ANALYSIS OF THE IMPACT OF AGRICULTURAL SECTOR ON ECONOMIC GROWTH IN NIGERIA: AN ARDL APPROACH

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ABSTRACT

This paper empirically analyzed the impact of agriculture on economic growth in Nigeria using ARDL technique. The technique has been applied to analyze the data to examine both the short-run and long-run relationship that exist between the variable over the period 1980-2017. The result of the ARDL Bound test shows the existence of the long-run positive significant relationship between agricultural sector output, government spending on agriculture, Foreign direct investment and economic growth while unemployment and inflation rate has a negative significant relationship with economic growth in Nigeria during the period under review. The findings of the study further revealed that over the years the agricultural sector has been neglected and as such its contribution to GDP has been dwindling since the discovery of crude oil. Therefore, the study recommends that government should provide incentives to farmers in form of loan and also subsidized the cost of farm inputs, they should ensure effective utilization of both monetary and fiscal policy tools to regulate the economy to control inflation and job opportunities should be created for the jobless youths.

KEYWORDS: Agriculture, Economic growth.

1. INTRODUCTION

Everywhere in the world, agricultural production is central to the overall wellbeing of the populace and it is a vital tool for poverty eradication as well as economic development especially in most of the third world countries (Muftaudeen & Abdullahi 2014). This is why most of the countries place a high premium on agriculture and strive to develop and protect the sector to guaranteeing sustainable food security, employment opportunities and sustainable economic growth among others. In Nigeria, attempts to effectively manage the channel of the flow of financial resources to the agricultural sector, financial institutions were mandated to support the agricultural sector via credit quotas (Omoyiwola et al 2003). Nigeria is blessed with fertile and cultivable arable land running into millions of hectares' across different regions suitable for crop cultivations and livestock breeding, miles of flowing rivers and resourceful Atlantic ocean with varieties of fishes and vast rich forest belt. Yet the country finds it difficult to produce basic food items to feed its teeming population. Nigeria spends over 2.5billion

dollars approximately N400billion annually on importation of food items from less endowed countries like Thailand and Indonesia.

In Nigeria, agriculture has a rich history, and the progressive role it had played in the past, its produce serves as raw materials, fast-tracked the industrial revolution in Europe pioneered by the British, fueling its engines with palm oil from Benin. Our ancestors, though technologically backward as compared to what is obtain presently (advancement in science and technology) were almost farming with bare hand using crude implement yet they produced enough food crops to feed themselves and also produced cash crops for export abroad from their first contact with the outside world through trans Saharan trade to the end of Atlantic trade (Emeh 2017).

The industrial revolution in Europe that required agricultural material to strive, led our fathers to brace the challenges and exported the needed materials like palm oil, timbers, element tusks and other products running into millions of tonnes. During the pre-independence struggles and shortly after independence, before the discovery of petroleum in commercial quantities, faced with the task of nation-building and economic development, agriculture again beckoned and became the mainstay of the national economy, agriculture played a pivotal role in laying the foundation for economic growth and social infrastructural development in Nigeria. If the necessary attention is paid to agriculture and needed investment made to develop the sector and its potentials fully harnessed, it will provide employment opportunities for the teeming unemployed youths currently loitering the main street of various cities. It will equally be guaranteed amongst others things, alternative sources of foreign exchange, poverty alleviation, food security, rural empowerment, eradication of youth restiveness and militancy and place the economy on the part of sustainable economic growth.

As reflected in table 1, the percentage share of agriculture to GDP in 1990 stood at 31.15% which later increased to 32.97% in 1991, experienced a mild decline in 1992 with about 0.05% this decline continue to re-occurred up to 2010. The contribution of the sector to GDP was at its lowest point in 1990 (31.15%) and it reaches its peak in 2002 (43.89%).

