

## Effect of Government and Private Sector Financing on the Agricultural Sector in Nigeria

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### Abstract

The process of economic transformation and development calls for the participation of all interest groups in an economy hence this study set out to examine the effect of public and private sector finances on the development of the agricultural sector in Nigeria. The study employed an econometric procedure with the Ordinary Least Square regression technique. R-squared of 0.9921, obtained implied that 99.2 per cent of the variation in the agricultural sector real gross domestic product was explained by the six independent variables in the model. Loan granted to farmers under the agricultural credit guarantee scheme, commercial banks' credit to the agricultural sector and Federal Government recurrent expenditure allocated to the sector impacted it positively, while the Federal Government capital expenditure allocated to the sector did not. It is recommended that all the policies put in place by the Monetary and Fiscal Authorities to encourage flow of funds to the agricultural sector be sustained and that the Federal Government should overhaul its capital budgetary processes and provisions so as to make a positive impact on the development of the sector, particularly since crude oil price has been on the decline in the last four years impacting Nigeria's economy negatively.

**Keywords:** Government Expenditure, Commercial Bank's Credit, Agricultural Development

### Introduction

For economic transformation and development to take place, all the interest groups in an economy (which include both the public and private sectors) must participate, though the role played by the public sector is unique. This is in view of the fact that the public sector (also referred to as the government sector) plays a decisive role in attaining macroeconomic objectives of stability, growth and development, through a package of economic policy measures as well as institutional and legal provisions (Shafritz and Russell, 2005).

In Nigeria, agriculture has traditionally been described as the mainstay of the economy. The following are the specific objectives of the Agricultural Policy:

- (a) attainment of self-sufficiency in basic food items, particularly commodities which consume considerable shares of Nigeria's foreign exchange;
- (b) increased production of agricultural raw materials to meet the growing needs of an expanding industrial sector;
- (c) increased export earnings, enhanced by further processing of agricultural produce and adding value;

- (d) modernization of agricultural production, processing, storage and distribution, through the infusion of improved technology and management so that the sector can be more responsive to various demands of a developing economy;
- (e) creation of more rural employment opportunities by engaging in further improvement and maintenance of rural infrastructural facilities;
- (f) improvement in the quality of life of rural dwellers through the provision of social amenities such as potable water and improved health and educational facilities; and
- (g) continuous protection of agricultural land resources from drought, desert encroachment, soil erosion and flood (Evbuomwan, 1988).

Increased agricultural productivity in an agrarian economy is certainly, a vital pre-requisite for rapid economic growth and development. In the bid to transform the Nigerian agricultural sector so as to achieve sustainable development in Nigeria, government has enunciated various fiscal and credit policies over the years. Under fiscal policies, government expenditure constitute an instrument for direct resource allocation to various sectors of the economy including agriculture; which has been supported by subsidies on agricultural inputs like fertilizer (Evbuomwan, 1991). As regards credit policies, the agricultural sector is classified as one of the preferred sectors and thus, enjoys lower interest rates, as well as a credit guarantee scheme to encourage the private sector to participate actively in developing the sector (Central Bank of Nigeria (CBN), 1994).

The Nigerian federal system consists of three tiers of government which are; Federal, State and Local Governments. The 1999 Federal Constitution which subsists to date, created the exclusive and concurrent legislative lists that apportion responsibilities for legislation among the Federal, State and Local Governments. The items on the **Exclusive** list can only be legislated upon by the Federal Government, while the **Concurrent** list may be legislated by both Federal and State Governments. There is a third list referred to as the **Residual** list, which is the exclusive preserve of the states and local governments. It contains matters not expressly treated in the exclusive and concurrent lists. However, for the purpose of this paper, the concurrent list is the most relevant as it covers agricultural development. Furthermore, where there are conflicts as regards the functions listed under the concurrent legislative list, the Federal Government right shall prevail (CBN, 2010).

Consequently, this paper focuses on Federal Government Expenditure targeted at developing the Nigerian agricultural sector, as proxy for public finance, while, commercial bank's credit to the agricultural sector and funds disbursed under the Agricultural Credit Guarantee Scheme Fund (ACGSF) supervised by the Central Bank of Nigeria (CBN), would be examined as proxy for private sector finance. The ultimate aim of the study is to determine the extent to which public and private sector finances have impacted the Nigerian agricultural sector and proffer appropriate recommendations going forward in view of the importance of the agricultural sector to the development of the Nigerian economy.

This study is structured as stated in what follows. Following this introductory section is section two, which presents the literature review covering conceptual issues, theoretical and empirical literature. Section three, contains the methodology of the study, while section four presents the results and discussion. The last section will summarise and conclude the paper and also provide some recommendations.

## Literature Review

The literature review contains three sub-sections as follows:

### *Conceptual and Theoretical Issues in Public Finance*

The initial discussion on public expenditure is said to have originated from John Maynard Keynes when he advocated the need for government intervention in the management of macro economy of nations after the devastating effects of the World War I and II (Edwin, et al.2013). As posited by Keynes, the existing laissez-faire doctrine of market (pure capitalist) economy allocating resources could no longer suffice as the private sector did not have adequate financial resources to fund

businesses after the war. Similarly, consumer's purchasing power had been eroded by the war as they were neither working nor earning wages during and for some time after the war as little or no economic and social activities were going on. Keynes, therefore, called on the government to expend and provide social facilities and establish public businesses (enterprises), to keep the economy (of Europe) running.

This phenomenon was exhibited in Nigeria after the civil war (1966-1969). As gleaned from the Second National Development Plan (1970-74), a leading role was accorded to the government since public enterprises were considered crucial to growth and self-reliance due to capital scarcity, occasioned by the aftermath of the civil war as well as structural defects in the private sector and perceived dangers of foreign dominance of the private sector (Anyanwu, et al. 1997). In the agricultural sector, government went into direct production establishing plantations such as the cocoa, oil palm and rubber plantations in the southern part of the country and ranches in the north. They were eventually privatized and sold off as part of the Structural Adjustment Programme (SAP) of 1986 when government revenue declined and could no longer sustain direct production and the enterprises were not well managed.

### ***The Financial System and the Allocation of Savings to Productive Uses***

The role of financial institutions in the accumulation of savings and provision of credit for investment through their intermediation process is widely documented and acknowledged (Saunders and Cornett, 2009). These institutions mobilize funds from surplus areas and channel them to deficit units, thereby allocating the funds efficiently for investment purposes. Banks are the most important example of a class of institutions called financial intermediaries. They extend credit to borrowers using funds raised from savers. However, credit is a means to an end. The ultimate goal is to affect productivity.

