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THE LINK BETWEEN AGRICULTURAL BUDGETARY ALLOCATION AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

This study investigates the nexus between Agricultural budgetary allocation and Economic Growth in Nigeria by employing simple regression analysis and a further test of cointegration and vector error correction model to determine short run dynamic behaviour of the variable. The result of the study revealed that there is positive relationship between Agricultural budgetary allocation and Economic Growth in the long run. It was also observed that since the Agricultural budgetary allocation and Economic Growth are positively related. This relationship is significant over the two years lagged value of budgetary allocation to Agriculture. And by implication, the government has to stand aloof by increasing expenditure on agriculture because agricultural sector plays a vital role towards the National Transformation in Nigeria.

Contribution/Originality: The paper contributes to the existing literature on the relationship between budgetary allocation and economic growth. The paper shows its uniqueness by adopting Keynesian macroeconomic approach in specifying growth as a function of agricultural expenditure. The use of vector error correction in our model enables us to capture both short run and long run dynamic behavior of the variables in our model which is an innovation.

1. INTRODUCTION

Nigeria failure to attain the minimum standard of 10 per cent agricultural budget allocation standard of Maputo declaration, has led to negative implications for food security (Ochigbo, 2012). This continual reduction in agricultural expenditure for a couple of years ago relative to the aggregate expenditure of Nigeria has led to insufficient funds for the sector. In this light, Okoro and Ujah (2009) emphasized that the too little funding on agrarian sector could never make the sector sustainable. While agricultural spending expressed as a share of total spending is normally low in African countries compared to other developing countries. When public spending in agriculture is compared with public spending in other sectors, the value of the indicator becomes low relative to other sectors of the economy as asserted by Mogues *et al.* (2008). That would provide more opportunities for attracting foreign direct investment to ensure food security and poverty reduction. Against this background, the

study attempts to examine the direct and indirect linkage on the relationship between Agricultural budgetary allocation and Economic Growth in Nigeria.

2. SELECTED EXISTING LITERATURE

Detailed and historical validation has provided comprehension studies on the relationship between expenditure on Agriculture and Economic growth in Nigeria. Quite a few cross country studies – (Kelly, 1997) and country specific studies such as (Alexiou, 2011; Dandan, 2011; Hussain *et al.*, 2011; Kuehnel and Irmen, 2016) have been conducted across the globe to determine the relationship expenditure on Agriculture and Economic growth in Nigeria, but their data periods, methodologies and findings gives a conflicting results while some reveal that positive association exists between government expenditure and economic growth others reveal negative findings. Quite a number of studies have been conducted on the link between government expenditure and economic growth in Nigeria, but most of these studies disaggregate the sectors of the economy from the few sectors-specific studies. They all failed to take cognizance of the inter-linkage with other sectors of the economy.

Quite a few cross-country studies like (Ghura, 1995; Devarajan *et al.*, 1996; Guseh, 1997; Kelly, 1997; Irmen and Kuehnel, 2008; Alexiou, 2011; Dandan, 2011; Hussain *et al.*, 2011) have been carried out across the globe to examine the relationship between government expenditure and economic growth, but their data periods, methodologies and findings differ from some studies indicating that government expenditure has a negative impact on economic growth and others asserted that government expenditure has a positive impact on economic growth. The unequal findings of the studies could be accredited to the short data, periods of some of the studies, which much have affected the reliability of the influences emanated from the studies. The contradictory in the use of methodologies and time series analysis of most these studies also contributed to the variations in their findings.

In Nigeria, Nasiru (2012) employed the Granger Causality test to investigate the relationship between government spending and economic growth, and the results revealed that while government capital expenditure causes economic growth, there was no observable causal relationship between recurrent government expenditure and economic growth. The policy implication of this finding is that any reduction in capital expenditure would have harmful consequences on economic growth in Nigeria. In a study conducted by Nasiru (2012) on the relationship between government spending and economic growth, using Granger causality test found out that government capital expenditure is causing economic growth but with no casual relationship between recurrent government expenditure and economic growth in Nigeria. In another related study conducted by Ghura (1995) study on the relationship between government expenditure and economic growth observed that expenditure on administration, education, transportation, and communication has an off putting impaction economic growth in the short run, while expenditure on health and other services is positively related to economic growth on the study conducted by Maku (2009) on the relationship between government spending and economic growth in Nigeria. It was discovered that both government expenditure and private investment do not influence economic growth in Nigeria and that government expenditure has been on the risk since the endorsement of structural Adjustment programme (SAP) within contributing significantly to the GDP growth.

