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The Impact of Federal Government Agricultural Expenditure on Agricultural Output in Nigeria

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ABSTRACT Every industrialized country today passed through the agrarian era. In fact, the industrial sector takes its roots from the agricultural sector. In a developing nation, government fiscal responsibility is very central to all facets of development including agriculture. In view of this, the study examines the effect of Federal government agricultural expenditure on the value of agricultural output. In the process, other determinants of agricultural output were examined. This includes total commercial credits to agriculture, consumer price index, annual average rainfall, population growth rate, food importation and GDP growth rate. The Cobb Douglas Growth Model, Descriptive Statistics and Econometrics Model were used to analyze the data. Co-integration and Error Correction methodology were employed to draw out both long-run and short- run dynamic impacts of these variables on the value of agricultural output. Federal government capital expenditure was found to be positively related to agricultural output. With a one-year lag period, it shows that the impact of government expenditure on agriculture is not instantaneous. The policy import of the study is that investment in the agricultural sector is very imperative and this should be complemented with monitored credit facilities. River basins and irrigation facilities should be provided to have all-year round agricultural product food importation should be banned to encourage local producer and population control should be intensified in the rural setting to avoid the Malthusian Prediction of pestilence and strife.

INTRODUCTION

One of the major challenges facing mankind is to provide an equitable standard of living, adequate food, clean water, safe shelter and energy, a healthy and secured environment, an educated public, and satisfying job for this and future generations. Of all these necessities, the first and most basic to human life and survival is enduring food security; which may be defined as a situation in which majority of the populace of a country have access to domestically produced food at affordable prices at all times (Akinboyo 2008). It is not an overstatement to assert that the growth and development of any nation depend, to a large extent, on the development of agriculture.

The saying that "agriculture is the mainstay of the Nigerian economy may have become a cliché. It nevertheless underscores the emphasis placed on agriculture as the engine of growth in the Nigerian economy. Abayomi (1997) noted that stagnation in agriculture is the principal explanation for poor economic performance, while rising agricultural productivity has been the most important concomitant of successful industrialization. Generally, the sector contributes to the development of an economy in four major ways-product contribution, factor contribution, market contribution and foreign exchange contribution (Kuznetz 1961; Mackie 1964; Abayomi 1997; Abdullahi 2002; World Bank 2007). In realization of this, the government has embarked on various policies and programmes aimed at strengthening the sector in order to continue performing its roles, as well as measures for combating poverty.

Notwithstanding the enviable position of the oil sector in the Nigerian economy over the past three decades, the agricultural sector is arguably the most important sector of the economy. Agriculture's contribution to the Gross Domestic product (GDP) has remained stable at between 30 and 42 percent, and employs 65 per cent, of the labour force in Nigeria (Emeka 2007). It is estimated to be the largest contributor to non- oil foreign exchange earnings. This means that agriculture holds abundant potential for enhancing and sustaining the country's foreign exchange.

Several factors have been identified to enhance or retard growth in the agricultural sector. These factors include education (Huffman 1949; Pudasaini 1983; Aheam et al. 1998; Weir 1999), infrastructure (Querioz and Gaultam 1992; Gopinath and Roe 1997; Yee et al. 2000 and Venk Atachalam 2003) and inflation (Johnson 1980; Bullard and Keating 1995; Andres and Hernando 1997; Gokal and Hanif 2004). Others are credit to the sector and rainfall. Empirical studies on the quantitative analysis of the determinants of agricultural output are few. These few studies focused on factors such as the ones mentioned above without recourse to the

impact of fiscal policies to agricultural output and other cooperating factors.

The objective of this paper is to identify various socio-economic and natural factors that influence the growth of agricultural output in Nigeria with emphasis on federal government expenditure. To capture both the long run and short run dynamic adjustment, the error correction mechanism (ECM) was adopted.

Apart from this section which is the introduction, the rest of the paper will be divided as follows: section two presents a review of the various studies on agricultures output; section three took an overview of agricultural output in Nigeria; section four discuses theoretical and model specification; and, section five contain empirical analysis, while section six concludes the paper.

A Review of Related Literature

Conceptually, agriculture is the production of food, feed, fiber and other goods by the systematic growing and harvesting of plants and animals. It is the science of making use of the land to raise plants and animals. It is the simplification of natures food webs and the rechanneling of energy for human planting and animal consumption (Akinboyo 2008). Until the exploitation of oil reserves began in the 1980s, Nigeria's economy was largely dependent on agriculture.