Agricultural credit policy objectives over the years in Nigeria, has been to make adequate credit available to the farmers at the right time and at affordable price. Before the deregulation of interest rates in 1987, credit was purveyed to the agricultural sector at concessionary interest rate. In addition, banks were compelled to support agricultural activities through credit quotas specified by the CBN in its Monetary Policy Circulars, as the sector was discriminated against in view of its peculiarities. Furthermore, in order to encourage banks to support agriculture in Nigeria, the Agricultural Credit Guarantee Scheme Fund (ACGSF) was introduced in 1978 to guarantee banks' exposure and minimize lending risk.

The ACGSF has an authorized share capital of three billion Naira contributed by the Federal Government (60%) and the Central Bank of Nigeria (40%). It is managed by the CBN which provides a guarantee cover to banks who give loans to the agricultural sector of the economy. The process of accessing the scheme is simple. Potential beneficiaries are required to provide collateral for loan amounts of above twenty thousand Naira, while loans below the amount can be guaranteed without collateral. The collateral is expected to be in tangible form or in form of 25 per cent cash security of the intended loan amount in the form of savings. Once the CBN has been provided with all the relevant information and collateral by the participating bank, the farmers can benefit from the credit (CBN, 2010).

### ***Empirical Literature***

The study by Edwin et al., (2013), investigated the level of public expenditure on electricity and the impact on socio-economic development of Nigeria using the linear regression analysis model. The results revealed that the a priori expectations of the positive relationship between government spending on electricity and socio-economic development in Nigeria were largely satisfied as obtained for life expectancy and primary school enrolment. However, their results for secondary school enrolment indicated a negative relationship. This was explained by the authors as a phenomenon whereby government has been encountering negative funding (borrowing) for secondary school enrolment in the course of promoting the socio-economic development of Nigeria. Since the results of the study revealed that the relationships between public expenditure on life expectancy and electricity was positive as well as that between public expenditure on primary school enrolment and

electricity, the authors recommended that the strategies put in place to ensure improvement in life expectancy and primary school enrolment in Nigeria such as strengthening of the primary health care and universal basic education respectively, be sustained. As regards the negative relationship obtained for secondary school enrolment and expenditure on electricity, the recommendations were that government should cut perceived wasteful spending on issues outside its supply of electricity for secondary school and embrace public-private partnership so as to channel more funds to enhance socio-economic development in Nigeria.

Ada and Anyanwu (2013), investigated the impact of some institutional reforms on agricultural output and exports in Nigeria between 1960 and 2011. They employed statistical survey research design and econometric tools. The authors ran two models, one for agricultural share of national output (AGDP) and the other for agricultural sector export value (AEXP) in two periods Pre- and Post the Structural Adjustment Programme of 1986. However, the result revealed that the intercepts of AGDP and AEXP were negative for the two periods which the authors interpreted as indicating that the right institutions were not in place or that the existing ones are weak. The authors pointed out some important features in Model 1 result as follows: that policy and institutional reforms over the sampled period, with regards to labour force, government capital expenditure on economic services (which includes capital expenditure on agriculture); government recurrent expenditure on internal security and agricultural sector foreign direct investment impacted positively on the growth of agricultural sector share of gross domestic product (GDP). That within period 2, agricultural credit guarantee scheme fund made positive impact on agricultural output but insignificantly. Some important features of Model 2 according to Ada and Anyanwu (2013) study, were that: most of the policy and institutional reforms have not significantly enhanced agricultural sector export (AEXP) value, except through agricultural sector bank loans, that openness of the Nigerian economy and exchange rate have not helped the Nigerian AEXP value, implying that institutional reforms in these regards and theories of trade liberalization/domestic currency devaluation are yet to be effective in Nigeria. The results revealed further that the variables; gross capital formation, labour force, agricultural sector government recurrent expenditure, government recurrent expenditure on internal security, agricultural sector bank loans, agricultural sector foreign direct investment, interest rate, food consumer price index and the dummy for SAP reforms contributed positively to growth of agricultural sector export (AEXP) value, although insignificantly.

In view of above results obtained by Ada and Anyanwu (2013), they recommended that policy instruments of SAP be reinforced since the agricultural sector responded positively to them, that government should raise its capital expenditure on economic services, particularly as it affects the agricultural sector, land development, road and rural infrastructure; that institutional framework for the provision of credit (at reduced cost) to the agricultural sector be strengthened.

Agba and Njiforti (2015), evaluated credit use by small-scale farmers and its impact on poverty reduction in Plateau State, Nigeria. The study used survey research design and adapted the Cobb-Douglas production function which measured the productivity of small-scale farmers using ordinary least square method. The study also measured the profitability, net farm income and poverty status of borrowers and non-borrowers and found that though credit users have higher productivity, profitability and net farm income compared with non-credit users, the difference was found to be insignificant. The study also revealed that the poverty level of the farmers who had access to credit was lower than that of farmers who did not have access to credit. The authors then concluded that credit can guarantee poverty reduction and also assist to include small-scale farmers in the growth process if made available in sufficient quantities. They therefore, recommended an increase in credit available to small-scale farmers through collaborative efforts between formal financial institutions and the government since credit can positively impact on poverty reduction.

## Methodology

The section highlights the methods used to obtain and analyse the study data. It provides information on various type and sources of data. The analytical tools and model specifications are also explained.

### *Type and Sources of Data*

Secondary data that spanned 1981 to 2016 were extracted from the Central Bank of Nigeria Statistical Bulletin, (CBN, 2016). These include; Nigeria's gross domestic product (GDP), agricultural sector contribution to Nigeria's GDP, total loans to the Nigerian economy by commercial banks and the proportion of their loans given to the agricultural sector, as well as loans disbursed under the agricultural credit guarantee scheme. Also, extracted from the CBN 2016 Statistical Bulletin were; Federal Government total recurrent expenditure, agricultural sector recurrent expenditure, and federal government recurrent expenditure to the economic sectors, as well as, Federal Government total capital expenditure and capital expenditure to the economic sectors (which includes agriculture), and finally, Federal Government capital expenditure as proportion of the gross domestic product. World Development Indicators was the source from which the gross fixed capital formation and labour force data were extracted for this study.

### *Analytical Framework*

Macroeconomic policies send important signals to the private sector about the direction of economic policies and the credibility of government's commitment to manage the economy efficiently. By so doing, they facilitate long-term planning and investment decisions, thereby, encouraging private capital accumulation (Akpokodje, 1998). The absence of a coherent macroeconomic policy, creates an atmosphere of uncertainty, and makes it difficult for economic agents to extract correct signals from relative prices, such as the real returns to investment in both human and physical capital, thereby, leading to inefficient resource allocation (CBN, 1994). The tools of macroeconomic policy include actions in fiscal, monetary, balance of payments and exchange rate management, as well as other policy measures to boost aggregate supply.

