American Journal of Business, Economics and Management
2013; 1(1): 9-15
Published online December 20, 2013 (http://www.openscienceonline.com/journal/ajbem)

Analysis of factors influencing agricultural output in Nigeria: Macro-economics perspectives

Kareem, R.O[1], Bakare, H.A[1], Raheem, K.A[1], Ologunla, S.E[1], Alawode, O.O[2], Ademoyewa, G.R[3]

[1]Dept. of Economics and Actuarial Sciences,College of Social and Management Sciences,Crescent University, Abeokuta, Nigeria
[2]Dept. of Agricultural Economics, University of Ibadan, Oyo State, Nigeria
[3]Nigerian Institute of Social & Economic Research, Ibadan, Oyo State, Nigeria

Email address

rskventures@yahoo.com(Kareem, R.O)

To cite this article

Kareem, R.O, Bakare, H.A, Raheem, K.A, Ologunla, S.E, Alawode, O.O,Ademoyewa, G.R. Analysis of Factors Influencing Agricultural Output in Nigeria: Macro-economics Perspectives. *American Journal of Business, Economics and Management*. Vol. 1, No. 1, 2013, pp. 9-15.

Abstract

This research is on the Analysis of factors influencing Agricultural output in Nigeria:Macro-economic perspectives. The study seeks to determine the factors influencing agricultural production in Nigeria; determine the causality between Agricultural outputs and macro economic variables and to proffer recommendations based on research findings.The study adopts regression analysis, descriptive statistics and the Granger causality tests on macro economic variables (i.e. Food import value, Interest rate, Commercial bank loans on Agriculture, GDP growth rate and Foreign direct investment) to find the significant relationship between the different variables chosen.The result shows fluctuations in the trend of variables considered (i.e. Interest rate, Commercial bank loans on Agriculture, GDP growth rate and Foreign direct investment) in relation to the period under review. The result shows that 95% of the variations in the dependent variable were explained by the explanatory variables i.e. (FOOD, IRATE, LOAN, GDP, and FDI). The result further shows that foreign direct investment; commercial bank loan, interest rate and food import value have positive relationship with Agricultural output (y), while GDP surprisingly had a negative impact on dependent variable.The result of Granger causality test also shows that FOOD Granger cause AGRIC at 10% level of significance, AGRIC Granger cause LOAN at 5% level of significance, GDP Granger cause AGRIC at 5% level of significance, FOOD Granger cause LOAN at 1% level of significance, FOOD Granger cause GDP at 10% level of significance, FDI Granger cause FOOD at 5% level of significance. The results concluded that food import, Interest rate, commercial loan and foreign direct investment were factors that contributed to Agricultural output in Nigeria.

Keywords

Agricultural Output, Macro-Economic Variables, GDP, Descriptive Statistics and Regression Analysis.JEL Codes:N57, Q18, B22, C01, C32

1. Background to the Study

The development of agriculture in Nigeria has been slow in spite of the various agricultural policies. In fact, governments have formulated and introduced a number of programmes and strategies aimed at remedying these situation since 1970s. These measures included the setting up of large – scale mechanized farms by state and federal governments, introduction of scheme such as the river basin development authority (RBDA), National Acceleration Food Production (NAFP), Operations Feed the Nation (OFN), Green Revolution (GRP) and the Directorate of Food, Road and Rural Infrastructure (DFRRI). In addition to these measures, financial measure such as the establishment of agricultural credit scheme were introduced by successive governments. Among, the role of agriculture, is the provision of food for the teeming population and the supply of adequate raw materials to the growing industrial sectors of the economy (Niser 2002).

Nigeria agricultural development policies over the years have been informed by the relief that the development of agriculture is a "sine qua non" for the overall growth and development of the economy. Agriculture is the largest non-oil export earner and largest employer of labour accounting for 88% of the non- oil foreign exchange earnings and 70% of the active labour force of the population (FGN 2010).