Nigeria's wide range of climate variations allows it to produce a variety of food and cash crops. The stable food crops include cassava, yams corn, coco-yams, cow-peas, beans, sweet potato, Millet, plantains, bananas, rice, sorghum, and a variety of fruits and vegetables. The leading cash crops are cocoa, citrus, cotton, groundnut, (peanuts) palm oil, palm kernel, benniseed, and rubber. They were also Nigeria's major exports in the 1960s and early 1970s. Chief among the export destinations for Nigerian agricultural exports are Britain, the United States, Canada, France, and Germany (Emeka 2007).

Prior to the attainment of independent, agriculture was identified as a potential factor, capable of catapulting Nigeria's economic development. The colonial administration in realizing this set up marketing boards for the major cash crops. Heilleiner (1966) stressed that export production accounted for about 57 percent of Nigeria's Gross Domestic product (GDP) in 1929. The contributions of the sector to the GDP continued to increase. For example, agriculture became the leading sector of the economy in 1950s and 1960s. For these periods, agricultural output accounted for 63 and 54 percents of GDP (Aigbokhan 2001). However, with the advent of oil in the 1970s, this dropped to 33.2 percent. This marked an epoch in Nigeria's economic history through the 1973/1974 (crude oil price shocks). It further went down to 30.2 percent for the period 1975-79. On annual average, its contribution to GDP form 1997-2006 is 4.1 percent (CBN 2006).

Over the years, government has almost been the sole provider of financial and other capital resources to support agriculture. Government has attempted to increase her expenditure on agriculture through budgetary allocation and through the provision of cheap and readily available credit facilities (Nwosu 2004). Nwosu (1995) found that over the years, the government budgeting allocation has become an important determinant of agricultural output in Nigeria.

FAO (2008) reported that in terms of capital allocation to agriculture in Nigeria, it was an average of 4.74 percent from 1970-1980. But, from 1980-2000, it rose to 7.00 percent and 10 percent from 2001-2007, though revealing an increase, but still falls short of Food and Agricultural organization (FAO) recommendation that 25 percent of government capital budget be assigned to the agricultural development capital budget.

Akpokodjie and Nwosu (1993) in their study stressed that government allocation to agriculture is relatively low and that actual expenditure falls short of budgeting expenditure and the rate of under spending is usually higher for agriculture than for other economic sectors. Omanukwue (2005) reported that a large proportion of the funds allocated to agriculture does not go directly to farmers.

DFID (2005) reported that the largest category of private investors in Nigerian agriculture consists of the multitude of small holder farmers, scattered across the country. Thus, agricultural production in Nigeria is dominated by small-scale farms characterized by small, uneconomic and often fragmented holdings, the use of simple implements (hoes and knives) and unimproved planting and storage materials. The

results have been a viscous web of low productivity, low income and low capital investment.

A Review of Federal Government Agricultural Expenditure and Agricultural Output

Food and Agricultural organization (FAO) recommended that 25 percent of government capital budget allocation be assigned to the agricultural development capital budget. In Nigeria, this has not been achieved by the government, thereby affecting government programmes and policies for the sector. In terms of capital allocation to agriculture, it was average of 4.74 percent from 1970-1980. But, from 1980-2000, it rose to 7.00 percent and 10 percent from 2001-2007 though revealing an increase, but still falls short of FAO recommendation of 25 percent.

The ratio of agricultural budget expenditure to total government expenditure from 1970-1980 was on average of 2.66 percent (Table1). It rose to 8.34 percent from 1981-1984; however by 2000, it nosedived to a ridiculous value of approximately 2 percent and was 2.10 percent in 2007. This fell short of the Maputo resolution that government of member states of African Union (AU) to allocate at lead 10 percent