- (a) **Fiscal Policy:** The impact of fiscal policy on private investment at the theoretical level is still unclear. Apparently, public investment that results in large fiscal deficits is expected to crowd out private investment through high interest rates and reduced access to bank credit. However, since a considerable number of developing countries have a large component of government investment concentrated on infrastructure, public investment ought to complement private investment. In the empirical literature, public investment has been largely found to complement private investment, though some studies which reflect budget deficits and public investment in the same equations have found that budget deficits have an adverse impact on private investment (Akpokodje, 1998, Iyoha, 1998).
- (b) **Financial Intermediation:** Financial deepening expectedly increases the rate of domestic savings, thus, lowering the cost of borrowing and thereby, stimulate investment (Shaw, 1973). Developing countries are assumed to suffer from financial repression and it is posited that the liberation of these countries from their repressive conditions would induce savings, investment and growth. This therefore, means that investment is positively related to the real rate of interest in contrast with the neoclassical theory. This being that a rise in interest rate increases the volume of financial savings, thereby, increasing investible funds. Though, demand for investment may decline with rise in the real rate of interest, but realized investment actually increases because of the greater availability of funds. Furthermore, if financial deepening contributes to an increase in the expected profitability of capital, investment would be encouraged. Recently, the endogenous growth literature has been extended to investigate the effects on growth of financial deepening and intermediation (CBN, 2004). It emphasized the important role that financial intermediation plays in improving the efficiency of investment. Interestingly, interest rate may be a poor proxy for the direction of monetary policy as well as the user cost of capital under financial repression. A better proxy could be direct credit (Ukeje and Akpan, 2007).

### *Analytical Techniques*

A combination of analytical tools was employed in this study. These include descriptive statistics (measures of central tendency and dispersion, proportional analysis, growth rate and trends, graphs

and charts) using the Excel software. A multiple regression analysis was also carried out to evaluate the effect of public and private sector finances on the agricultural sector in Nigeria. The Ordinary Least Square (OLS) regression analysis technique was employed using Eviews 9.0.

### ***The Model***

In this study, a linear regression analysis model was adopted in line with the studies by Edwin, et al., (2013) and Ada and Anyanwu (2013). The contribution of agriculture to Nigeria's gross domestic product is taken as the dependent variable because changes in the performance of the agricultural sector arising from government policies can be easily observed in this variable. The explanatory variables include commercial banks' credit to the agricultural sector, loans granted under the agricultural credit guarantee scheme fund, Federal Government recurrent expenditure on agriculture, Federal Government capital expenditure on economic services, gross fixed capital formation and labour force. The multivariate model is specified in the log form in line with the Cobb- Douglas production function as follows:

$$\ln AGDP = \beta_0 + \beta_1 \ln CBA + \beta_2 \ln ACG + \beta_3 \ln GRA + \beta_4 \ln GCE + \beta_5 \ln GFCF + \beta_6 \ln LAB + \varepsilon_t$$

Where,

$\ln AGDP$  = log of the Agricultural Gross Domestic Product

$\ln CBA$  = log of Credit to Agriculture by Commercial banks

$\ln ACG$  = log of loans disbursed under the ACGSF

$\ln GRA$  = log of Federal Government Recurrent Expenditure on Agriculture

$\ln GCE$  = log of Federal Government Capital Expenditure on Economic Services

$\ln GFCF$  = log of Gross Fixed Capital Formation

$\ln LAB$  = log of Labour Force

$\varepsilon_t$  = The error term

The *a priori* expectations of the explanatory variables are as expressed below:

$$\beta_1 > 0; \beta_2 > 0; \beta_3 > 0; \beta_4 > 0; \beta_5 > 0; \beta_6 > 0;$$

As in the Cobb-Douglas production function, the  $\beta$ s are the parameters. The value of the  $\beta$  is the elasticity which tells us the magnitude by which the changes in the respective independent variable affects the dependent variable (Mordi, 1992).

### **Results and Discussion**

In this section, the results of the descriptive and econometric analyses carried out in this study with the data obtained and the discussion is presented as follows.

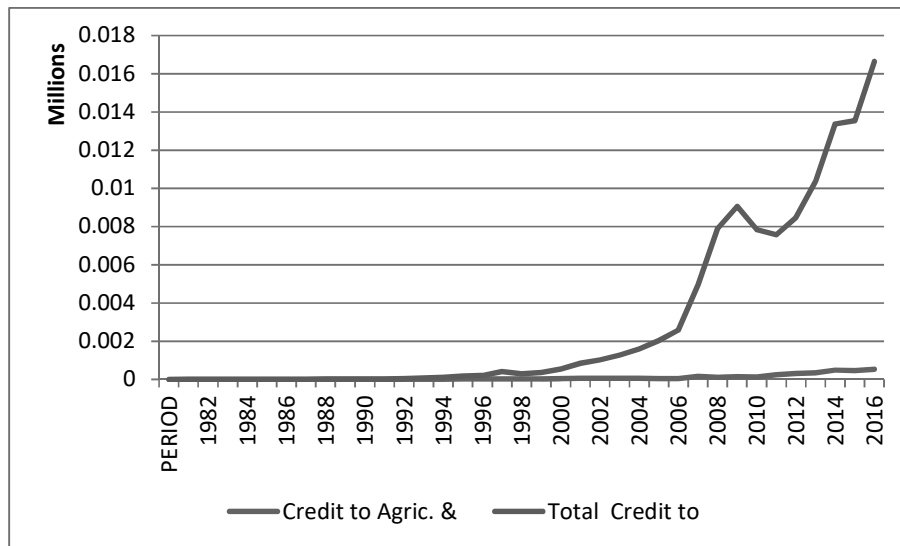
#### ***Descriptive Statistics***

**Commercial Banks:** Commercial bank's total loans and advances to the Nigerian economy grew from N8.60 billion in 1981 to N16,117.20 billion in 2016. Similarly, loans and advances by commercial banks to the Nigerian agricultural sector grew from N0.6 billion in 1981 to N525.90 billion in 2016. Thus, between 1981 and 2016 loans and advances to the agricultural sector by commercial banks averaged N96.64 billion which constituted 8.75 per cent of the total loans and advances by commercial banks to the Nigerian economy (see Table 1, Fig. 1 and Fig. 2).