Table 1 NIGERIA: Contribution of agriculture to GDP (1990-2017)

Year	Total GDP	Agriculture as a Share GDP	Share Agriculture as % total GDP	Share Agriculture as % of total GDP
1990	267,550.0	83,344.6	31.15	-1.55
1991	265,379.1	87,503.5	32.97	1.82
1992	271,365.5	89,345.4	32.92	-0.05
1993	274,833.3	90,596.5	32.96	0.04
1994	275,450.6	92,833.0	33.70	0.74
1995	281,407.4	96,220.7	34.10	0.49
1996	293,745.4	100,216.2	34.12	-0.07

1997	302,022.5	104,514.0	34.60	0.48
1998	310,890.1	108,814.1	35.00	0.4
1999	312,183.5	114,570.7	36.70	1.7
2000	329,78.7	117,945.1	35.83	-0.87
2001	356,994.3	122,522.3	34.32	-1.51
2002	433,203.5	190,133.4	43.89	9.57
2003	477,533.0	203,409.9	42.60	-1.29
2004	527,576.0	216,208.5	40.98	-1.62
2005	561,931.4	213,463.6	41.19	0.21
2006	595,821.6	248,599.0	41.72	0.53
2007	634,251.1	266,477.2	42.01	0.29
2008	672,202.6	283,175.4	42.13	0.12
2009	716,949.7	299,996.4	41.84	-0.29
2010	775,552.7	316,728.7	40.84	-1.00
2011	746251.2	308362.5	41.34	-0.64
2012	760901.95	299,996.4	41.34	0.53
2013	753576.58	283,175.4	41.09	0.59
2014	634,251.1	316,728.7	41.21	0.49
2015	746251.2	299952.05	41.15	0.61
2016	786251.2	308340.38	41.18	0.62
2017	775,552.7	304146.21	41.16	0.40

SOURCE: CBN Statistical Bulletin, and National Bureau of Statistics, Various issues

Despite the general decline witnessed during the period, some pockets of improvement as recoded by growth rates can be seen dotted here and there. It is the realization of this fact that the government of the nation initiated several agricultural reforms and policies aimed at improving the performance of the sector. These include but not limited to National Accelerated Food Production Programme (NAFPP), Agricultural Development Projects (ADPs), Operation Feed the Nation (OFN), Fadama I and II National Economic Empowerment Development Strategy (NEEDS), Agricultural Trade Policy and agricultural subsidies etc.

Given the foregoing, the paper aims to empirically analyze the impact of the agricultural sector on the sustainable economic growth of Nigeria. The present study differs from earlier studies because it considered the embodiment of agricultural sector as a whole and its contribution to GDP, unlike earlier studies which concentrate on a specific segment of agriculture and its contribution to GDP. This paper differs from previous studies such as Maftaudeen & Abdullahi 2014 who concentrated their studies on crop subsector. In the same vain Kamil et al (2017) used time series data spanning from 1981-2013 which is the period of 32years. Also, Emeh (2017) used time-series data from 1984 through 2015 which is a period of 31years. This study,

however, differs from theirs because the period of 1980-2017 was used which is 37years. This gives it a wider coverage than theirs.

1.2 Objectives of the study

1. To examine the impact of agricultural output on the economic growth of Nigeria
2. To examine the past and present agricultural policies in Nigeria
3. To critically examine the influenced of inflation and unemployment on the economic growth of Nigeria

1.3 Conceptual Definitions

Agriculture involves the cultivation of land, raising and rearing of animals for providing food for human consumption, raw materials for industries and feed for animals (Abayomi, 1992). Conceptually Sustainable economic growth refers to a rate of growth which can be maintained without creating other significant economic problems, especially for future generations

1.4 A Review of Agricultural Reforms in Nigeria.

Nigerian agricultural development was fully decentralized with the states and regions as centres of activity, while the federal government provided support. This enabled a region/state-specific strategy or approach, but which generally involved a combination of private sector/small farmer and government direct production approaches. Eboh (2007) pointed out that earlier public policy instruments included the series of National Development Plans coordinated at the National level from the first (1962-68), the second (1970-74), third (1975-80) and the fourth (1981-85). This was followed by the Structural Adjustment Plan (SAP) in 1986 which made efforts at making the sector commercially competitive and remunerative and tried to proffer solution Nigeria's defective mono-cultural economic imbalance through a diversification programme to drastically reduce dependency on the oil sector and imports. The policy package focused on the improvement of domestic supply of agricultural raw materials, domestic food production, production of exportable cash crops and rural employment.

Pre-SAP policies were generally public sector-driven and mainly targeted initiatives at improving agricultural production. Some of the specific policies around this period include: The National Accelerated Food Production Programme (NAFPP) started in 1972, Agricultural Development Projects (ADPs) were set up in various parts of the country starting from 1975. Partly financed by the World Bank, these projects were to promote integrated rural development by providing facilities for intensive extension services, modern input supplies and distribution system and rural infrastructures, especially feeder roads. Operation Feed the Nation (OFN), which started in 1976, was aimed at curtailing massive food importation into the country.

