Determinants of agricultural credit rationing by commercial banks in South Western Nigeria, International Research Journal of Finance and Economics, 37: 7-14.
79. Romer, D. (1956). The Solow Growth Model Advanced Macroeconomics (4th ed.). New York: McGraw-Hill.
80. Reynold, L.G. (1975). Agriculture in Development theory. Yale University Press, London 327.
81. Saugweme, N. and Matadare,S.(2014). Rural finance for growth and poverty alleviation, World Bank Policy Research Working Paper, 1593.
82. Saungweme T, Matandare M (2014) Agricultural Expenditure and Economic Performance in. Zimbabwe (1980-2005). International Journal of Economics Research 5(5),50-59.
83. Sah, Raaj Kumar and Joseph E. Stiglitz. (1984). The Economics of Price Scissors.The American Economic Review.74 (1),125-138.
84. Opara (2010). Nigerian Firms' Non-oil export Involvement: An Economic Transformation Paradigm. European Journal of Scientific Research, 40(4), 547-556.
85. Sylvester & Ayelabola, (2012). Foreign trade and economic growth: Evidence from Nigeria. Arabian Journal of Business and Management Review (OMAN Chapter), 2(1).
86. Tombofa, S. S. (2004). Development economics. An introduction", Port Harcourt:Pearl Publishers.
87. Tolulope, T. and Etummu,I.(2013). Analysis of financial time series financial econometrics Wiley-Interscience Publication, University of Chicago.
88. Todaro, M. P. and Smith, S. C. (2003): "Economic Development", Eight Edition, Singapore: Pearson Education.
89. Ukeje, R.O. (2003). "Macroeconomics: An Introduction". Port Harcourt: Davidson Publication

90. Uger, F.I. (2013). The impact of Federal Government Expenditure on the agricultural sector.in Nigeria. Publication of Nasarawa State University, Keffi .
91. Verbeek, M. (2004). A Guide to Modern Econometrics. West Sussex, England: John Wiley& Sons.
92. Woolf, S.S & Jones, E.I. (1969). Agrarian change and economic development: the historical problem London: Methuen. Yale University.
93. Yusuf,K (2016) Agricultural Financing and Economic Growth in Nigeria: International Journal of Agriculture.10(3),34-40