However, over the years the growth rate of agricultural production as either stagnated or failed to keep pace with the countries rapid population growth rate of about 3.2 percent resulting in perennial food shortage, continuous souring food prices and massive importation of food by government while food production increase at the rate of 2.5%, food demand increases at a rate of more than 3.5 percent (FOS 1996). It is very obvious that the sustainable growth rate of the Nigeria economy cannot be achieved in the absence of increased agricultural output in the country. Harsch (2004) noted that higher output would directly reduce hunger and bring down the costs of food import as well as have wider economic benefits, stimulating rural incomes and provide raw material for African countries.

Increase in agricultural productivity is often linked with questions about sustainability and sustainable development. Change in agricultural practice necessarily brings change in demands on resources. This means that as region implement measure to increase the productivity of their farm land, they must also find ways to ensure that future generations will have the resources they will need to live and thrive. However, Oji –Okoro (2011) stated that agricultural sector is the largest sector in the Nigeria economy with its dominant share of GDP, employment of more than 70% of the active labour force and the generation of labour with 88% of non-oil foreign exchange earnings. Development economists have focused on how agriculture can best contribute to overall economic growth and modernization. The physiocrats laid more emphasis on agriculture in the development of an economy. In their views, the development of an economy depends on the growth of the agriculture. The agriculture sector to the physiocrats is the only genuinely productive sector of the economy and the generator of surplus upon which all human beings depend.

Tombofa (2004) reported that the state of agriculture is of paramount importance to the development process. He pointed out that agriculture provides the basis for the worlds' great civilization in the past and the increase in agricultural productivity in England laid the basis for, and sustained the first industrial revolution. The agricultural sector is known to employ over 75% of the labour force in developing countries and provide the purchasing power over industrial goods.

Iganiga and Unemhilin (2011) studied the effects of federal government agricultural expenditure and other determinants of agricultural output on the value of agricultural output in Nigeria. A Cobb-Douglas growth model was specified that included commercial credit to agricultural sector, consumer price index, annual average rainfall, population growth rate, food importation and GDP growth rate. The study performed comprehensive analysis of data and estimated capital expenditure was found to be positively related to agricultural output.

Oji-Okoro (2011), employed multiple regression analysis to examine the contribution of agricultural sector on the Nigerian economic growth and development. He found out a positive relationship between gross domestic products (GDP), domestic savings, and government expenditure on agriculture as well as foreign direct investment between the periods of 1986-2007. It was also revealed in the study that 81% of the variation in GDP could be explained by, domestic savings, government expenditure and foreign direct investment.

Using time series data, Lawal (2011), attempted to verify the amount of federal government expenditure on agriculture in the thirty years period (1979-2007) .Significant statistical evidence obtained from the analysis showed that government spending does not follow a regular pattern and that the contribution of the government agricultural sector funding to the GDP is a direct relationship. Thus, a strong correlation that has been established between Nigeria total GDP and agriculture suggested that the prospects of the non-oil sub-sector and the overall economy are usually tied to the performance of the agricultural sector.

1.1. Statement of the Problem

The contribution of agriculture to the Nigerian economic growth is very low compared to what it used to be in the past. Nigerian agriculture to a large extent still posses the characteristics of a peasant economy that was prominent in the pre-independence period. Agricultural productivity has seriously declined over the past five decades and has resulted into high incidence of rural poverty. Moreso, Nigerian economy has since independent seems to be experiencing a downward trend due mainly to inadequate finance of agricultural sector (Okorie 1998). Diito, Nigeria faces acute shortage of food as a result of its low agricultural productivity (Okoiliya 2003). In light of the above mentioned facts, what exactly are the factors influencing agricultural output in Nigeria? The objectives of the study are: describe the trend of macroeconomic variables of Nigeria economy between 1977-2011; determine factors affecting domestic agricultural production in Nigeria; determine the causality between agricultural output and macro – economic variables, and proffer recommendations based on research findings.

1.2. Justification of the Study

It is a known fact that, the economic and physical well-being of this country will depend on increasing and stabilizing agricultural productivity through more effective practices and technologies (NEPAD 2002). The role of agriculture in transforming the economic framework of any economy cannot be overemphasized given that it is the

source of food for man and animal and provides raw materials for the industrial sector. Thus, it plays a significant role in the reduction of poverty of most nations (Nwankwo, 1993).