Agricultural Credit Guarantee Scheme was set up, under the Central Bank to mobilize funds from the banking sector for rural development to guarantee loans by the commercial banks for investment in agriculture

The Land Use Act was meant to facilitate an effective utilization and exploitation of the land resources for agricultural purposes. Other policy instruments include the New National Agricultural Policy, the National Economic Empowerment and Development Strategy (NEEDS), the Presidential Initiatives on Commodities, the Agricultural Trade Policy, and the Food Security Policy. There is also the President Yar' Adua's 7-Point Agenda and the Export Expansion policy instruments (Idachaba, Ezedinma and wole 2005).

2. LITERATURE REVIEW

2.1 Theoretical Literature review

Most of the economist who is a strong advocate of endogenous growth theory opine that enhanced productivity can be linked to a faster pace of innovation and extra investment in human capital. They believe that government and private institution which are an essential tool for nurturing innovation should provide the right incentives for individual and business to be inventive. An advocate of endogenous growth theory thinks that there are externalities to be exploited from the development of a high value-added economy which can develop and maintain a competitive advantage in fast-growth inclusive within the world economy.

The main points of emphasis of the endogenous growth theory include: Rate of technological progress should not be taken as permanent or constant in the growth model, Government policies have the capacity of raising the countries growth rate if the policies are geared towards encouraging more intensive competition in the market and help in the augmentation of product and process innovations, There are increasing returns to scale from new capital investment, The assumption of the law of diminishing return is questionable. The assumptions postulated by endogenous growth theorist has been refuted by most empirical studies. They suggest that macro-policies have no much influence on labour force growth, therefore it does not matter the deed of the government.

Romer (1986) & Lucas (1988) developed the endogenous growth theory because of the deficiencies inherent in Slow-Swan Neo-classical growth model. Endogenous growth theory is a new theory that explains the process of attaining sustainable economic growth in output as a result of endogenous factors. Endogenous theory asserted that technological changes can be endogenous and that changes in the stock of capital that is both human and non-human may generate positive externalities and it is not necessarily subjected to diminishing returns.

2.2 Empirical Literature review

Looking at the impact of macroeconomic policies on agricultural output specifically on crop production in Nigeria, Muftaudeen & Abdullahi (2014) Found a cointegrating relationship among Agricultural output, government expenditure, agricultural credit, inflation interest and exchange rate. The long-run result reveals that agricultural output is responsive to changes in government spending, agricultural credit, inflation rate, interest rate and exchange rate. The study adopted a multivariate vector error correction approach spanning from 1987 to 2011".

Also, the findings reveal that food security is threatened in the short, medium and long term due to one standard deviation innovation on government expenditure and interest as this will reduce agricultural output. Also, Oji-okoro (2011) analysed the contribution of the agricultural sector on the Nigerian economic development. Panel data were used for the study which was analyzed using multiple regression method from1986 to 2007. The finding of the study revealed a positive relationship between GDP, domestic saving, government expenditure on agriculture, foreign direct investment. Ekpo (2017) did an empirical investigation on the impact of agriculture on the economic growth of Nigeria using Ordinary Least Square method to analyse the data. The finding of the study shows a positive significant relationship between GDP and agricultural output in Nigeria. Abula (2016) examined the impact of agricultural output on economic development using annual time series data from 1986 to 2014. The variable used for the study include economic development proxied by per capita income (PCI), public agricultural expenditure (PXA) and agricultural output (AOUT) Augmented Dickey-Fuller unit root test and the Vector Autoregressive model was used as a tool for the analysis. The result of the findings shows that all the lagged terms are statistically significant which shows that agriculture plays an important role in Nigeria's economic development. Moreover, Ojide et al (2017), examine agriculture, economic growth and development nexus in Nigeria. The quantitative technique is employed in a multivariate model VAR model with an emphasis on the Variance Decomposition Analysis with the aid of E view 7. The study revealed that the sector has been neglected and the whole attention is paid on the crude oil which has caused dwindling of agricultural sector contributions to Economic growth. The study concludes that agriculture is a life-wire of the economy. Ojiya et al (2017) investigate the effect of agricultural output on agricultural productivity in Nigeria from 1990 to 2016. The finding of the study revealed an inversed relationship between government expenditure and agricultural output.