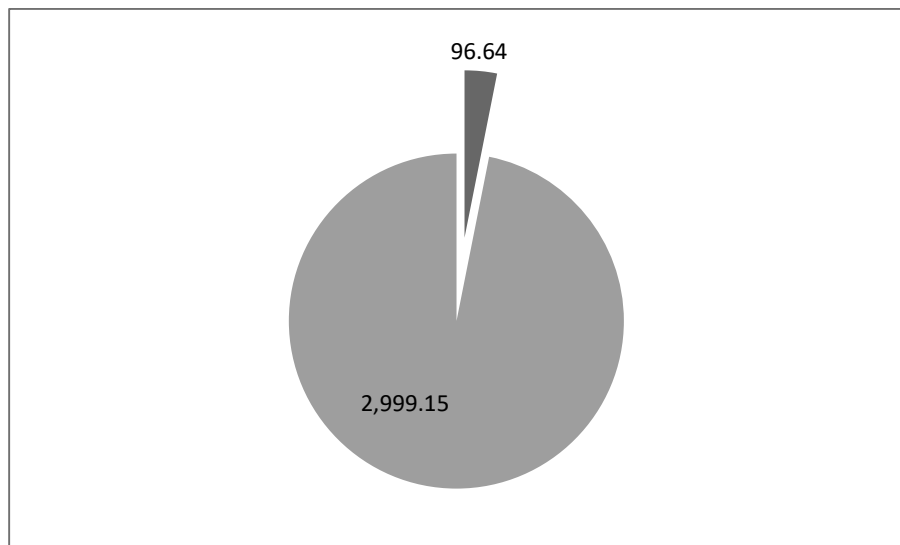
**Table 1: Trend in Private Sector Finance to the Agricultural Sector (1981-2016)**  
**in Billion Naira**

Period	Commercial Banks' Loan to Agriculture and Forestry	Commercial Banks' Total Credit To the Economy	Commercial Banks' Loans to Agriculture as % of Total	Total Loans Disbursed Under the Agric. Credit Guarantee Scheme
1981	0.6	8.60	6.98	0.04
1982	0.8	10.30	7.77	0.03
1983	0.9	11.10	8.11	0.04
1984	1.10	15.50	7.10	0.02
1985	1.30	12.20	10.66	0.04
1986	1.80	15.70	11.46	0.07
1987	2.40	17.50	13.71	0.10
1988	3.10	19.60	15.82	0.12
1989	3.50	22.00	15.91	0.13
1990	4.20	26.00	16.15	0.10
1991	5.00	31.30	15.97	0.08
1992	7.00	42.70	16.39	0.09
1993	10.80	65.70	16.44	0.08
1994	17.80	94.20	18.90	0.10
1995	25.30	144.60	17.50	0.16
1996	33.30	169.40	19.66	0.23
1997	27.90	385.60	7.24	0.24
1998	27.20	272.90	9.97	0.22
1999	31.00	322.80	9.60	0.25
2000	41.00	508.30	8.07	0.36
2001	55.80	796.20	7.01	0.73
2002	59.80	954.60	6.26	1.05
2003	62.10	1,210.00	5.13	1.16
2004	67.70	1,519.20	4.46	2.08
2005	48.60	1,976.70	2.46	3.05
2006	49.40	2,24.30	1.96	4.26
2007	149.60	4,813.50	3.11	4.43
2008	106.40	7,799.40	1.36	6.72
2009	135.70	8,912.10	1.52	8.53
2010	128.40	7,706.40	1.67	7.74
2011	255.20	7,312.70	3.49	10.19
2012	316.40	8,150.00	3.88	9.71
2013	343.70	10,005.60	3.44	9.42
2014	478.90	12,889.40	9.06	13.00
2015	449.30	13,086.20	3.43	11.44
2016	525.90	16,117.20	3.26	8.10
Average	96.64	2,999.15	8.75	2.89

Source: Central Bank of Nigeria Statistical Bulletin, December, 2016. CBN, Abuja.



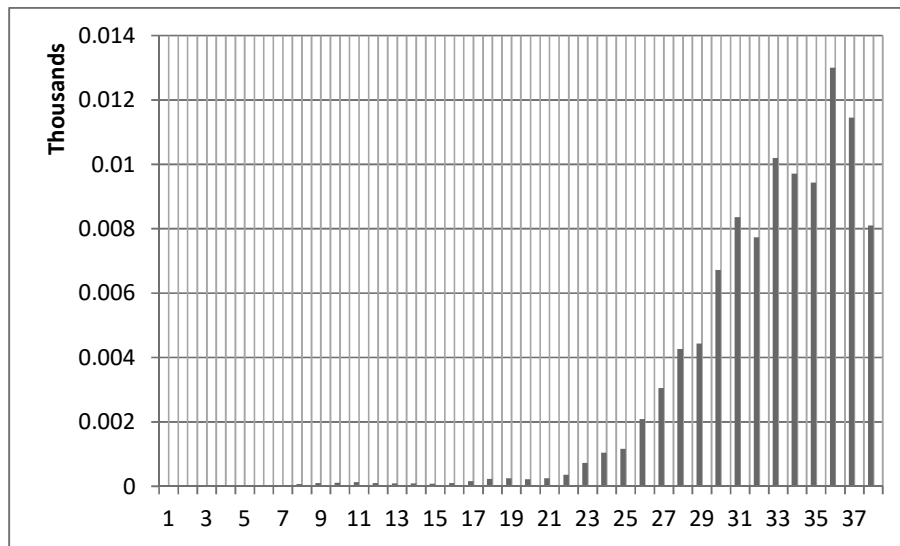
**Figure 1: Trend in Commercial bank's total loans and advances to the Nigerian economy and to the Agricultural Sector (1981-2016)**



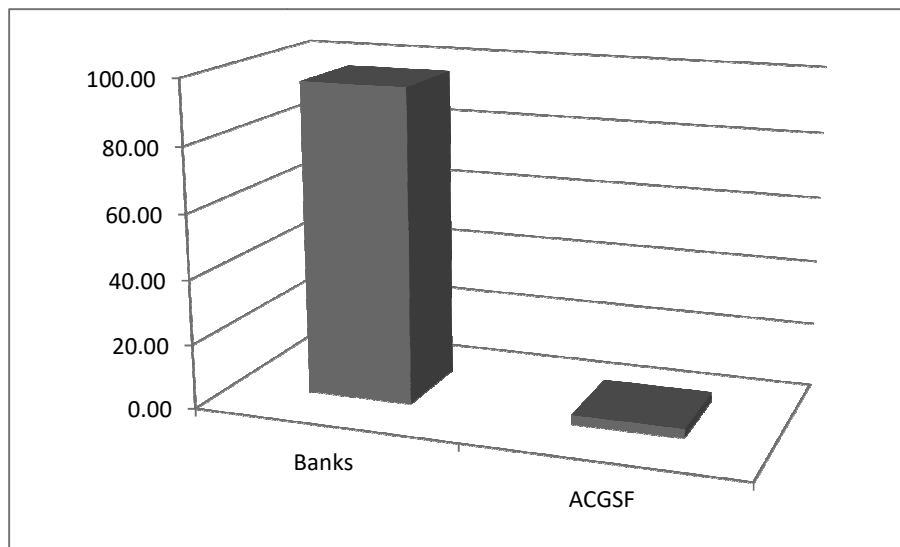
**Figure 2: Average Loans and advances to the agricultural sector by commercial banks as a percentage of total loans to the economy (1981-2016) in billion Naira**