2.Research Methodology

2.1. Study Area

The study area is Nigeria. Nigeria is one of the sub-Sahara African nations in the western part of the Africa and share land border with the Republic of Benin to the west, Chad and Cameroon to the east, Niger republic to the north and its coast lies on the Gulf of Guinea (Wikipedia 2009). In Nigeria demarcation by climate regions proposes that three regions exist, the Far South, the far North and the rest of the country. The far South is defined by its Tropical forest climate where annual rainfall is 60 to 80 inches per year. The far North is defined by it almost desert like climate where rainfall is less than 20 inches per year. The rest of the country, everything is between the far North and the far South, its savannah and rainfall between 20-60 inches per year (Nation Master 2009).

2.2. Sources of Data

The data used was obtained from the Central Bank of Nigeria statistical bulletin (CBN bulletin) of various issues. The study was defined to cover a period of 35 years (1977-2011).

2.3. Method of Data Analysis

In order to investigate the relationship that exist between the independent variable and explanatory variables, this research adopted the following procedures:

2.3.1. Unit Root Test

The paper conducted the unit root test on the variables by employing the Augmented Dickey Fuller (ADF) to test the characteristics of the variables with a view to determining the order of integration.

2.3.2. Granger Causality Test

The paper examined the causal relationship between the dependent and explanatory variables by employing the Granger causality test.

2.3.3. Regression Analysis

This was used to determine factors influencing agricultural output in Nigeria. However, all the above mentioned techniques were analyzed using E-view version 5.1 for the data spanning from 1977-2011.

2.4. Model Specification

$Y = f(X_1, X_2, X_3, X_4, X_5, U)$-Implicit function

Where;

Y = Agricultural output (tonnes)

X_1= Food import values (in millions)

X_2= Interest Rates (%)

X_3= Commercial bank loan on Agriculture (in millions)

X_4= GDP growth rate in (%)

X_5= Foreign Direct Investment (FDI) in millions

U= Error terms

$\delta 0$, β_1-β_5- parameters to be estimated

Ln= Natural logarithm

The following production functions were explicitly fitted to the model:

Linear function: $Y = \delta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U$

Semi-log function: $Y = \delta_0 + \beta_1 \text{Ln} X_1 + \beta_2 \text{Ln} X_2 + \beta_3 \text{Ln} X_3 + \beta_4 \text{Ln} X_4 + \beta_5 \text{Ln} X_5 + U$

Exponential function: $\text{Ln} Y = \delta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 x_4 + \beta_5 X_5 + U$

2.5. Apriori Expectations

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$ but β_2<or> 0. All the variables are expected to have positive or negative depending on the market rate of interest.

3. Results and Discussion

3.1. Descriptive Statistics

Descriptive statistic involves the use of graphs to show the trends of all variables used in the research. This was used to achieve the first objectives, which is to describe the trends in Agricultural output and other variables considered in this study over the years under review (1977-2011)

FIGURE 1: The Trend of Agricultural Output (1977-2011)

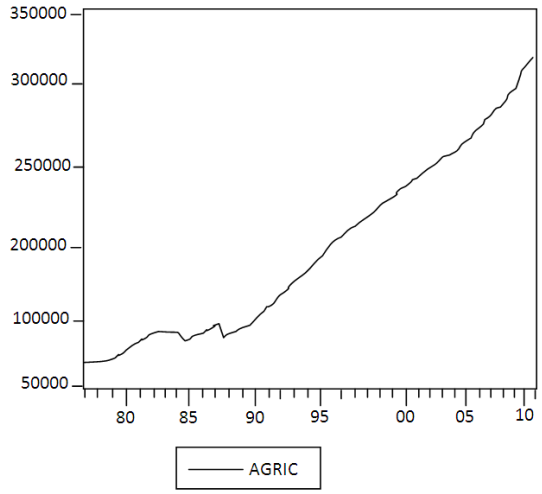

Figure 1.*Trend of agricultural output between 1977 and 2011*

Figure 1 shows the trend of agricultural output over the years. The y-axis shows the agricultural output values and the x-axis shows the years under review. The results shows that agricultural output has been rising gradually from 1985

and it falls at a point in 1988 and between 1990 and 2000 there was a gradual increase in the output but it rose sharply between 2005 to 2011.

