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The Impact Of Disaggregated Agricultural Sector Output On Economic Performance In Nigeria

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ABSTRACT: This study examined the impact of disaggregated agricultural sector output on economic growth with focus on the constituent parts of the Nigeria agricultural sector. The study employed data from the Central Bank of Nigeria (CBN) Statistical Bulletin from 1981 to 2017. Toda-Yamamoto Granger Causality test and Dynamic Ordinary Least (DOLS) was used to analyze and determine the direction and magnitude of the relationship between the variables. Using stationary and co-integrated data, the Causality test showed a unidirectional causality from agriculture to economic growth. This implies that agricultural output helps in the prediction of economic growth in Nigeria. The DOLS estimation showed that the crop production output and the forest output led to about 39.8 and 12 percents increase in the level economic performance in Nigeria. The study concluded that among the four constituents of Nigeria agricultural sector of crop production, livestock, fishery and forestry output, the crop production output and forestry output dominantly influenced economic growth in Nigeria. It is recommended that agricultural policies should be geared towards the individual constituents of the agricultural sector for efficiency. Also, the nature of produce should be the basis of establishing farmers association so that government policies might be specifically directed towards the development of each of their products.

Keywords: Agricultural output, economic growth, Toda-Yamamoto causality test, dynamic ordinary least square.

I. INTRODUCTION

Over the years, agriculture has been considered crucial in the development of most developing countries, as it provides the main source of food, income and employment to the rural populace. Improvement in agriculture and its productivity is seen to be fundamental to achieving food security, poverty alleviation and overall sustainable economic development. Agriculture is considered as the main source of income and employment of developing countries; 70% of which live in rural areas (Food and Agricultural Organization, FAO 2014). The sector is taken to be important and therefore must be part of world economic growth, poverty reduction and environmental sustainability as around 75% of the employed in rural areas are dependent on agriculture.

In developing countries, the share of agriculture in overall employment is large; therefore growth in agricultural sector incomes is essential to stimulate the overall growth of the economy, including the non-agricultural sectors selling to rural populace. Hence, the capacity of agriculture to create overall GDP growth and its benefit in reducing poverty will vary from one country to the other (FAO 2012). Moreover, in recent years, in view of the convincing potential of the agricultural sector to help boost the growth of the economy of Nigeria, the government placed a ban on the importation of some agricultural products such as refined vegetable oil, bird eggs, pork, life or dead birds including frozen poultry and beef, to encourage local production and boost demand for home products. The administration also placed restriction on the smuggling of rice into Nigeria. This support policy to the sector was made to cater for smallholder farmers and rural entrepreneurs that are into the production, processing, storage and marketing of selected commodity value chains. This strides by the government is to ensure that the sector take up its responsibility of food provision and to also encourage agricultural production for export.

Consequently, the decision of the government has led to a reduction in foreign supply of rice in Nigeria thereby encouraging local production and increased demand for home-grown rice as reflected in the increase in the value of agricultural sector output as presented by the National Bureau of Statistic (NBS). Agricultural output in Nigeria recorded about 16.47% growth rate between 2013 and 2017 with crop production

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dominating the growth with about 16.52% growth rate within the same period (Central Bank of Nigeria, CBN 2018). This policy of the government that is aimed at encouraging the development of the agricultural sector has motivated Nigerians, particularly the rural areas dwellers into involving themselves in different agricultural activities (i.e. crop production, livestock, fishery and forestry) either for self-sustenance or as a means of income generation. And thus, their involvement in these different subsectors of the agricultural sector is expected to have a significant long run impact on agricultural output and in extension on the growth of the Nigeria economy.

Studies on the causes of development have identified agriculture as key to the economic wellbeing of nations (Ekpo & Umoh, 2012; Dim & Ezenekwe, 2013; Ugwuanyi & Abula, 2015). The role of the agricultural sector in the economic growth of any nation is revealed by the percentage contribution of the sector to economic growth through the proportion of the population who are gainfully engaged and employed in one form of agricultural activities or the other to earn their living (Oji-Okoro, 2011; Onunze; 2012).