**4.1.2. Agricultural Credit Guarantee Scheme Funds (ACGSF):** Total loans granted to farmers in Nigeria under the ACGSF doubled between 1981 and 1991 to N0.04 and N0.08 billion, respectively. By 2001, ACGSF loans increased almost tenfold from the 1991 level to N0.73 billion and peaked at N13.00 billion in 2014 before it declined to N8.10 billion in 2016. Thus, between 1981 and 2016, farmers received an average of N2.89 billion under the ACGSF. However, average loans disbursed to farmers under the ACGSF between 1981 and 2016 represents just 3.0 per cent of that given by commercial banks to the agricultural sector in the same period (see Table 1, Fig. 3 and Fig. 4).





**Fig. 3: Total Loans granted to farmers under the ACGSF from 1981 to 2016 (in Thousand Naira)**



**Fig. 4: ACGSF average loans to farmers as a proportion of commercial banks' loans to the agricultural sector in Nigeria between 1981 and 2016 (in Billion Naira)**

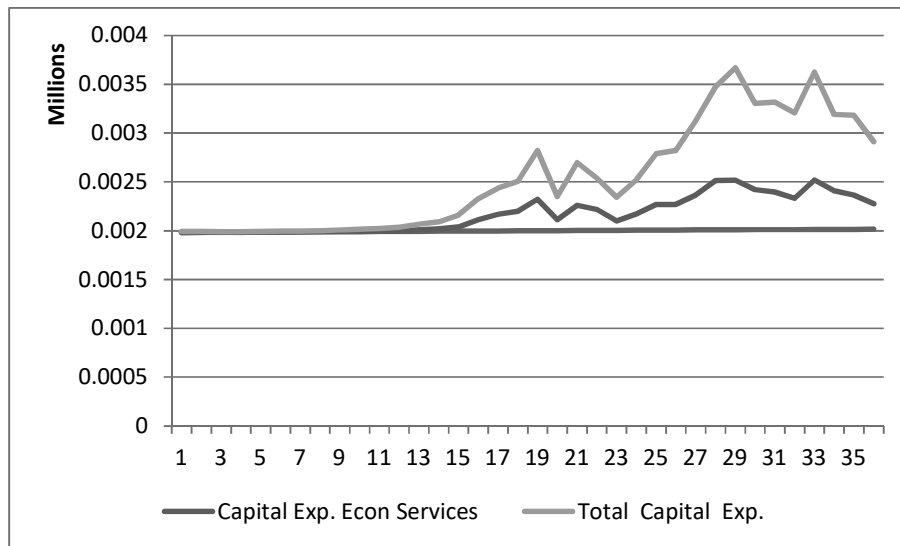
#### 4.1.3. Federal Government Recurrent Expenditure for the Agricultural Sector (1981-2016):

Federal Government of Nigeria recurrent expenditure for the agricultural sector maintained a steady increase from N0.01 billion in 1981 to N59.32 billion in 1999, after which it declined drastically to N6.34 billion the following year. From 2001 it increased gradually and peaked at N65.4 billion in 2008. In 2009 it declined to about a third of the 2008 level at N22.44 billion and has maintained an unsteady projection until 2016 when the sum of N36.58 billion was allocated to the agricultural sector by the Federal Government as recurrent expenditure. Thus, an average of N14.59 billion was allocated to the agricultural sector as recurrent expenditure by the Federal Government between 1981 and 2016 which constituted only 1.30 per cent of total Federal Government recurrent expenditure (see Table2, Fig. 5 and Fig. 6).

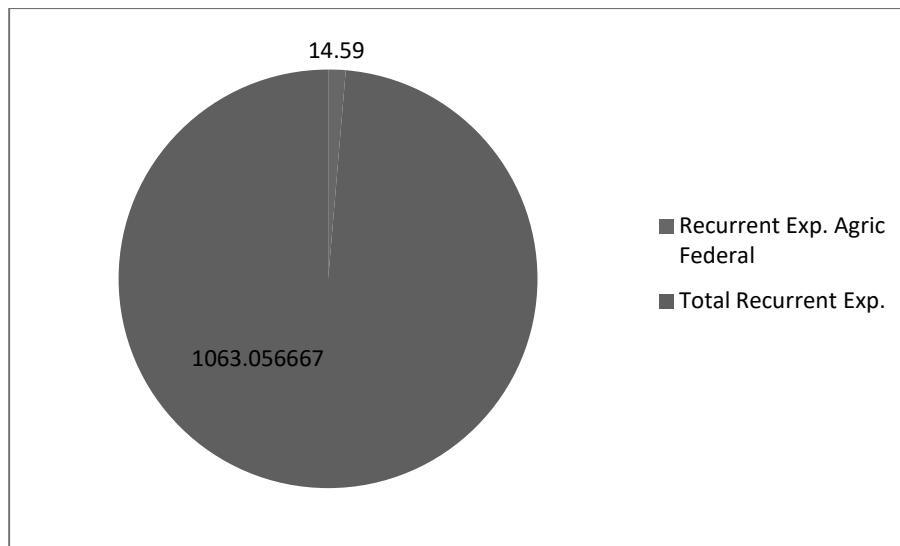
**Table 2: Trend in Public Sector Finance to the Agricultural Sector (1981-2016) in Billion Naira**