3.1.2. Interest Rate (1977-2011)

Figure 2 shows the trend of interest rate over the years. It shows that interest rate rose from 1978 and fell back in 1980; it rises and fell continuously over the years.

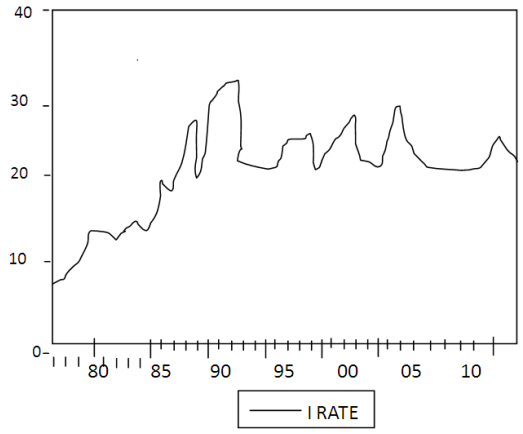

Figure 2. *Trend of interest rate between 1977and 2011*

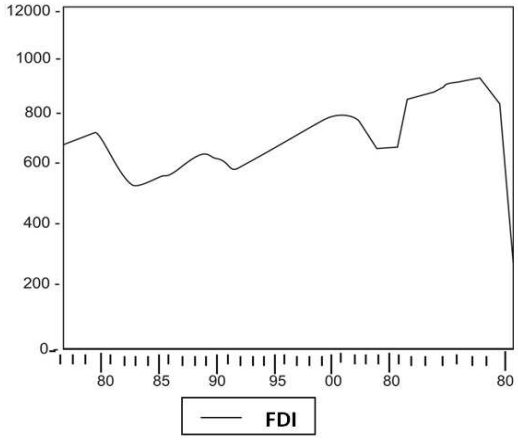

Figure 3. *Trend direct investment between 1977 and 2011*

3.1.3. Foreign Direct Investment (1977-2011)

Figure 3 shows foreigndirect investment (FDI) trend over the years. In 1977, FDI was very low, it increases in 1980 and decrease in 1981, and it later rose in 1984 and dropped in 1987, it continued until 2010 when it finally dropped in 2011. This might be due to the state of insecurity in the country and policy summersault of the various governments.

3.1.4. Gross Domestic Product (GDP) (1977-2011)

Figure 4 shows the GDP trend over the years. It shows that GDP has been relatively constant between 1997 and 1980. Between 1984 and 1986 there was a gradual increase in GDP but in1987, it fell and later rose in 1991, then continued until it finally fell between 2006 to 2011. Thus, the figure depicts a fluctuating trend in GDP of the Nigerian economy.

3.1.5.Commercial Bank Loan on Agriculture (1977-2011)

Figure 5 shows the trend of loan on agricultural sector over the years. The y –axis shows the loans on agricultural sector and the x- axis shows the years under review. The result shows that there has been a gradual increase in loan between 1981 and 1995, the trend dropped in 1988, later increase and decreased between 1978- 2010

3.2. Regression Analysis

The linear regression analysis was chosen as the lead equation based on the econometric criteria with particular reference to the R^2 value, estimated parameters and the significance of the parameters estimated. This variable shows the relationship between the dependent and independent variables.

The table 1 shows the results of the ordinary least square (OLS) with 35 observations. The significant variables in this analysis were food import values, Interest Rate, Commercial Bank loan and Foreign Direct Investment with t-statisticsvalues of 3.620441, 3.868880, 8.804924 and 2.863226 with probabilities of $P < 0.01$ respectively. The R^2 of 95% means that 95% of the variation in the dependent variable was explained by the independent variables.