Table 1: Value of agricultural output and its determinants, 1970-2008

OBS.	*TGE*	*GEA*	*FIV*	*CAG*	*VAO*	*CPI*	*AAR*
1970	903.90	10.00	57.70	33.20	265.20	10.8	275.00
1971	997.20	12.70	88.30	43.00	242.80	12.6	398.00
1972	1463.60	33.10	95.80	43.00	172.00	13.00	382.00
1973	1529.20	48.80	126.30	56.80	250.10	13.60	414.00
1974	2740.60	112.00	154.80	45.80	276.00	15.50	367.00
1975	5942.60	250.00	298.80	45.600	231.00	20.70	419.00
1976	7856.70	147.70	441.70	45.80	274.10	25.10	452.00
1977	8823.80	125.00	780.70	34.60	375.70	30.40	371.00
1978	8000.00	148.10	1027.60	46.80	412.80	34.50	428.00
1979	7404.00	356.20	1254.30	46.90	468.00	38.50	293.00
1980	14968.50	468.10	1437.50	30.20	340.10	42.30	260.00
1981	11413.70	809.00	1819.60	32.80	178.40	51.20	256.00
1982	11923.20	1069.20	1642.30	58.80	198.60	55.10	346.00
1983	9636.500	1214.50	1761.10	33.20	259.00	67.90	315.00
1984	9927.600	285.50	1349.70	35.30	208.00	94.80	372.00
1985	10041.10	1018.10	1199.00	40.30	192.10	100.00	420.00
1986	16223.70	925.40	801.90	42.70	407.40	105.40	395.00
1987	2201.700	394.30	1873.30	41.50	1588.40	105.40	294.00
1988	27749.50	650.00	1891.60	41.50	2558.20	116.10	467.00
1989	41028.30	1062.60	2108.90	40.60	2131.00	181.20	398.00
1990	60268.20	1966.60	3474.50	39.00	2429.30	272.70	442.00
1991	665864.4	672.30	3045.70	39.00	3425.00	293.20	470.00
1992	92797.40	924.50	12840.20	38.30	3054.90	330.90	352.00
1993	191228.9	2835.30	13953.40	37.80	3437.30	478.40	295.00
1994	160893.2	3719.10	13837.00	37.30	3818.80	751.90	193.00
1995	248768.1	6927.70	88349.90	34.00	15512.00	1180.70	286.00
1996	337217.6	5574.00	75392.00	39.00	17202.00	2040.40	241.00
1997	428215.2	7929.60	100728.3	39.40	19826.00	2638.10	250.00
1998	487113.4	11840.40	102165.1	40.40	16338.90	2863.30	306.00
1999	358103.2	10047.30	103489.8	41.00	18954.70	3149.23	430.00
2000	664457.7	10596.40	113630.5	41.00	17865.80	3590.50	367.00
2001	1018026.	64943.90	160209.1	40.30	17202.60	4268.00	1279.00
2002	1188735.	44803.80	144297.6	41.20	19826.10	4897.00	1282.00
2003	1225957.	16045.20	201648.3	40.30	20897.00	5493.00	1286.00
2004	1384001.	49926.40	178747.4	40.90	37532.60	6347.00	1376.00
2005	17432240	76656.70	171817.1	41.100	44395.50	7454.00	1345.00
2006	1842588.	107463.9	174229.0	41.80	50498.90	7468.00	1436.00
2007	1885924.	38833.60	278561.9	40.30	50965.70	78654.0	1654.00
2008	1896578.	39475.50	324567.7	41.40	51458.80	76587.2	1687.00

Source: CBN Statistical Bulletin, 2008
Note: VOA =Value of Agric, Output (#m), GEA=Govt. Total Exp. On Agric. (#m), CPI= COMP. Cons. Price index (1985 = 100), TCA = Total Comm. Bank Credit to Agric (#m). AAR= Average Annual Rainfall (vol), FIV= Food Import Value (#m), PGR = Population Growth Rate (%).

of national budgeting resources for the implementation of the comprehensive Africa Agricultural Development programme (CAADP) which Nigeria is a signatory.

The result of the unstable expenditure in the agricultural sector by the government over the years was the dismal performance of the sector. The performance of agricultural output could be measured by its contribution to Gross Domestic Products (GDP), until the Nigerian civil war of 1967-70, agriculture dominated Nigerian's economy contributing some 53 percent to GDP in 1965. By 1984 it percentage share had almost halved.

Prior to independence, especially, in 1929, contribution of agriculture GDP stood at 57 percent. Oil palm products alone accounted for between 85-90 percent of the total volume exports. In the periods 1960-64 and 1965-69, agricultural output accounting for 63 and 54 percents of GDP. From Table 1, we can see this declined significantly from the 1970s from an annual average value of 58.8 percent for the period 1960-69, it dropped to 33.2 percent for the period 1970-74. It marked an epoch in Nigeria economic history through the 1973-74 (crude oil price shocks). It further went down to 30.2 percent for the period of 1975-79. On an annual average, its contributions to GDP from 1997-2008 is 41 percent (see Figs. 1 and 2 for details).