Regarding the impact of agriculture on the economic growth of Nigeria from 1984 to 2015. (Emeh 2017) investigated it and the findings of the study show that agricultural output and inflation rate did not significantly impact real gross domestic product while interest rate on agriculture credit and deposit money bank loans to agriculture has a significant impact on real gross domestic product. Also, Oluwafemi et al (2015) analyzed the Contribution of Agricultural Sector to Nigerian Gross Domestic Product. The coefficient of R2 was about 0.96 and the coefficient of agricultural output was found positive and statistically significant at 1% level. The coefficient of ECM (u-1) was significant at 1% level and this implies that GDP cointegrated with agricultural output and inflation. Olajide et al. (2012) analyzed the relationship between Agricultural resource and economic growth in Nigeria using the Ordinary Least Square regression method. The results reveal a positive cause and effect relationship between gross domestic product (GDP) and agricultural output in Nigeria. The agricultural sector is estimated to contribute 34.4 per cent variation in the gross domestic product (GDP) between 1970 and 2010 in Nigeria. Fredrick and Manasseh (2014) investigates the impact of FDI on economic growth from 1980Q1-2009Q4. Endogenous growth model was employed for the study with

emphases on the impact of FDI inflow into agriculture, manufacturing and telecommunication sectors in Nigeria. The result of the findings showed that FDI into manufacturing and telecommunication sector have positive impact on economic growth in Nigeria while FDI into agricultural sector impacted on economic growth negatively. Meanwhile Ade et al (2011) test Foreign Direct Investment (FDI) corruption and economic growth in Nigeria and direction of such a relationship from 1990 to 2010. Gross Domestic Product (GDP) was used as a proxy for economic growth, total foreign direct figure as proxy for corruption, the results of the finding showed that there is a significant relationship between the level of corruption and the inflow of foreign direct investment into Nigeria within the period cover by the study. The impact of corruption on foreign direct investment inflow was negative from the ordinary least square result. Finally Ishola et at (2013) investigate the impact of government expenditure on agriculture and economic growth of Nigeria using time series data spanning from 1980 to 2010. The findings of the study shows a positive significant relationship between government expenditure on agriculture and economic growth

3.0 Material and method

This study adopts a non-experimental research design approach. The data used were obtained from secondary sources.

3.1 **Sources of data collection**

The data for this study were secondary and sourced from the publication of the World Bank Database and Central Bank of Nigeria (CBN) statistical bulletin for various issues. The data spanning the period 1980 to 2017 (37 years). The data from this period present a considerable degree of freedom that is necessary to capture the effect of explanatory variables on the dependent variables. Furthermore, data sourced from the World Bank can be reliable because many studies have employed the data published by this institution for econometric purposes due to its reliability.

3.2 Variables adopted for the study

Variables adopted for the study are Economic Growth which is proxied by Real Gross Domestic Product (RGDP) which is a macroeconomic measure of the value of economic output adjusted for price changes. It is used as the dependent variable, Agricultural-output (AGROT) which is proxied by total agricultural output, Inflationary rate (INFR) is the rate at which prices increase over time, resulting in fall in the purchasing value of money. Unemployment (UNEMP) which measures the total number of the jobless person within the economy. Foreign direct investment (FDI) is an investment in form of controlling ownership in a business in one country by an entity based in another country. Government expenditure on agriculture are spending efforts in productive means through increase for sustainable development in the agricultural sector.

3.3 Method of data analysis

The method of data analysis adopted for this study is ARDL. The techniques were adopted due to its advantages over other time-series technique of data analysis. Some of these advantages are: it's a more robust econometrics technique for estimating the level relationship between a dependent variable and a set of independent variables that may not necessarily be integrated of the same order, the model is used in determining the long-run relationship between series with a different order of integration (Pesaran & Shin 1999).

3.4 Estimation procedures

The study made use of Augmented Dickey-fuller and Phillip-perron test to ascertain the level of stationarity of the variables, a Bound test was carried to test for a coin-integrating relationship between the variables. Furthermore, the diagnostics test of Autocorrelation, Heteroscedasticity and normality test was carried out.