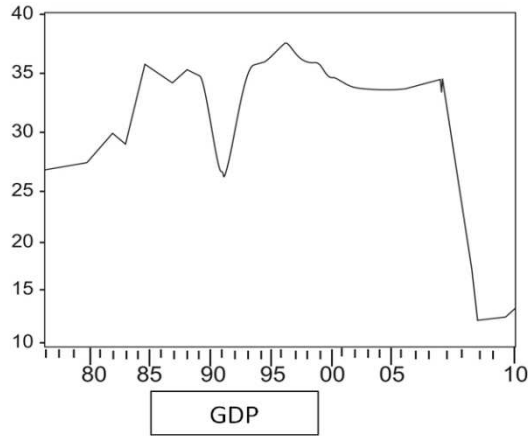

Figure 4.*Trend of gross domestic product between 1977 and 2011*

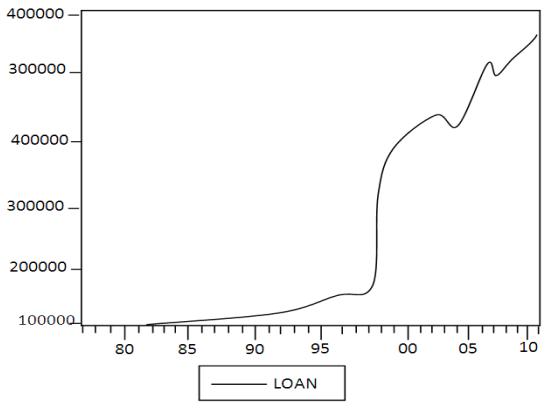

Figure 5.*Trend of commercial bank loan on agriculture between 1977 and 2011*

The DW measures the presence of autocorrelation in the model. It however revealed a negative correlation since the DW statistic observed in the model was 0.948130.

Diito, the F-value calculated of 111.7651 with a probability of 0. 000000 shows that it is statistically significant at 1% level. This basically means that the explanatory variables simultaneously explained variations in the dependent variable. This indicates that the model has a good fit.

3.3.Granger Causality

The Granger causality test statistics was used to estimate the casual relation between Agricultural output and economic growth. The Granger causality statistic summarizes by the F – statistic at 1, 5 and 10% probability levels.

Table 1.*Result of Regression analysis showing factors influencing Agricultural output in Nigeria.*

Variable	Coefficient	Std. Error	t- Statistic	Prob.
C	34198.90	27467.02	1.245090	0.2231
FOOD	0.025750	0.007112	3.620441	0.0011
IRATE	1989.158	514.1429	3.868880	0.0006
LOAN	0.379630	0.043116	8.804924	0.0000
GDP	-605.1438	510.3155	-1.185823	0.2453
FDI	88.36151	30.86082	2.863226	0.0077
R- squared	0.950666	Mean dependent Var.		159116.5
Adjusted R-squared	0.942160	S.D dependent Var.		75116.93
S.E of Regression	18065.63	Akaike info. criterion		22.59621
SUM squared reside	9.46E +09	Schwarz criterion		22.86285
Log likelihood	-389.4338	F- statistic		111.7651
Durbin-Watson stat	0.948130	Pro (F-Statistic)		0.000000

Source: Data analysis, 2013.

Table 2.*Result of Granger causality of macroeconomic variables*

Null Hypothesis	F– statistic	Probability	Decision	Causality
Food does not Granger cause Agric	0.42853	0.65566	Reject	
Agric does not Granger cause Food	2.94111	0.069228	Accept	Unidirectional
Irate does not Granger cause Agric	0.86724	0.43109	Reject	
Agric does not Granger cause Irate	0.13647	0.87301	Reject	No feed back
Loan does not Granger cause Agric	3.54649	0.04238	Accept	
Agric does not Granger cause Loan	1.23886	0.30511	Reject	Unidirectional
GDP does not Granger cause Agric	0.26266	0.77096	Reject	
Agric does not Granger cause GDP	4.89423	0.01504	Accept	Unidirectional
FDI does not Granger cause Agric	0.95320	0.39766	Reject	No feed back
Agric does not Granger cause FDI	0.12400	0.88383	Reject	
Irate does not Granger cause food	0.18221	0.83441	Reject	No feed back
Food does not Granger cause Irate	0.32928	0.72219	Reject	
Loan does not Granger cause Food	8.05120	0.00173	Accept	Unidirectional
Food does not Granger cause Loan	0.15510	0.85706	Reject	
GDP does not Granger cause Food	3.04773	0.06345	Accept	Unidirectional
Food does not Granger cause GDP	2.38253	0.11078	Accept	
FDI does not Granger cause food	3.03335	0.06345	Accept	Bi directional
Food does not Granger cause FDI	3.99568	0.02975	Accept	
Loan does not Granger cause Irate	0.02023	0.97999	Reject	No feed back
Irate does not Granger cause Loan	1.02615	0.37147	Reject	
GDP does not Granger cause Irate	1.03295	0.36912	Reject	No feed back
Irate does not Granger cause GDP	0.46540	0.63265	Reject	
FDI does not Granger cause Irate	0.02444	0.97587	Reject	No feed back
Irate does not Granger cause FDI	0.43486	0.37147	Reject	
GDP does not cause loan	1.36366	0.27219	Reject	Unidirectional
Loan does not Granger cause GDP	2.57496	0.09407	Accept	
FDI does not Granger cause Loan	0.75202	0.48707	Reject	No feed back
Loan does not Granger FDI	1.00030	0.38053	Reject	
FDI does not cause GDP	2.15199	0.13509	Reject	Unidirectional
GDP does not Granger cause FDI	5.12120	0.01272	Accept	