Period	Fed. Govt. Rec. Exp. on Agric.	Fed. Govt. Total Rec. Exp.	Rec. Exp. On Agric. As % of Total	Fed. Govt. Cap. Exp. On Econ. Sectors	Fed. Govt. Total Cap. Exp.	Cap. Exp on Econ. Sec. As % of Total
1981	0.01	4.85	0.2	3.63	6.57	55.3
1982	0.01	5.51	0.2	2.54	6.42	39.6
1983	0.01	4.75	0.2	2.29	4.89	46.8
1984	0.02	5.83	0.3	0.66	4.1	16.1
1985	0.02	7.58	0.3	0.89	5.46	16.3
1986	0.02	7.7	0.3	1.1	8.53	12.9
1987	0.05	15.65	0.3	2.16	6.37	33.9
1988	0.08	19.41	0.4	2.13	8.34	25.5
1989	0.15	25.99	0.6	3.93	15.03	26.1
1990	0.26	36.22	0.7	3.49	24.05	14.5
1991	0.21	38.24	0.5	3.15	28.34	11.1
1992	0.46	53.03	0.9	2.34	39.76	5.9
1993	1.8	136.73	1.3	18.34	54.5	33.7
1994	1.18	89.97	1.3	27.1	70.92	38.2
1995	1.51	127.63	1.2	43.15	121.14	35.6
1996	1.59	124.49	1.3	117.83	212.93	55.3
1997	2.06	158.56	1.3	169.61	269.65	62.9
1998	2.89	178.1	1.6	200.86	309.02	65.0
1999	59.32	449.66	13.2	323.58	498.03	65.0
2000	6.34	461.6	1.4	111.51	239.45	46.6
2001	7.06	579.3	1.2	259.76	438.7	59.2
2002	9.99	696.8	1.4	215.33	321.38	67.0
2003	7.54	984.3	0.8	97.98	241.69	40.5
2004	11.26	1,110.64	1.0	167.72	351.25	47.7
2005	16.33	1,321.23	1.2	265.03	519.47	51.0
2006	17.92	1,390.1	1.3	262.21	552.39	47.5
2007	32.48	1,589.27	2.0	358.38	759.39	47.2
2008	65.4	2,117.36	3.1	504.29	960.89	52.5
2009	22.44	2,127.97	1.1	506.01	1,152.8	43.9
2010	28.22	3,109.44	0.9	412.2	883.87	46.6
2011	41.2	3,314.51	1.2	386.4	918.55	42.1
2012	33.3	3,325.16	1.0	320.9	874.7	36.7
2013	39.43	3,214.95	1.2	505.77	1,108.39	45.6
2014	36.7	3,426.94	1.1	393.45	783.12	50.2
2015	41.27	3,831.98	1.1	348.8	818.4	42.6
2016	36.58	4,178.59	0.9	261.28	634.79	41.2
Average	14.59	1,063.06	1.3	175.2	368.1	40.8

Source: Central Bank of Nigeria Statistical Bulletin, December, 2016. CBN, Abuja.



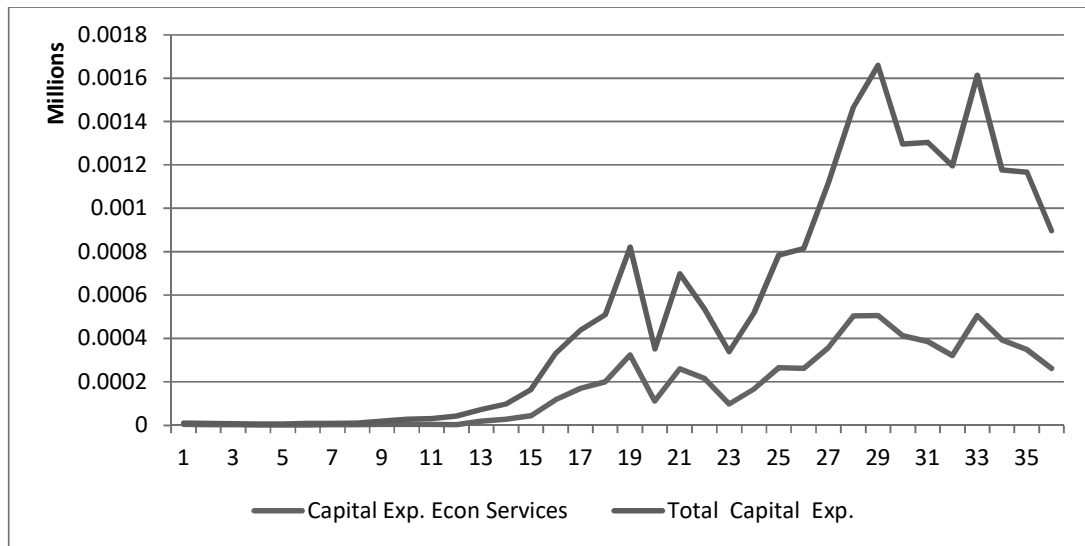
**Fig. 5: Trend in Federal Government Recurrent Expenditure (1981-2016)**



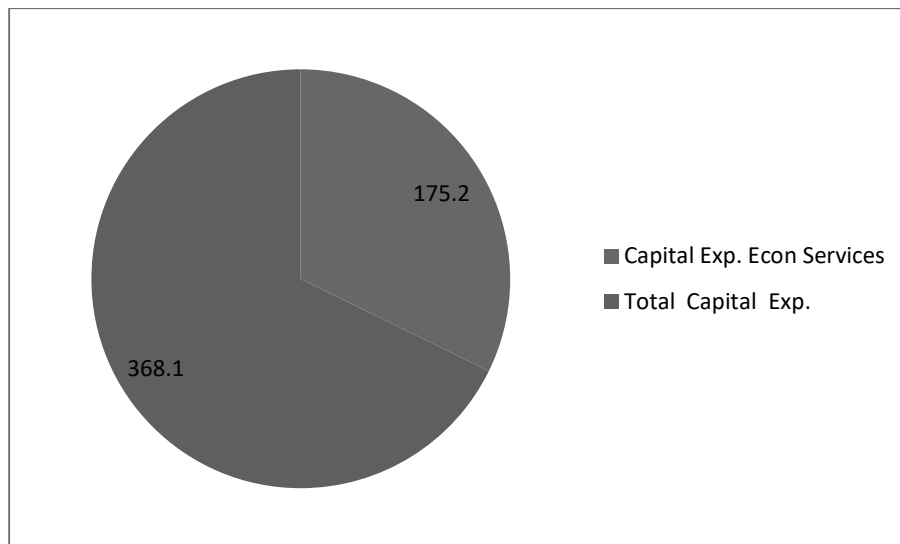
**Fig. 6: Average Federal Government Recurrent Expenditure to the Agricultural Sector as a per cent of Total (1981-2016) in billion Naira**

**4.1.4. Federal Government Capital Expenditure for Economic Services (1981-2016):** Federal Government capital expenditure for economic services covers; agriculture, road and construction, transportation and communication and other economic services. This data is not disaggregated. The Federal Government of Nigeria allocated the sum of N3.63 billion to economic services for capital expenses in 1981 and this constituted 55.3 per cent of total Federal Government capital expenditure that year. Subsequently, the amount and proportion maintained a downward trend for most of the years until 1993 when the sum allocated to the economic sectors as capital expenditure; improved substantially to N18.34 billion and constituted 33.7 per cent of total Federal Government capital expenditure that year. This upward trend was maintained till 1999 when economic services received N323.58 billion and this constituted 65.0 per cent of total Federal Government capital expenditure. It

declined to about a third of the 1999 sum in 2000 at N111.51 billion, which constituted 46.60 per cent of total. Federal Government capital expenditure for allocated to economic services increased again in 2001 to N259.76 billion, constituting 59.20 per cent of total. Since then Federal Government capital expenditure allocation to economic services has assumed a haphazard movement. Though it peaked at N506.01 billion in 2009, constituting 43.9 per cent of total, while it declined to N261.28 billion in 2016 and its proportion of total Federal Government capital expenditure also declined to 41.2 per cent. On average, the Federal Government of Nigeria allocated N175.20 billion to economic services between 1981 and 2016 and this constituted 40.80 per cent of total capital expenditure of the Federal Government (see Table 2, Fig 7 and Fig 8).