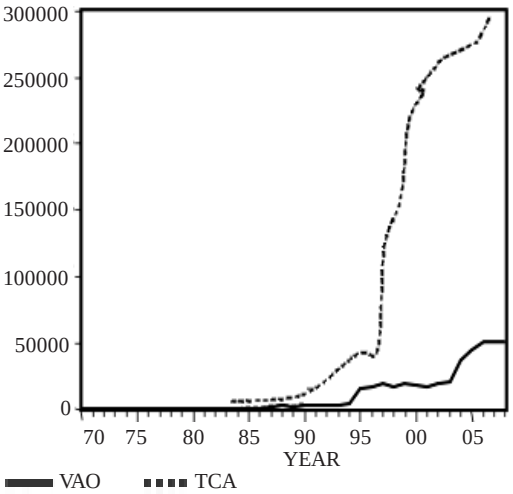

Fig. 1. Value of agricultural output and total credit to agriculture

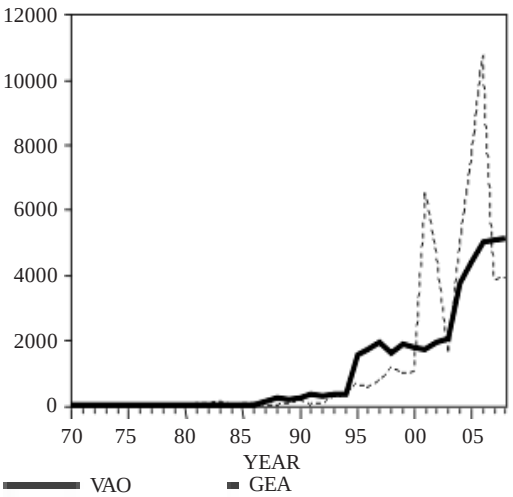

Fig. 2. Value of agricultural output and government expenditure on agriculture

METHODOLOGY

Model Specification and Estimation Procedure

The standard methodology of growth models begins with the neoclassical production function, as extended by Solow (1957), Khan (1997), and Iyoha (2000).

Consider a Cobb-Douglas production function of the form.

$$G_t = A_t f(L_t K_t) \quad \ldots (1)$$

Where,

K = Labour, K = Capital stock, A = Efficiency of labour, T= Time dimension.

Expressed in growth form, equation (1) becomes

$$G_G = G_A + P_K + P_L + G_L + G_K \quad \ldots (2)$$

Where, P_k and G_G depicts percentage growth in variables.

However, the emergence of endogenous growth theory and models suggests that other endogenous factors such as government policies, political stability, human capital, education, trade policies and others can also affect sustainable growth. Accordingly, several studies, for instance those reviewed by Renelt (1991), have attempted to integrate exogenous for as with endogenous variables in explaining growth in output across countries. In these studies, the augumented so low neoclassical production function is used specifically, the formulation employed by Mankiw et al. (1992), Grammy and Assane (1996) Odusola (1998), Urhie (2008) can be expressed as

$$G_t = A_t L^{\alpha}_1 K^{\alpha}_2 H^{\alpha}_3 \quad \ldots (3)$$

Where
G = output
H = Additional Input

Note: $\alpha_1 + \alpha_2 + \alpha_3 = 1$ (assuming constant returns to scale)

Taking the natural logarithm of both sides of equation 3 gives a linear form of

$$LnG = \alpha + \alpha_1 InL + \alpha_2 Ink + \alpha_3 InH \quad (4)$$

In line with their studies, the empirical model adopted in this study is given as follows assuming government expenditure being the sole determinant of agricultural output.

$$lnV AO = \alpha_0 + \alpha_1 InGEA \quad (5)$$

Introducing other factors into equation 5, we have,

$$lnVAO = \alpha_0 + \alpha_1 InGEA_t + \alpha_2 InGi_t + \alpha_3 InTCA_t + \alpha_4 InAAR_t + \alpha_5 lnFIV + \alpha_6 InPGR + \alpha_7 InGRR + U_t \quad (6)$$

Where:
VAO = Value of agricultural output (₦M)
GEA = Govt. total expenditure on agric sector (₦M)
CPI = Composite consumer price index (1985=100)
TCA = Total comm. bank credit to the agric sector (₦M)
AAR = Average annual rainfall (vol.)
FIV = Food import value (₦M)
PGR = Population growth rate (%)
GGR = GDP growth rate (%)

Based on the theoretical framework, the α_1 priori expectations are:

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_6 \alpha_7 > 0$ and $\alpha_5 < 0$

The estimation procedure adopted in this study is in three sequences.