3.5 Model specification

The basic steps of ARDL approach are built upon involves the estimation of the level relationship once the order of the model is recognized, then testing the existing long-run relationship and estimating series of small or finite size (Pesaran et al; 2001). It is a fact that bound testing has the advantage of avoiding pre-testing problem involved in unit root test, but since the mixture of the series order cannot exceed 1(1) for the estimation to be valid, unit root testing will be necessary to ensure that none of the variables is 1(2). As a result of the above statement (chigusiwa et al 2011)asserted that if the variables are 1(2), the computed F-statistics of the bound test is rendered invalid because they are based on the assumption that the variables are 1(0) or 1(1) or mutually cointegrated. The estimated equation 1can be expressed as:

RGDP = F (AGROT, INFR, UNEMP, GEA, FDI)----------1

Where

RGDP = Real gross domestic product

AGROT= Agricultural output

INFR = Inflation rate

UNEMP = Unemployment

GEA= Government Expenditure on Agriculture

FDI= Foreign Direct Investment

from equation 1 ARDL model can be written such as

$$\Delta RGDP_t = \beta_0 + \ln RGDP_{t-1}\ \delta_1 \ln AGROT_{t-1} + \delta_2 INFR_{t-1} + \delta_3 UNEMP_{t-1} + \delta_4 \ln GEA_{t-1} +$$

$$\delta_5 \ln FDI + \sum_{t=1}^{n} \emptyset_i\ \Delta RGDP_t + \ln \Delta RGDP_{t-1} + \sum_{t=0}^{m} \varphi_j \Delta \ln AGROT_{t-1} + \sum_{t=0}^{m} \gamma_l \Delta INFR_{t-1} + \sum_{t=0}^{m}$$

$$\alpha_m \Delta UNEMP_{t-1} + \sum_{t=0}^{m} \ln GEA + \sum_{t=0}^{m} \ln FDI + \varepsilon_t \quad \ldots\ldots (2)$$

Where δi are the long-run multipliers, β_0 is the intercept and εt are white noise errors. The first step in the ARDL bounds testing approach is to estimate equation (2) by Ordinary Least Squares (OLS) to test for the existence of a long-run relationship among the variables by conducting an F-test for the joint significance of the coefficients of the lagged levels of the variables, that is: H_0; δ1= δ2= δ3= δ4 = δ5= δ6= 0 against the alternative

H_1; δ1≠ δ2≠ δ3≠ δ4 ≠ δ5≠ δ6≠0

We denote the test which is normalized on RGDP by FRGDP (AGROT, INFR, UNEMP, GEA, FDI)]. Two asymptotic critical value bounds provide a test for cointegration when the independent variables are I(d) [where 0≤d≤1]: a lower value assuming the regressors are I(0) and an upper value assuming purely I(1) regressors. If the F-statistic is above the upper critical value, the null hypothesis of no long-run relationship can be rejected irrespective of the orders of integration for the time series. Conversely, if the test statistic falls below the lower critical value, the null hypothesis cannot be rejected. Finally, if the statistic falls between the lower and upper critical values, the result is inconclusive. The approximate critical values for the F-statistic test were obtained from Pesaran, Shin and Smith (2001). Once cointegration is established the conditional ARDL (n, m_1, m_2, m_3, m_4, m_5) long-run model for HD_t can be estimated as:

$$\Delta RGDP_t = \beta_0 + \delta_1 \; RGDP_{t-1} + \sum_{t=0}^{m} \delta_2 \, AGROT_{t-1} + \sum_{t=1}^{m} \delta_3 \, INFR_{t-1} + \sum_{t=1}^{m} \delta_4 \, UNEMP_{t-1} + + \sum_{t=1}^{m} \delta_5 \, GEA_{t-1} + \sum_{t=1}^{m} \delta_6 \, FDI_{t-1} \, \varepsilon_t \quad \ldots\ldots (3)$$

This involves selecting the orders of the ARDL (P, q1, q2, q3,) model in the six variables using Aikaike Information criteria (AIC) and Schwartz information criteria (SIC). The next step is to obtain the short-run dynamic parameters by estimating an error correction model associated with the long-run estimates. This is specified as:

$$\Delta \, RGDP_t = \beta_0 + \sum_{t=1}^{n} \emptyset_i \, \Delta \ln RGDP_{t-1} + \sum_{t=0}^{m} \varphi_j \Delta \ln AGROT_{t-1} + \sum_{t=1}^{m} \gamma_l \Delta \, INFR_{t-1} + \sum_{t=1}^{m} \alpha_m \Delta \, UNEMP_{t-1} + \sum_{t=1}^{m} \delta_5 \ln GEA_{t-1} + \sum_{t=1}^{m} \delta_6 \ln FDI_{t-1} \, \varepsilon_t \quad \ldots\ldots (4)$$

Here, ϕ, φ, ω, η, θ, and γ is the short-run dynamic coefficients of the model's convergence to equilibrium and ϑis the speed of adjustment. Where ε_t is the error correction mechanism represent the coefficient of the ECM term.