Though an augmented Solow model, Usman *et al.* (2011) asserted that expenditure on administration, education, transportation and communication has a off-putting impact on economic growth in the short run, while FDI and expenditure on health and other services have a positive impact on economic growth. Maku (2009) discovered that both government expenditure and private investment have no significant influence on economic growth in Nigeria, and that the rate of government expenditure to real GDP has been on the rise since the endorsement of the Structural Adjustment Programme (SAP) without contributing significantly to economic growth in Nigeria. Nurudeen and Usman (2010) used the data period of 1970 to 2008 in their study, and the estimation results showed that total capital expenditure (TCE), total recurrent expenditure (TRE), expenditures on transport and communication (ETC), education (EDU), and health (HEA), including inflation (IFN) and overall

fiscal balance (OFB), are statistically significant in explaining changes in economic growth. However, expenditures on defence (EOD) are not significant in explaining economic growth.

3. METHODOLOGY

This study used a secondary dataset of 30 years (1980-2015) that was obtained from the annual reports and statistical bulletins of various issues of Nigeria Central Bank. The dataset includes expenditure on agriculture, GDP, the inflation rate, and other variables.

This study adopts the Keynesian macroeconomic approach in specifying economic growth as a function of agricultural expenditure. Keynesian *theory* assumes that increased government expenditure can lead to high aggregate demand and in turn rapid economic growth; Wagnerian theory, meanwhile, contends that an increase in national income causes more government expenditure. The Augmented Dickey Fuller (ADF) test was used to examine the stationarity of the dataset in order to overcome the problem of spurious regression that is common in the time series analysis of non-stationary variables.

3.1. Model Specification

A Keynesian-macroeconomic position on the link between government expenditure and economic growth was adopted in this study; therefore, economic growth (EG) was modelled to be a function of budgetary allocation to agriculture (BAA). However, to avoid the omission of relevant variables and the misspecification of the model, inflation rate (IFR), exchange rate (EXR) and interest rate (ITR) were included in the model as other components of macroeconomic variables that influence economic growth. The model for the long-term relationship between the variables was given explicitly as:

$$nEG_t\ a_{o\,a1}\ InBAA_t + a_2\ InIFR\ a_3 InECR_t\ a_4 nITR\ \mu t \qquad (3)$$

In order to estimate the short-term relationship between the variables, the corresponding error-correction equation was estimated as:

GE= Economic Growth Proxied By Real GDP (N Million).

BAA= Agricultural Budgetary Allocation (N Million)

IFR= Inflation Rate (%)

EXR = Exchange Rate (N/US Dollar)

IR= Interest Rate (%)

ECM= Error Correction Term

NL= Natural Logarithm

DO = Difference Operator

The a priori expectations are $a_1 > 0$, $a_2 < 0$, $a_3 < 0$, $a_4 < 0$

4. RESULTS AND DISCUSSION

4.1. Augmented Dickey Fuller Unit Root Test

The results of the ADF test as reported in table 1 show that EG, BAA, EXR and ITR were non stationary (integrated of order one) at their respective level forms, which substantiates the null hypothesis. However, the first difference of the variables was established to be stationary. IFR was found to be stationary (integrated of order zero) at level form, which invalidates the null hypothesis and substantiates the alternative. It was necessary that the properties of the time series variables under study be explored in order to overcome the problem of spurious regression – i.e. regression that tends to accept a false relationship or reject a true relation by faulty regression schemes.