**Fig. 7: Trend in Total Federal Government Capital Expenditure and allocation to Economic Services (1981-2016)**



**Fig. 8: Average Federal Capital Expenditure Allocation to Economic Services as a percentage of Total (1981-2016) in billion Naira.**

**4.1.5. Trend in Nigeria's Agricultural Gross Domestic Product (GDP) (1981-2016):** Nigeria's agricultural real gross domestic product grew consistently from N2,364.37 billion in 1981, constituting 15.50 per cent of Nigeria's real total gross domestic to N16,607.30 billion in 2016 when it constituted 24.40 per cent of total. Growth in Nigeria's real total GDP on the other hand has not maintained the same consistency as that of the agricultural sector, which confirms the resilience of this sector. Nigeria's total real GDP declined compared with their preceding years between 1982 and 1984, 1991, and 2016 (Table 3). On average, agricultural real GDP has amounted to N7,156.40 billion and this constitutes 21.30 per cent of total real GDP in Nigeria between 1981 and 2016, which is very substantial and demonstrates how important the sector is in the Nigerian economy (Table 3, Fig. 9 and Fig. 10).

**Table 3: Trend in Nigeria's Agricultural Gross Domestic Product (1981-2016) in Billion Naira**

Period	Total Gross Domestic Product (GDP) National	Agricultural Sector GDP	%age Contribution of Agric. To Total GDP in Nigeria
1981	15,258.0	2,364.37	15.5
1982	14,985.08	2,425.96	16.2
1983	13,849.73	2,409.08	17.4
1984	13,779.26	2,303.51	16.7
1985	14,953.91	2,731.06	18.3
1986	15,237.99	2,986.84	19.6
1987	15,263.93	2,891.67	18.9
1988	16,215.37	3,174.57	19.6
1989	17,294.68	3,325.95	19.2
1990	19,305.63	3,464.72	17.9
1991	19,199.06	3,590.84	18.7
1992	19,620.19	3,674.79	18.7
1993	19,927.99	3,743.67	18.8
1994	19,979.12	3,839.68	19.2
1995	20,353.2	3,977.38	19.5
1996	21,177.92	4,133.55	19.5
1997	21,789.1	4,305.68	19.8
1998	22,332.87	4,475.24	20.0
1999	22,449.41	4,703.64	21.0
2000	23,688.28	4,840.97	20.4
2001	25,267.54	5,024.54	19.9
2002	28,957.71	7,817.08	27.0
2003	31,709.45	8,364.83	26.4
2004	35,020.55	8,888.57	25.4
2005	37,474.95	9,516.99	25.4
2006	39,995.5	10,222.47	25.6
2007	42,922.41	10,958.47	25.5
2008	46,012.52	11,645.37	25.3
2009	49,856.1	12,330.33	24.7
2010	54,612.26	13,048.89	23.9
2011	57,511.04	13,429.38	23.4
2012	59,929.89	14,329.71	23.9
2013	63,218.72	14,750.52	23.3

2014	67,152.79	15,380.39	22.9
2015	69,023.93	15,952.22	23.1
2016	67,931.0	16,607.30	24.4
Averages	31,757.0	7,156.4	21.3

Source: Central Bank of Nigeria Statistical Bulletin, December, 2016. CBN, Abuja.