4.0 Results and Discussion

4.1 Unit root test

It is necessary to perform unit root test on the variables to ensure that none of the variables is integrated of the order of two 1(2) the Augmented Dickey-fuller and Phillip –Perron test has been applied to test for stationarity of the variable. The result is as shown in table 4.1

Table 4.1 Result of augmented Dickey-Fuller and Phillip-Perron Unit Root TEST

Variable	Trend ADF	Trend& intercept	Trend PP	Trend &intercept
GDP	-5.136080*	-5.057475*	-5.155004*	-5.058216*
AGROT	2.522026	-1.114704	2.459386	-1.114704
INFR	-2.833137	-3.481330	-2.747139	-2.817397
UNEMP	0.353283	-1.692822	0.209342	-1.741389
GEA	-2.884731*	-3.962475*	-2.756360*	-3.824730*
FDI	-0.027817	-1.503995	0.684591	-2.570894
ΔGDP	-9.784265	-9.630643	-15.45049	-15.04307
ΔAGROT	-4.588881*	-5.728750*	-4.644942*	-5.728750*
ΔINFR	-5.515405*	-5.429013*	-10.54835*	-10.78452*
ΔUNEMP	-4.928905*	-5.156368*	-4.920126*	-5.157588*
ΔGEA	-5.593821	-5.522980	8.447165	-5.522980
ΔFDI	-3.395063***	-3.319512***	-3.242643***	-3.205980***

For ADF and PP, the null hypothesis is that the variable has a unit root (i.e. non-stationary) *, ** and *** represent the level of significance at 1%, 5% and 10% respectively while Δ denoting the order of integration.

Source: Authors' Computation using Eview Version 9.

Table 4.1 present the result of unit root test both at the level and at a different level. The summary of the result revealed that Gross domestic product (GDP) and Government expenditure on agriculture (GEA) is stationary at level 1(0) while Agricultural output (AGROT), Inflation rate (INFR), Foreign direct investment (FDI) and Unemployment (UNEMP) is stationary at first difference 1(1). Since our variables have a different order of integration the application of ARDL has theoretical support.

Table 4.2 Bound Test Result

DEPENDENT VARIABLE	FUNCTION	F.STATISTIC
GDP	RGDP(RGDP,AGRO,INFR,UNEMP,GEA, FDI)	5.442774
AGRO	AGRO(AGRO,RGDP,INFR,UNEMP,GEA, FDI)	6.640127
INFR	INFR(INFR,RGDP,AGRO,UNEMP,GEA,FDI)	2.578377
UNEMP	UNEMP(UNEMP,INFR,RGDP,AGRO, GEA, FDI)	2.840336
GEA	GEA(GEA FDI, UNEMP, INFR, AGRO,RGDP)	4.562345
FDI	FDI (FDI, GEA, UNEMP, INFR, AGRO, RGDP)	5.23450
Asymtotic critical value	10% 5%	1%
Lower bound	2.37 2.79	3.65
Upper bound	3.2 3.67	4.66

Source: Authors' Computation using Eview Version 9.

Table 4.2 report bound test result on the con-integrating relationship between dependent and independent variables. The result reveals that there exists a long-run relationship between GDP and other dependent variables. Also when AGRO, GEA and FDI is made dependent variable it shows the existence of a long-run relationship with other variables.

Table 4.3 Short-Run Result

VARIABLE	COEFFICIENT	T.STATISTIC	PROBABILITY
ΔINFR	-0.472720	-2.811574	0.0089
ΔUNEMP	-2.914468	-2.462024	0.0202
ΔAGRO	0.000317	0.089774	0.09291
ΔGEA	0.004278	5.9177773	0.0001
ΔFDI	0.000014	0.402524	0.06950
COINTEQ (-1)	-0.0826620, -4.520946	0.0024	00000

Source: Authors' Computation using Eview Version 9.