There is widespread evidence of a positive and significant relationship between agriculture and economic growth (Gollin, 2010; Self & Grabowski, 2007; Ugwuanyi & Abula, 2015; Block & Timmer, 1994; Oyakhilomen & Zibah, 2014; Eboh, Oduh & Ujah, 2012; Grewal & Ahmed, 2011; Odetola & Etumnu, 2013; Yusuf, 2014; Bekun, 2015; Oluwafemi, Adedoyin, Ogunleye and Oladokun 2015; Izuchukwu, 2011) while some studies concluded that there is a positive but insignificant relationship between agriculture and economic growth in Nigeria (Dim & Ezenekwe, 2013; Sertoglu, Ugural & Bekun, 2017; Eze, 2017). Furthermore, studies that have identified a causal links between agricultural sector output and economic growth in Nigeria in previous studies adopted the Pairwise Granger Causality test and none of the studies have used Toda-Yamamoto granger causality test in examining the causal links between agricultural output and economic performance in Nigeria. This study therefore adopts Toda-Yamamoto causality test which is a modified version of granger causality test. In addition, none of the previous studies found in literature used Dynamic Ordinary Least Square (DOLS) technique, the technique which is widely accepted as sufficient enough to examine data that are stationary at first difference (Phillips & Hansen, 1990).

Hence, this paper tends to:

- investigate the direction of causality between agricultural sector output and economic performance in Nigeria
- examine the relationship that exists between agricultural sector output constituents and economic performance in Nigeria.

This paper is divided into four sections; section one offered a general introduction and the research gap; section two reviewed related literature. Section three focuses on the methodology while section four focuses on the data analysis, discussion of results with appropriate policy recommendations.

II. REVIEW OF LITERATURE

Dim and Ezenekwe (2013) examined the impact of agriculture on economic development in Nigeria.The studydiscovered that agricultural output has negative impact on life expectancy ratio in Nigeria. However, agricultural expenditure was also discovered to have positive impact on life expectancy ratio in Nigeria.

Ahungwa, Haruna and Abdusalam (2014) analysed the impact of agriculture on Gross Domestic Product (GDP)between 1960 and 2012. The papershowed that the share of agricultural sector of GDP witnessed a decline during the period of the study; despite the decline, the sector contributed immensely to GDP between 1960 and 1975. The findingsshowed that a positive relationship exists between the agricultural sector and GDP in the economy.

Ekiran, Awe and Ogunjobi (2014) examined the inter-relationship between agricultural sector export and economic growth in Nigeria. Error Correction Method (ECM) was use to estimate model of the study. The findings revealed that agricultural sector export and agricultural output has been a key driver of economic growth in Nigeria.

Olajide, Akinlabi and Tijani (2012) studied the effect ofthe resources of agricultural sector on Nigeria's economic growth. The study discovered a causality ranging from GDP to agricultural output. Ordinary Least Squares (OLS) revealed that 1 percent increase in agricultural sector output led to about 35 percent increase in GDP during the study period.

Osundina, Ebere and Osundina (2012) investigated the impact of government expenditure on economic growth specifically the agricultural sector using the OLS technique from 1980 to 2012. The findings showed that a positive relationshipexist between economic growth and agricultural output in Nigeria.

Onunze (2012) examined the effect of the development of agricultural sector on Nigerian

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economic growth within between 1980 and 2010.The OLS estimation revealed thata positive relationship exists between the agricultural sector and economic growth in Nigeria.

Oji-Okoro (2011) investigated the impact of agricultural sector oneconomic growth in Nigeria using varieties of data between 1986 and 2007. The findings revealed a positive association between agricultural sector output and economic growth Also,domestic savings and foreign direct investment were able to expressabout eighty-one percent of the changes in the level of economic growth.

Yusuf (2014) investigated the contribution of agriculture in GDP from 1981 to 2012 using the Error Correction Model Approach. The findingsshowed that agriculture productionhave a positive contribution to economic growth in Nigeria. This confirmed that the agricultural sector still contributes to economic growth in Nigeria.

Ugwuanyi and Abula (2015) investigated the impact of agriculture and other variables on economic growth in Nigeria from 1970 to 2012. The paperadopts Granger causality test and OLS techniques. The findings revealed a bi-directional causality among the variables. The OLSfindings showed that agriculture has a positive impact on economic growth.

Eze (2017) studied therelationship between agricultural sector performance and Nigeria's economic growth between 1980 and 2014 using Vector Error Correction Model (VECM) and Granger Causalitytechniques for the study. The findings showed that agricultural output posits a positive effectoneconomic growth in Nigeria.

Oyakhilomen and Zibah (2014) examined the association between agricultural sector output and economic growth in Nigerian with specific interest in reductionin poverty index. The findings revealed that agricultural sector outputpositively influenced the level economic growth in Nigeria.