Table-1. Augmented Dickey Fuller (ADF) Test Result

Variables length	ADF Statistic	Lag	Remark
Level			
InEG	-1.761097	1	Nonstationary
InBAA	-2.339909	0	Nonstationary
InIFR	-3.487055	0	Stationary
InEXR	-1.029483		Nonstationary
InITR	-2.309483	0	Nonstationary
First Difference			
DInEG	-2.416661	0	Stationary
DlnBAA	-39.37279	0	Stationary
DlnECR	-6.402476	1	Stationary
DInITR	-6.887179	0	Stationary

NB: Test critical value at 5 % significant level (-3.574244)

Lag selection is automatic based on Schwartz Bayesian Criterion (SBC)

Aurthor computation 2017

4.2. Johansen Cointegration Test

The results of the Johansen cointegration Test (Trace and Max-Eigen) as shown in Tables 3 and 4 respectively indicate that there is one cointegrating equation at the 5% level, which rejects the null hypothesis of not having a cointegrating equation (r = 0) and accepts the alternative hypothesis of having one co-integrating equation (r = 1). This result indicates that there is a long-term relationship between EG, ABA, ECR, IFR and ITR; therefore, a vector error correction estimation can be carried out to examine the short-term relationship between the variables under study.

Table-2. Johansen Cointegration test result (Trace Test)

CE (s)	Eigenvalue	Trace Statistic	0.05 critical value	Prob.
None	0.07027837	87.89961	62.81889	0.00113
At most 1	0.612962	38.81959	46.85613	0.2298
At most 2	0.447679	17.95663	27.79707	0.5960
At most 3	0.180422	5.65782	13.10491	0.5384
At most 4	0.015034	0.33932	2.841466	0.5076

Source: Aurthor computation 2017

Table-3. Johansen Cointegration test result (Max-Eigen Test)

CE(s) Statistic	Eigenvalue	Max-Eige	0.05 critical value	Prob.
None	0.902783	48.08002	32.87687	0.0008
At most 1	0.412962	21.86296	26.8434	0.28407
At most 2	0.247679	13.38936	20.13162	0.5092
At most 3	0.180476	7.7947	15.26460	0.4968
At most 4	0.015036	0.539327	4.841466	0.6074

Source: Aurthor computation 2017

4.3. Vector Error Correction Estimates

The existence of a cointegrating relationship between the dependent an independent variables as indicated by the Johansen Cointegration Test necessitated examining the short-term dynamics between the variables in the cointegrating equation by estimating the error correction model. The results of the vector error correction as shown in table 5 contain long-term estimates, short-term estimates and diagnostic statistics. The coefficient of determination value of 0.62 which represents R^2 shows that 62 percent of the variation in economic growth is accounted for by the included explanation variables. The variables in questions are economic growth, exchange rate,

inflation rate and interest rate that were included in the model. The coefficient value of probability statistics suggest overall significance of the explanatory variable of the model.

Table-4. Vector Error Correction Estimates of Economic Growth in Nigeria

Variable	Coefficient	Standard Error	statistic
Long run			
Constant	-13.00684		
lnEG (-1)	1.000000		
lnBAB (-1)	0.047814	0.009805	0..38566
lnIFR (-1)	-0.660845	0.14652	-3.82783
lnECR (-1)	-0.074827	0.11849	-0.81589
InITR (-1)	-0800698	0.34787	-2.30171
Short run			
Constant	0.046422	0.01692	
ΔlnEG (-1)	0.544936	0.18308	
ΔlnEG (-2)	-0.040227	0.02830	
ΔlnBBA (-1)	-0.005259	0.01001	
ΔlnBAA (-2)	0.880467		
ΔlnIFR (-1)	-0.035436		
ΔlnIFR (-2)	0.024058		
ΔlnECR (-1)	0.001158		
ΔlnECR (-2)	-0.015528		
ΔlnITR (-1)	-0.50216		
ΔlnITR (-2)	-0.056688		
ECM (-1)	-0.284820		
Diagnostic Statistics			

NB: * denotes p< 0.1 ** denotes p< 0.05, *** denotes p < 0.01

Aurthor computation 2017

The long-term estimates show that ABA is associated with EG in the long run and is therefore inconformity with a priori expectation. However, BAA is not statistically significant in shaping economic growth in the long run. In the short run, the first lagged value of ABA is negative and insignificant in influencing economic growth, but the second lagged value of ABA is positively related to economic growth and significant at the 5% probability level. ABA should have been positive and highly significant owing to the integral role of finance in agriculture, which is known to be the major contributor of gross domestic product in Nigeria. The observed short- and long-term relationships between ABA and EG can be attributed to poor budgetary allocation to agriculture relative to other sectors of the economy; and the poor implementation of the budget, as recent monitoring and evaluation reports indicate that the implementation of the 2007 and 2008 agricultural budget was below 25% (Okoro and Ujah, 2009). The error correction coefficient (-0.284820) of the model had the expected negative sign and was significant at the 5% probability level, confirming the existence of a long-term relationship between EG, ABA, ECR, IFR and ITR. inflationary trend of the economy would likely increase economic growth. There is also a tendency for economic growth to increase with a reduction in lending rate. ECR, meanwhile, is also consistent with a priori expectation but was found to be insignificant in influencing economic growth over the data period (1980-2010) of the study.