The result of short-run analysis as shown in table 4.3 shows that INFR has negative impact on GDP at 1% level of significant in the short-run. The implication of this is that increase in prices of goods and services in the short-run will discourage people from buying goods and services

this will lead to reduction of the volume of money in circulation within the economy and a such detrimental to the RGDP of the country.

In relation to Government expenditure on agriculture the results shows a positive significant impact on RGDP. This means that as Government increases spending on agricultural activities a corresponding increase will be seen on RGDP. In the same FDI has positive significant impact on RGDP. This simply entails that increase in FDI will lead to increase in RGDP this is in line with the study of Oji-okoro (2011). The result of unemployment shows a negative and significant relationship with RGDP. The implication is that increase in unemployment will lead to decrease in RGDP mean while AGRO has a positive and significant relationship with RGDP this means that increase in AGRO will lead to increase in RGDP in the short-run. This is not surprising because various government policies reforms on agriculture such as fadama ii and iii as well as Anchor borrowers and other government programmes are ongoing in the nation (Olajide et al. 2012).

Table 4.4 Long-Run Coefficient of the Cointegrating Vector Normalized on RGDP

REGRESSORS			
RGDP			
VARIABLE	COEFFICIENT	T-STATISTICS	P-VALUE
AGRO	0.929332	3.162800	0.0042*
INFR	-0.118740	-1.675309	0.00177*
UNEMP	-0.227479	-0.525161	0.03083*
GEA	0.001524	4.873624	0.0005
FDI	0.000378	3.995743	0.0021

(*), (**) and (***) indicate 1%, 5% and 10% level of significance respectively.

Source: Authors' Computation using Eview Version 9.

From table 4.4 it can be seen that the normalized cointegration equation indicate that AGRO is positively related to RGDP in the long-run and significant at 1% level. This simply means that increase in agricultural output in Nigeria would positively influenced the RGDP. This is not surprising because various government policies reforms on agriculture such as fadama ii and iii as well as Anchor borrowers and other government programmes which are geared towards total transformation of the country are ongoing in the country this is in line with the study of (Olajide et al. 2012).

The result of the relationship between inflation rate and GDP indicate that fluctuation of price has negative impact on economic growth. Based on the economic theories it is obvious that increase in inflation will raise the nominal price of goods and services, this will discourage investors because of the eroding power of money. This will have a multiplier effect on economic growth because the total monetary value of goods and services within the economy will drastically reduce as a result of inflation. Inflation can be regulated by the government via the

use of macroeconomic policies instrument to regulate economic affairs of a country in line with the set objective (Muftaudeen & Abdullahi 2014).

The government can either use monetary or fiscal policy tools as an instrument to regulate the economy. Monetary policy can be define as the deliberate attempt to control money supply and credit condition through manipulation of interest rate for achieving certain broad economic objectives such as stability in exchange rate, achievement of employment objective and economic growth (Wrightsman, 1976). Monetary policy can either be expansionary or contractionary, it is expansionary if the government want to increase the volume of money in circulation within the economy while contractionary is aimed at reducing the quantum of money in circulation or raising interest rate.

Fiscal policy tool involves the use of government expenditure, tax and subsidies inform of reliefs to promote growth. These are categorized into two types viz: Automatic stabilizers and discretionary fiscal policy. Automatic stabilizers relate to government spending in tax while discretionary fiscal policy is a deliberate action taken by government in order to achieve certain macroeconomics objectives (Muftaudeen & Abdullahi 2014).

Also from table (3) there is a negative relationship between unemployment and gross domestic product at 1% level of significance. This therefore means that increase in unemployment will lead to decrease in gross domestic product of the nation under the period cover by the study.

Table 4.5 Diagnostic test

Tests	Coefficient	Pro.
Autocorrelation (LM Stat)	0.122511	0.8852
Normality	1.019722	0.3173
Heteroskedasticity	2.085784	0.3173

Source: Authors' Computation Using Eview Version 9.

Table 4.5 present the result of various diagnostics tests and the result suggests that no serial correlation problem with an insignificant Breusch-Godfrey serial correlation LM statistic probability value (0.8852) while the value of the Jarque-Bera for the model is 1.019722 with an insignificant probability 0.3173 it could, therefore, be construed that the model is normal and thus fit for policy recommendation. The test of hypothesis for the presence of heteroskedasticity show a very low probability (0.3173) which shows that the model is heterogenous therefore accepted.