Grewal and Ahmed (2011) discovered that increased agricultural productivity has been cogent towards successfully reducing the level of poverty. In other words, agriculture development plays a major roles towards poverty reduction and posits a great consequence towards employment creation.

III. METHODOLOGY

The theoretical framework of this study is based on the endogenous growth theory. The theory holds that economic growth is primarily as a result of endogenous rather than external forces. In this case, the model implies that the economic performance of determinant internally through the agricultural sector on the economy.

The model estimated in the study specifies that economic growth is a function of the components of the agricultural sector (crop production, livestock, fishery, and forestry). The model specifically shows the contribution of each of the components of the agricultural sector to economic growth.

$$RGDP = f(CRP, LIV, FIS, FOR) \dots\dots (1)$$

RGDP = Real Gross Domestic Product (A proxy for Economic performance)
CRP = Crop production Output
LIV = Livestock Output
FIS = Fishery Output
FOR = Forestry Output

Equation 1 wastransformed to a linear econometric model as follow:

$$LogRGDPt = b0 + b1LogCRPt + b2LogLIVt + b3LogFISt + b4LogFORt + et \dots\dots\dots (2)$$

Where; b_1, b_2, b_3, b_4 are coefficients of the variables of the model and$b_0$is the intercept.

Causality Equation

The VAR Granger causality test also known as Toda-Yamamoto causality test. To undertake the Toda-Yamamoto version of the Granger causality test, the following system of equations will be estimated:

$$\begin{bmatrix} \ln GDP_t \\ \ln AGO_t \end{bmatrix} = A_0 + A_1 \begin{bmatrix} \ln GDP_{t-1} \\ \ln AGO_{t-1} \end{bmatrix} + A_2 \begin{bmatrix} \ln GDP_{t-2} \\ \ln AGO_{t-2} \end{bmatrix} + \begin{bmatrix} \mathcal{E}GDP_t \\ \mathcal{E}AGRO_t \end{bmatrix} \dots\dots\dots\dots (3)$$

This can be written in linear form as:

$$\ln AGOt = \alpha + \sum_{i=1}^{m} \beta i \ln GDPt - i + \sum_{j=1}^{n} \gamma j \ln AGOt - j + \text{?}t \dots\dots\dots\dots (4)$$

$$\ln GDPt = \theta + \sum_{i=1}^{\rho} \Psi i \ln AGOt - i + \sum_{j=1}^{\sigma} \lambda j \ln GDPt - j + \omega t \dots\dots\dots (5)$$

Here, we are interested in the dependence of lnAGDP at some time t on previous values of lnGDP and vice-versa, we would focus on the terms with β and If the βi coefficients as a set are statistically different from zero,$\sum \beta i \neq 0$, then it may be concluded that lnAGDP depends on past values of lnGDP, hence changes in lnAGDP are caused by changes in lnGDP. The same is applicable to lnGDP causing lnAGDP when $\sum \lambda i \neq 0$

Three situations of causal linkages can be noticed in this regard:

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Unidirectional causality, when only$\sum \beta i \neq 0$, or only $\sum \lambda i \neq 0$
Feedback or bilateral causality, when both are true andIndependent when both sets of βi and λi are statistically consistent with zero.

IV. RESULTS AND DISCUSSIONS

Test for Stationarity

In order to test for the stationarity of the time series data used in this study, the Augmented Dickey Fuller (ADF) unit root test was employed in this study. In this study, 5% critical value is used. The result of the unit root test is presented in Tables 4.1.

Table 4.1: Augmented Dickey Fuller unit root test

VARIABLE	LEVEL		1st Difference		Conclusion
	Test statistics	Critical values@5%	Test statistics	Critical values@5%	
RGDP	3.1255	-2.9458	------	--------	I(0)
CRP	2.1870	-2.9458	-4.8517	-2.9484	I(1)
LIV	3.3780	-2.9458	------	------	I(0)
FIS	2.4914	-2.9458	-4.9548	-2.9484	I(1)
FOR	2.0144	-2.9458	-3.2270	-2.9484	I(1)

Source: Researcher's Computation, 2019.

Where; I(0) = Stationary at Level, I(1) = Stationary at first difference.

Table 4.1 revealed the augmented dickey fuller (ADF) unit root test. The results shows that real gross domestic product and livestock output are stationary at level; the absolute values of the ADF test statistics at level of these variables are greater than its corresponding 5% critical value (2.9458). However, crop production output, fishery output and forestry output are stationary at first difference. This is derived by comparing the ADF test statistics at first difference and its corresponding 5% critical value in absolute term.