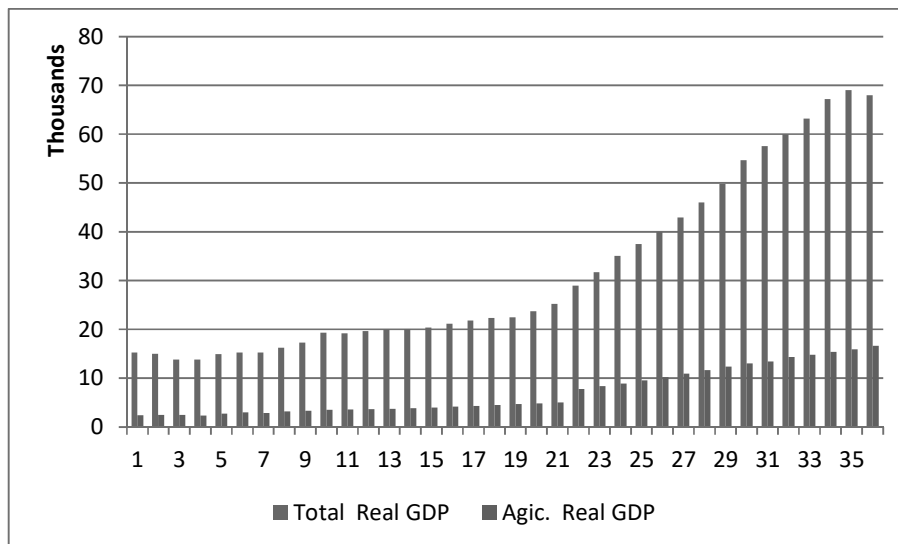


Fig. 9: Trend in Nigeria's Real GDP (1981-2016) in Billion Naira

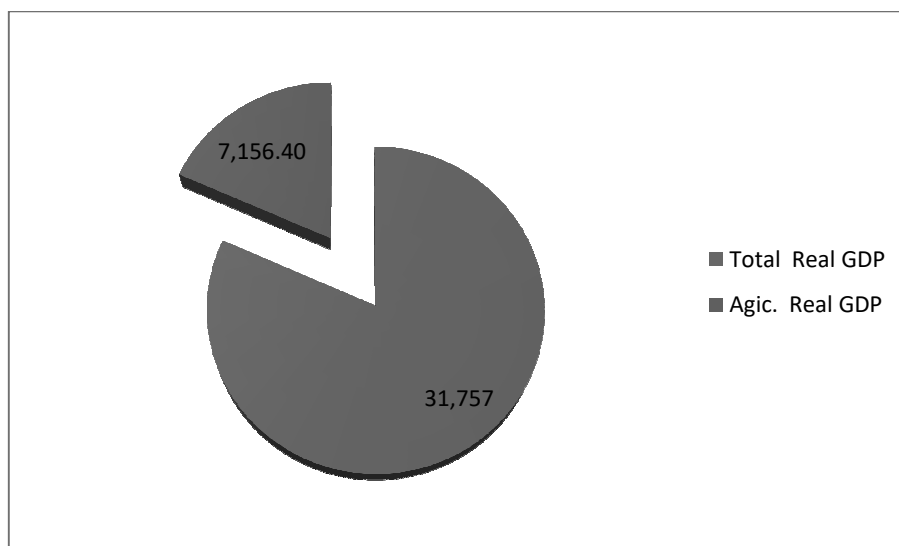


Fig. 10: Nigeria's Agricultural Real GDP as Per cent of Total

### ***Result of the Econometric Analysis***

**Table 4: Summary of the Ordinary Least Square Regression Analysis Result**

<b>Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Statistics</b>	<b>Probability</b>
LGFCF	0.100732	0.027948	3.604322	0.0012
LLAB	4.665313	2.595236	1.797645	0.0830
LACG	0.234916	0.017377	13.51871	0.0000
LGRA	0.049996	0.017430	2.868476	0.0078
LCBA	0.062348	0.027030	2.306632	0.0287
LGCE	-0.083238	0.023129	-3.598935	0.0012
C	2.699432	10.08780	0.267594	0.7910
R-Squared	0.992050			
Adj. R-Squared	0.990346			
S.E. of regression	0.063818			
Sum Squared resid	0.114036			
Log likelihood	50.55245			
F-Statistics	582.3333			
Prob (F-Stat)	0.000000			
Durbin Watson	1.709661			

Source: Researcher's computation using EViews 10

As can be gleaned from Table 4, the result of the multiple regression analysis carried out in this study is very robust with an R-squared of 0.9921, which shows that 99.2 per cent of the variation in the dependent variable AGDP (agricultural sector real gross domestic product) was explained by the six independent variables in the model.

In line with a priori expectation, virtually all the independent variables exhibited positive relationship with the AGDP and were significant. Loan granted to farmers under the agricultural credit guarantee scheme (ACG) has a positive effect on AGDP with a coefficient of 0.2349 and was highly significant at one per cent. Similarly, commercial banks' credit to the agricultural sector was significant at five per cent and had a positive coefficient (0.0623). Thus, private sector finance can be said to have positive effect on agricultural development in Nigeria.

Gross Fixed Capital Formation (GFCF) as well as labour force variable (LAB) also impacted AGDP positively as their coefficients were positive (0.1007) and (4.6653) respectively. GFCF was highly significant at one per cent while LAB was significant at 10 per cent.

As regards public finance, Federal Government recurrent expenditure on agriculture fulfilled a priori expectation with a positive coefficient of 0.0500, and was significant at five per cent. However, Federal Government capital expenditure for economic services (which include agriculture) was significant at one per cent, but had a negative coefficient (-0.0832), which implies that Federal Government capital expenditure did not impact the agricultural sector positively.

### ***Diagnostic Tests***

The study conducts some diagnostic tests in order to ensure that the model is free from some of the violations associated with OLS regression analysis. The Durbin Watson Test is used to check for the presence of autocorrelation, the Breusch-Pagan-Godfrey heteroskedasticity test is used to detect the presence of heteroskedasticity and the Jarque-Bera Statistics is used to check whether the errors are normally distributed. The results are presented in Table 5.

**Table 5: Diagnostic Tests**

<b>Diagnostic tests:</b>	<b>Probability</b>
<b>Breusch-Pagan-Godfrey heteroskedasticity test</b>	0.0782
<b>Jarque-Bera Statistics</b>	0.108

Source: Researcher's computation using EViews 10

It is expected that the Durbin Watson (DW) test statistics should be approximately 2 in order to conclude that there is no autocorrelation. The result as indicated in Table 4 reveals that the DW test statistics is 1.710, therefore, it can be concluded that the errors are free from autocorrelation. It is expected that both the Breusch-Pagan-Godfrey heteroskedasticity test and the Jarque-Bera Statistics should have a probability value less than 5 percent. As indicated in Table 5, the probability values are greater than 5 percent, therefore, the errors are considered to be normally distributed and free from heteroskedasticity.

### **Summary, Conclusions and Recommendations**

This study set out to examine the effect of public and private sector finances on the development of the agricultural sector in Nigeria in view of the importance of the sector to the overall development of the country. Despite the fact that oil exports constitute a substantial proportion of Nigeria's export earnings, its importance in the GDP is lower than that of agriculture. For instance, the contribution of crude petroleum and natural gas to the nations GDP declined drastically from 15.78 per cent in 2012 to 5.29 per cent in 2016, whereas, the agricultural sector contributed 23.90 and 24.40 per cent to the nations GDP in these respective periods (CBN, 2016). Unfortunately, crude oil price has been on the decline in the last four years and Nigeria is a price taker. It is against this backdrop that there has been call from every quarter for diversification of the Nigerian economy (Egbuomwan, 2016). In view of the resilience the Nigerian agricultural sector has demonstrated in recent years and the abundant agricultural resources available in the country, it is obvious that if the sector is focused on the Nigerian economy will benefit greatly. However, the process of economic transformation and development requires the participation of all the interest groups in an economy which includes the public and private sectors and hence, the focus of this research studies.

Empirical results from this study has confirmed that private sector finance has impacted agricultural sector development positively in Nigeria in the period of the study through the loans disbursed to farmers under the agricultural credit guarantee scheme and loans and advances granted by commercial banks in the country to the agricultural sector. This result is in line with that obtained by Olokoyo, Taiwo and Akinjare (2016), in their study on the impact of banks' activities on economic development in Nigeria. The authors concluded that deposit money banks loans and advances do have impact on the development of the Nigerian economy and therefore recommended that banks should improve on mobilization of resources and how such resources are allocated. As regards public finance, Federal Government recurrent expenditure allocated to the agricultural sector impacted the sector positively, while the Federal Government capital expenditure allocated to the sector did not. This may not be unconnected with the findings of Ben-Caleb, Adeyemi and Iyoha (2013), whose study concluded that budgetary reforms had not been able to tame the spate of indiscipline in Nigeria's budgetary process. The authors were of the opinion that there is a gap between policy intentions and their actual achievements. To close this gap, the authors recommended among others that violation of budget rules should be appropriately sanctioned.

It is therefore recommended that all the policies put in place by the Monetary Authorities to encourage flow of credit to the agricultural sector be sustained. Similarly the Federal Government should continue to sustain its recurrent expenditure to the Nigerian agricultural sector and overhaul its capital budgeting processes and provisions so as to make a positive impact on the development of this very important sector of the economy. Adequate provision should be made for agricultural



infrastructure in order to modernize and develop the sector for sustainable development of the Nigerian economy in general.

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