Figure 1 Cusum Graph for Stability Test

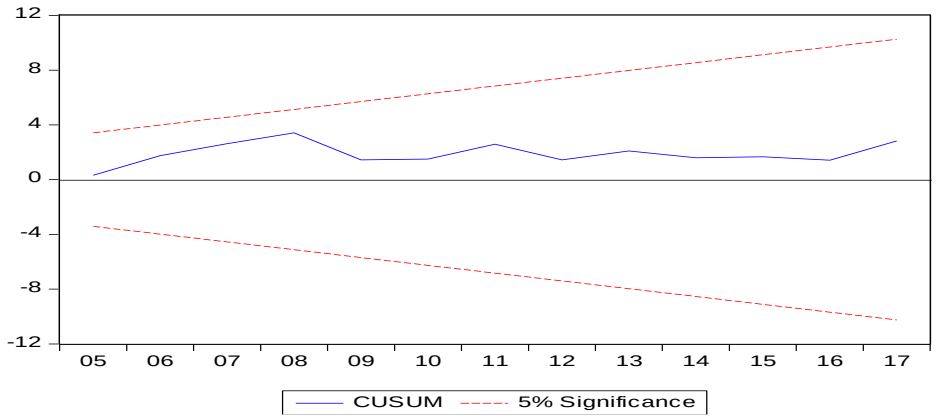
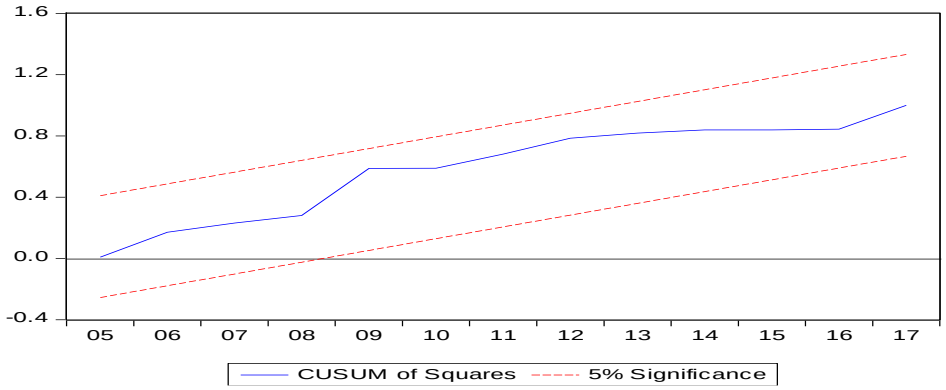


Figure 2 Cusum of Square Plot for Stability Test



The result of the Cusum and CUSUMQ test is presented in figure 1 and 2.The graph indicate that the model is stable, since CUSUM line lie within the 5percent critical bound.

5. Conclusion and recommendations

The paper empirically analyzed the impact of agriculture on economic growth of Nigeria using ARDL model. The autoregressive distributed lag model (ARDL) has been applied with the aid of Econometrics View package (e-View) version 9 to analyze the data to examine both the short-run and long-run relationship that exist between the variable from 1980 through 2017. The Augmented Dickey-Fuller and Phillip-Perron test result reveal that GDP and GEA is stationary at level 1(0) while agricultural output, Foreign direct investment, inflation rate and unemployment are stationary at first difference 1(1), the findings of the study shows the existence of the long-run positive significant relationship between agricultural output, government expenditure on agriculture, foreign direct investment and economic growth while unemployment and inflation rate has a negative significant relationship with economic growth

in Nigeria under the period covered by the study. The finding of the study also shows that over the years the sector is neglected and as such its contribution to GDP has been dwindling since the discovery of crude oil. Consequently, an obstacle to the effective performance of agriculture as well as solutions to the aforementioned obstacle to the effective performance of agriculture was identified and the possible policy recommendation was proffered. As a result of the findings of this study the following recommendations were made:

Firstly government should set up a measure that will boost agricultural output in Nigeria by providing incentives to farmers, provide loans to farmers, subsidizing the cost of agricultural inputs such as fertilizer, machines, herbicides and insecticides.

Secondly, the government should effectively and efficiently employ both monetary and fiscal policy to regulate the amount of money in circulation to control the inflation rate.

Thirdly government should ensure that employment opportunity is provided to eradicate joblessness for if people are gainfully employed, that would positively impact GDP.

Finally government should tax holidays to foreign investors for this will help in attracting foreign investors into the country.

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