Source: Data analysis, 2013.

The results of Granger causality (table 2) shows that FOOD Granger cause AGRIC with a probability of (0.06928) at 10% level of significance, AGRIC Granger cause LOAN with a probability of (0.04238)at 5% level of significance, GDP Granger cause AGRIC with a probability of (0.01504) at 5% level of significance, FOOD Granger

cause LOAN with a probability of (0.00173) at 1% level of significance, FOOD Granger cause GDP with a probability of (0.06345) at 10% level of significance, FDI Granger cause FOOD with a probability of (0.02975) at 5% level of significance. This implies that these variables meaningfully contributed to Agricultural output and economic growth of Nigeria.

3.4.Augmented Dickey Fuller

The results of unit root test using Augmented Dickey-Fuller Root is presented below. The variables under consideration include:Food import values, Interest Rate, Commercial bank loan on Agriculture, GDP growth rate and foreign direct investment.

The Augmented Dickey- Fuller (ADF) was used to determine the time series characteristics of variables used in the regression. The results of the unit root test showed the variables were either significant (stationary) at level, at first difference or at second difference. Table 3 shows that Agricultural output, and FDI were stationary at level while Interest rate, and Food import value were stationary at 1st difference while commercial bank loan and GDP were stationary at 2nd difference respectively.

Table 3.*Result of unit root test of macroeconomic variables*

Variables	ADF testStatistics	1%	5%	10%	Test of Stationarity
Agricultural output	-.457691	- 3.6576	- 2.9591	- 2.6181	Level
Interest Rate	-.595950	- 3.6496	- 2.9558	- 2.6164	1st difference
Commercial bank Loan	-.429722	-3.6576	-2.9591	-2.6181	2nd difference
GDP growth rate	-.681284	-3.6576	-2.9591	-2.6168	2nd difference
Food Import value	4.18796	-3.6422	-2.9527	-2.6148	1st difference
FDI	-1.105729	-3.6496	-3.6496	-2.9558	Level

Source: Data analysis, 2013.

Table 4.*Results of Johansen co-integration of macroeconomic variables*

Series: AGRIC FOOD IRATE LOAN GDP FDI				
Eigen value	Likelihood Ratio	5 percent Critical Value	1 percent Critical Value	Hypothesized No. of CE(s)
0.698380	95.61404	94.15	103.18	None
0.496565	56.06061	68.52	76.07	At most 1
0.353305	33.41271	47.21	54.46	At most 2
0.285621	19.02867	29.68	35.65	At most 3
0.205721	7.929385	15.41	20.04	At most 4
0.009914	0.328793	3.76	6.65	At most 5

*(**) Source: Data analysis 2013.

3.5.Co-integration

Co-integration test was used to determine the long run relationship among variables (Food Import values, Interest Rates, Commercial Bank Loans, GDP growth rate and Foreign Direct Investments).

Likelihoodratio indicates 1 co-integratingequation(s) at5%significancelevel.The result of co integration shows trace test indicating 1 co integrating equations at 5% level. However, *(**) denotes rejection of hypothesis at 5% (1%) level. The result also depicted that the variables are co-integrated (table 4).