Table 4.2: Johansen Cointegration Test (second model)

Empirical Results of Unrestricted Co-integration Rank Test (Trace)				
Trace Statistic	0.05 Critical Value	Hypothesized No. of CE(s)	Eigenvalue	Prob.**
107.3279	69.81889	None *	0.667094	0.0000
68.83157	47.85613	At most 1 *	0.599344	0.0002
36.81877	29.79707	At most 2 *	0.457084	0.0066
15.44072	15.49471	At most 3	0.353789	0.0509
0.158698	3.841466	At most 4	0.004524	0.6904
Empirical Results of Unrestricted Co-integration Rank Test (Max-Eigen)				
Max-Eigen Statistic	0.05 Critical Value	Hypothesized No. of CE(s)	Eigenvalue	Prob.**
38.49633	33.87687	None *	0.667094	0.0131
32.01280	27.58434	At most 1 *	0.599344	0.0126
21.37805	21.13162	At most 2 *	0.457084	0.0462
15.28202	14.26460	At most 3 *	0.353789	0.0344
0.158698	3.841466	At most 4	0.004524	0.6904

Source: Researcher's Computation, 2019.

Table 4.2 showed the Johansen cointegration test. The results above reveal that the variables were co-integrated in the model using the unrestricted co-integration test-Trace and Maximum Eigenvalue test. The test statistics indicated that the Hypothesis of no co-integration among the variables can be rejected because there are at least two co-integrating equations. The finding implies that there is a long run relationship between real gross domestic product, crop production output, livestock output, fishery output and forestry output within the estimated model in Nigeria. The test result suggests that a long run relationship exists among the variables in the

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model. Thus, the study proceeds to estimate the long run parameters of the models of the study.

Causality Test

The first step is to determine our lag length. Table 4.3 reports the optimal lag length of one (1) as selected by four different criteria: Final Prediction Error (FPE), Akaike information criteria (AIC), Schwarz Information Criterion (SIC) and Hannan-Quinn Information Criterion (HQ).

Table 4.3: Lag Length Selection

Lag	LogL	LR	FPE	AIC	SIC	HQ
0	-683.9005	NA	1.21e+14	38.10558	38.19356	38.13629
1	-566.7564	214.764*	2.26e+11*	31.8198*	32.0837*	31.9119*

Source: Researcher's Computation, 2019.

The next step is to estimate the VAR Granger Causality/Block Exogeneity Wald Tests. The results of this test are presented in Table 4.4.

Table 4.4: VAR Granger Causality/Block Exogeneity Wald Tests

Dependent variable: **RGDP**			
Excluded	Chi-sq	Df	Prob.
AGO	5.526647	1	0.0187
All	5.526647	1	0.0187
Dependent variable: **AGO**			
Excluded	Chi-sq	Df	Prob.
RGDP	0.157676	1	0.6913
All	0.157676	1	0.6913

Source: Researcher's Computation, 2019.

The table 4.4 showed the causal relationship between economic performance and agricultural output in Nigeria. Contrary to the findings of Obansa and Maduekwe (2013) and Ugwuanyi and Abula (2015) who concluded that bi-directional causality exists between agricultural output and economic performance in Nigeria, the findings for this study showed a unidirectional causality between economic performance and agricultural output with causality running from agricultural output to economic performance proxied by real gross domestic product. This is derived from the probability values of each equation. The coefficient of chi-square at one degree of freedom is 5.526647 while the probability value is 0.0187 which is less than 0.05. This implies that the volume of agricultural output can help in the prediction of the level of economic performance in Nigeria. However, the findings showed that economic performance cannot help in predicting the volume of agricultural output in Nigeria because its probability value is greater than 0.05 at 0.6913. This might be because of the ineptitude in the implementation of agricultural policies in Nigeria.

Table 4.5: The Empirical Result of Dynamic Ordinary Least Square

Dependent Variable: LOG(RGDP)
Method: Dynamic Least Squares (DOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(CRP)	0.397535	0.085570	4.645738	0.0001
LOG(LIV)	0.416636	0.252629	1.649204	0.1107
LOG(FIS)	0.150965	0.150925	1.000265	0.3261
LOG(FOR)	0.120104	0.042668	2.814838	0.0090
C	2.925904	0.397476	7.361204	0.0000
R-squared: 0.996423				

Source: Researcher's Computation, 2019.