5. CONCLUSION

This study has been able to establish that agricultural budgetary allocation is positively related to economic growth in the long run but not significant in the short run. It was also discovered that negative relationship was observed in the long run but not so in the short run. This disparity is linked to the poor budgetary allocation to the agricultural sector, which is under 25% and 10% recommendation from the FAO and U, respectively. It is therefore recommended that budgetary allocation on agricultural sector should take the lead among all other sectors, so that

enough funds will be available as a driver of activities in the sectors. Budgetary implementation in the agricultural sector should also be pursued for the latter so as to foster a higher level of budget implementation in other areas, such as for capital projects. This will ultimately ensure that the effort of the government towards achieving food security, poverty reduction, employment generation and wealth creation, is realized in Nigeria.

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REFERENCES

Alexiou, C., 2011. Unraveling the 'mystery' between public expenditure and growth: Empirical evidence from Greece. International Journal of Economics, 1(1): 21 – 31. *View at Google Scholar*

Dandan, M.M., 2011. Government expenditures and economic growth in Jordan. International Conference on Economics and Finance Research, Singapore, 4: 467 - 471.

Devarajan, S., V. Swaroop and H.F. Zou, 1996. The composition of public expenditure and economic growth. Journal of Monetary Economics, 3(7): 313 – 344.

Ghura, D., 1995. Macro policies, external forces, and economic growth in Sub- Saharan Africa. Economic Development and Cultural Change, 43(4): 759 – 778. *View at Google Scholar | View at Publisher*

Guseh, J.S., 1997. Government size and economic growth in developing countries: A political-economy framework. Journal of Macroeconomics, 19(1): 175 –192. *View at Google Scholar | View at Publisher*

Hussain, M.I., M. Khan, I.U. Padda, M. Akram and Z. Haider, 2011. Public spending, foreign direct investment and economic growth: A time series analysis for Pakistan (1975-2008). International Research Journal of Finance and Economics, 61: 21 – 28.

Irmen, K. and J. Kuehnel, 2008. Productive government expenditure and economic growth. Discussion Paper Series No. 464: 1 – 46.

Kelly, T., 1997. Public expenditures and growth. Journal of Development Studies, 34(1): 60 – 84. *View at Google Scholar*

Kuehnel, J. and K.J. Irmen, 2016. Productive government expenditure and economic growth. Discussion Paper Series No. 464: 1 – 46.

Maku, O.E., 2009. Does government spending spur economic growth in Nigeria? MPRA Paper No. 17941. [Accessed 1st September, 2012].

Mogues, T., M. Morris, L. Freinkman, A. Adubi, S. Ehui, C. Nwoko, O. Taiwo, C. Nege, P. Okonji and L. Chete, 2008. Agricultural public spending in Nigeria. IFPRI Discussion Paper No. 00789: 1 – 108.

Nasiru, I., 2012. Government expenditure and economic growth in Nigeria: Cointegration analysis and causality testing. Academic Research International, 2(3): 718 – 723. *View at Google Scholar*

Nurudeen, A. and A. Usman, 2010. Government expenditure and economic growth in Nigeria, 1970-2008: A disaggregated analysis. Business and Economics Journal, 4: 1 – 11. *View at Google Scholar*

Ochigbo, F., 2012. Nigeria's agriculture budget under 10%. Nigeria: The Nation Newspaper 23 of Jan., 2015.

Okoro, D. and O.C. Ujah, 2009. Agricultural policy and budget analysis in Nigeria (1999-2007): Perspectives and implications for SLISSFAN project states. Report Submitted to OXFAM GB Nigeria.

Usman, A., H.I. Mobolaji, A.A. Kilishi, M.A. Yaru and T.A. Yakubu, 2011. Public expenditure and economic growth in Nigeria. Asian Economic and Financial Review, 1(3): 104 – 113. *View at Google Scholar*