4. Summary of Findings

The study examined 'the analysis of factors influencing agricultural output in Nigeria: Macro-economic perspectives'' The study has been able to establish fluctuations in the trend of variables examined (i.e interest rate, commercial banks loans, gross domestic product (GDP), foreign direct investment (FDI) considered with reference to the period under review (1977-2011).

The results of the regression analysis (table 1) shows that 95% of the variationsin dependent variable (Agricultural output) were explained by the explanatory variables. The result thus, shows the explanatory variables, foreign direct investment (FDI), commercial bank loan, interest rate, food import value, having positive relationship with Agricultural output (Y). This implies that a unit increase in these variables will lead to a unit increase in agricultural output.

The result of granger causality also shows that FOODgranger cause AGRIC at 10%level of significance, AGRIC granger cause LOAN at 5%level of significance, GDP granger cause AGRIC at 5% level of significance, FOOD granger cause LOAN at 1%level of significance, FOOD granger cause GDP at 10% of significance, FDI granger cause FOOD at 5% level of significance, this implies that these variables were the factors that contributed to agricultural output in Nigeria.

4.1.Conclusion

The research wok examined the analysis of factors influencing agricultural output in Nigeria: macro-economic perspectives. The study concluded that food import, interest rate, commercial bank loans on Agriculture and Foreign direct investment were significant variables that affect agricultural output in Nigeria. The positive relationship of the FDI result is in line with Oji-Okoro (2011) who found out in his study conducted using time series data which spanned between 986-2007 that, there was a positive relationship between GDP and FDI.

4.2. Recommendations

The following are hereby recommended based on my research findings**.**

Provision of Loan and Farmers

Finance is the back bone of every worthy venture, which agriculture is one of them. Adequate financing of agriculture in Nigeria will surely boost agriculture in Nigeria.

Grant of Government Subsidy on Agricultural Inputs

If government should spend one-ninth of what it spends on oils subsidy on agriculture, then farmers will be encouraged to do more than what they are doing at the moment.

Competing Interest

Authors have declared that no competing interests exist.

References

[1] Central Bank of Nigeria (CBN). Statistical Bulletin of Various Issues.2012.

[2] Federal Government of Nigeria (2010). New Agricultural Policy. Ministry of Agriculture,Natural Resources and Rural Development Lagos.

[3] Federal Office of Statistics (1996). Annual Abstracts of Statistics 1996.

[4] Harsch, E. (2004). Agriculture, Africa's Engine for Growth: Small Scale Farmer Holds the Keys: says NEPAD. *Plan Africa Recovery*. Volume 17, No 4.

[5] Iganiga, B.O. and Unemhilin, D.O. (2011). "The Impact of Federal Government Agricultural Expenditure on Agricultural Output in Nigeria". *Journal of Economics*, 2(2): 81-88.

[6] Lawal, W.A (2011). "An Analysis of Government Spending on Agricultural Sector and its Contribution to GDP in Nigeria: *International Journal of Business and Social Business*, 2(20), 244-250

[7] Nation Master. (2009). Nigeria History. Retrieved from www.nationmaster.com on September 6 2009.

[8] New Partnership for African Development (NEPAD) (2002). An Information Assessment of the Role of Technology in Reducing Hunger and Improving Rural Livelihoods. Issues paper on Agricultural Science and Technology.

[9] Niser (2002). Assessment of the Economic, Social and Environmental Impacts of Agricultural Production in Nigeria with the Trade liberation Framework, A Research Paper 93.

[10] Nwankwo, (1993). Productivity and Economic Growth in Nigeria. Asia Publishing House, London.

[11] Oji-Okoro, I. (2011). "Analysis of Contribution of Agricultural Sector on the Nigerian Economic Development. *World Review of Business Research*. Vol. 1(1):191-200.

[12] Okorie, (1998). The Impact of Federal Government expenditure on Agricultural Output and Economic Growth.

[13] Okoiliya F.I. (2003). Variation of Rice Yield with Temperature and Rainfall at Ogoja. Nigeria. Journal of Agricultural Science, 2(2):98-101.

[14] Tombofa, S.S (2004). Development Economics. Port Harcourt: Pearl Publishers.

[15] Wikipedia (2009). Nigeria. Available Online at www.en. wikipedia.org/Nigeria Retrieve on September, 6 2009.