The result of DOLS estimation technique with Newey-West Heteroskedasticity and Autocorrelation Consistent Covariance (HAC) procedure to correct for serial autocorrelation is presented in table 4.5. Table 4.5 revealed that the coefficient of crop production output (CRP) at

0.39754 on economic performance proxied by real gross domestic product (RGDP) in the model. Findings show that a unit percent (1%) increase in crop production output led to about thirty-nine point eight percent (39.8%) increase in the level of economic performance in Nigeria. Hence, it is statistically significant at 5% level of significance at 0.0001 probability value. This result suggests a direct significant relationship between crop production output and economic performance in Nigeria. Also, livestock output (LIV) and fishery output (FIS) showed a positive but insignificant relationship with economic performance in the model. These findings are in conformity with the conclusion of Oluwatoyose and Applanaidu (2014) that asserted that agricultural subsectors in Nigeria have positive impact of on the level of economic performance in the country.

Furthermore, the result showed that a significant positive relationship exists between forestry output and economic performance in the model. The coefficient of forestry output is positive (0.120104) on economic performance in Nigeria and this implies that a unit percent increase in forestry output increases the level of economic performance by about twelve percent (12%) within the study period at 5% level of significance in the model.

Also, if all the explanatory variables are excluded from the model, the constant value is positive at 2.925904. This means that the intercept value (b_0) is still positive in the model over the period of the study.

V. CONCLUSION

The empirical findings in the estimated models are in conformity with the stand of the Central Bank of Nigeria's agricultural policy of using selective credit control instruments towards improving the agricultural sector products. The findings also justify the programmes of the Federal Ministry of Agriculture and African Development Bank towards improving the Nigerian economy through viable agricultural practices. It is clear from the above that an increase in agricultural sector output influenced the economy not just in terms of increase in gross domestic product but also in the development of man-power and employment generation to the large number of unemployed youths in Nigeria.

The study contributes to the existing body of knowledge by investigating the impact of the output of each of the components of the agricultural sector on economic growth. The findings revealed the impact of each of the agricultural subsectors on the economic growth and providing a productive and profitable decision making platform for the government of Nigeria and the stakeholders in the agricultural sector. The study had revealed that agricultural subsectors should be considered for efficient agricultural policies and programmes. This study contributes to the discussion about macroeconomic policy choices and public sector resource management regarding the diversification of the economy in favour of agricultural sector.

Policy Recommendations

The major objective of the government in any economy is the formulation and implementation of policies, with the overriding objective of maintaining a viable economic growth through appropriate fiscal actions in the economy. Based on the findings of the study, the following recommendations are made:

i. It is clear from the findings that an increase in agricultural sector output tends to improve economic growth. Therefore, government agricultural policies should be geared towards the individual constituents of the agricultural sector for efficiency instead of focusing on the sector as a whole. Making policies based on the agricultural subsectors will allow specific implementation and execution of such policies to the particular subsector involved.
ii. Also, the nature of agricultural produce should be the basis for forming or organizing farmers' association so that government policies might be specifically directed towards the development of each of their products.
iii. The Central Bank of Nigeria's monetary policy of selective credit control to the agricultural sector should be efficiently monitored so as to avoid diverting the resources met for developing the agricultural sector for other uses. This can be achieved by setting up a standing-committee with a sole responsibility of monitoring the disbursement of the fund to Deposit Money Banks and also to the farmers concerned.
iv. Finally, it is obvious from the findings that crop production constituent of the agricultural sector had most influence on economic growth amongst other constituent of the sector. Therefore, mechanized farming should be encouraged for cropping. This can be achieved through the Local Government tier of administration. That is, agricultural machineries and equipments should be provided at the local government level for easy access per time by the farmers. Each local government in the country should be equipped

with sizable and functional agricultural equipments based on the proportion of farmers in each local government area.

REFERENCES

[1]. Aggrey, N. (2009). Patterns of agricultural growth and overall growth of Ugandan Economy: A Thesis Submitted to the Department of Economics. University of Makerere, Uganda.
[2]. Ahungwa, G., Haruna, U. &, Abdsalam, Y.R. (2012). Trend analysis of the contribution of agriculture gross domestic product (1960-2012). Journal of Agricultural and Veterinary Science, 7(1): 50-55.
[3]. Bekun, F. V. (2015). The contribution of agricultural sector on the economic growth of Nigeria (1981-2013). A research paper submitted to Institute of Graduate Studies, Eastern Mediterranean University
[4]. Block, S. & Timmer, C.P. (1994). Agriculture and economic growth: Conceptual issues and the Kenyan experience. HIID Development Discussion Paper, No. 498. Harvard Institute for International Development, USA.
[5]. Central Bank of Nigeria, (CBN 2018). Baseline Survey Report. Retrieved from http://statistics.cbn.gov.ng/cbn-onlinestats
[6]. Dim, C. & Ezenekwe, U. (2013). Does agriculture matter for economic development? Empirical evidence from Nigeria. Journal of Finance and Economics. 1:61-77.
[7]. Eboh, E., Oduh, M., & Ujah, O. (2012). Drivers and sustainability of agricultural growth in Nigeria. Research paper 8. African Institute of Applied Economics, Enugu, Nigeria.
[8]. Ekiran, J. O. Awe, I. T. & Ogunjobi. J. O. (2014). Agricultural export and economic growth in Nigeria: A multivariate johansen cointegration analysis. International Journal of Arts and Commerce. 3(3).
[9]. Ekpo, A. H. & Umoh, O. J. (2012). Overview of the Nigeria economic growth and development
[10]. Eze, O. M. (2017): Agricultural Sector performance and Nigeria's economic growth. Asian Journal of Agricultural Extension, Economics & Sociology, 15(1): 1-13.
[11]. Food and Agricultural Organization, FAO (2014). FAO statistical year book. Retrieved from www.fao.org/publications
[12]. Food and Agriculture Organization, FAO (2012): The state of food insecurity in the of hunger and malnutrition. FAO, Rome, Italy.
[13]. Gollin, D. (2010). Agricultural productivity and economic growth. Handbook of Agricultural Economics, 4: 3825 – 3866.
[14]. Grewal, B. & Ahmed, A. (2011): Agriculture and poverty reduction: literature review and outstanding issues. International workshop on the role of agriculture in poverty reduction. Centre for Strategic Economic Studies Victoria University, Melbourne.
[15]. Izuchukwu, O. (2011). Analysis of the contribution of agricultural sector on the Nigerian economic development. World Review of Business Research. 1, 191-200.
[16]. Obansa, S. A. J. & Maduekwe, I. M. (2013). Agriculture financing and economic growth in Nigeria. European Scientific Journal, 9(1).
[17]. Odetola, T, & Etumnu, C. (2013). Contribution of agriculture to economic growth in Nigeria. A paper presented at the 18th annual conference of the African Econometric Society (AES) Accra, Ghana at the session organized by the association for the advancement of African women economists.
[18]. Oji-Okoro, I. (2011). Analysis of the contribution of agricultural sector on the Nigerian economic development. World Review of Business Research, 1(1): 191 – 200.
[19]. Olajide, O. T. Akinlabi, B. H. & Tijani, A. A. (2012). Agriculture resource and economic growth in Nigeria. European Scientific Journal. 8(22).
[20]. Oluwafemi, Z. O., Adedoyin, M. A., Ogunleye, A. A. & Oladokun, Y. O. M. (2015). An empirical analysis of the contribution of agricultural sector to Nigeria gross domestic product: Implication for economic development. Development country studies, 5(21): 36-42.
[21]. Onunze, M. T. (2012). The impact of agricultural development on Nigeria economic growth 1980-2010) available at www.sljass.sljol.info/article/download/4855/3884
[22]. Osundina, C. K., Ebere, C., & Osundina, O. A. (2014). Disaggregated government spending on infrastructure and poverty reduction in Nigeria.
[23]. Oyakhilomen, O. &Zibah, R.G. (2014). Agricultural production and economic growth in Nigeria: Implication for rural

poverty alleviation, Journal of International Agriculture, 53(3): 207-223

[24]. Phillips, P. C. B., & Hansen, B. E. (1990). Statistical inference in instrumental variables regressions with I(1) processes, Review of Economic Studies, 57, 99-125.

[25]. Self, S. & Grabowski, R. (2007). Economic development and the role of agricultural technology. Agricultural Economics, 36(3): 395 – 404.

[26]. Sertoglu, K.,Ugural, S. & Bekun, F.V. (2017), The contribution of agriculture on economic growth in Nigeria. International Journal of Economics and Financial Issues,7 (1).

[27]. Ugwuanyi, C. U. & Abula, M. (2015). An empirical investigation of the contribution of agriculture, petroleum and development of human capital to the economic growth in Nıgeria, 1970-2012. British Journal of Economics, Management & Trade, 7(1): 55-62.

[28]. Yusuf, S. A. (2014). Role of agriculture in economic growth and development: Nigeria perspective. MPRAPaper55536, University Library of Munich, Germany.