(1) To stem the problem of spurious regression, it is important that the time series properties of the data set employed in estimation of equation 6 is ascertained. It might seem reasonable to test for the presence of a unit root in the series using the most general of the models as.

$$\Delta y_t = \alpha_o + Yy_t i + \alpha_2 t + \Sigma\beta j \Delta y_t\text{-}I + e_1 \quad (7)$$

Where y is the series t is (trend factor); α_0 is the constant term, e_t is the stochastic error term β is the lag length. The Augmented Dickey-Fuller (ADF) unit root test is employed to test the integration level and the possible co-integration among the variables.

(2) If the data set indicates integration property of the order 1 (1) for the employed variable, there we proceed to test for co-integration among the variables employing Johasen (1988, 1991) and Juselius (1990,1992, 1994) test techniques.

Assuming the variables tested above co-integrated, we the estimate the ECM (Error correction model), which incorporates the full (short-run) dynamics of the model:

$$Y_t = \alpha + \beta_{yt} + \xi_t \quad (8)$$

Therefore,

$$\Delta y_t = U_{t-1} + \Sigma\beta\Delta x_{t-1} + \Sigma\alpha_i \Delta y_{t-1} + \varepsilon \quad (9)$$

Here, U_{t-1} is the one period lagged value of the error from cointegrating regression while Δ denotes the first differences operator.

RESULTS AND DISCUSSION

In this section, we undertake empirical investigation regarding the impact of federal government agricultural expenditure and other co-operating variables on agricultural output in Nigeria (1970-2008) using co-integration and error correction technique to determine the relationship between the dependent and independent variables.

A) Statistical Properties of Data Series

In line with the steps outlined in section 4, we subjected all the variables in the model to stationarity test. The two types of test employed are Augmented Dickey Fuller (ADF) and Philips Perron tests. The results of these two tests are reported in Table 2.

Table 2: Augmented Dickey Fuller and Philips Perron results for the series of variables

	At levels		*At first differences*		
Variable	*ADF*	*Philips Perron*	*ADF*	*Philip person*	*Order of integration*
InVAO	-1.1021	-2.0762	-4.6942	-5.3211	1(1)
InGEA	-3.1212	-3.4510	-5.3031	-5.0112	1(1)
InCPI	-2.0320	-3.6211	-2.9810	-3.0931	1(1)
InTCA	-2.5669	-2.5452	-5.8004	-6.2024	1(1)
InAAR	-3.2015	-3.5922	-3.9662	-4.7144	1(0)
InFIV	-3.0610	-2.2119	-3.6134	-4.0061	1(1)
InPGR	-2.7836	-1.6357	-3.5615	-4.0536	1(1)
InGGR	-3.325	-3.9629	-4.5211	-4.0521	1(0)

Critical value: ADF = -2.9558, PP =-3.5562

The ADF and Philips –Perron tests are run against the null hypothesis that there is Unit root 1(1) non-stationarity-of the series. With a sample size of 39, the critical value of the ADF and Philips perron at 5% significance level are -2.955 and -3.5562 respectively. Absolute val-

ues of ADF and Phillips-Perron less than the critical values indicate a rejection of the null.

The results of this test is reported in Table 2 depict that some variables are stationary at levels, while others at their first difference.

B) Test for Co-integration

Since the Unit root tests show that AAR, GGR are 1(0), while other variables and stationary at 1(1), we therefore tested for possible co-integration among these variables by employing the Engle and Granger two –steps method. The ECM will enable the derivation of both short run and long run properties of the model which other estimation techniques lacked except lags are forced into them. Co-integration establishes the stationarity of the residuals generated from running a static regression at levels of the regressors (independent variables) on the regressed (dependent variables).

To carry out the co-integration test, the regression of the variables is done at levels and the residual series is thereafter obtained for DF or ADF tests. The result of ADF co-integration tests presented in Table 3 suggests that the ADF coefficient in significant at 0.05 significance level. The absolute value of ADF test statistic is -4.6103 which by all indications is greater than the critical value of 2.8352 at 0.05 level of significance and the critical value of 2.5293 of 0.1 percent significance level.

The result of Philips- Perron co-integration test suggests the presence of co-integration among the variables. The absolute value of the test statistic is 3.2972 is more than the critical value of 2.9492 at 5 percent significance level and 2.5123 at 10 percent (Table 3).

Table 3: Co-integration residual stationary test result

	Test statistic	*50% critical value*	*10% critical value*
ADF-statistic	-4.6103	-2.8352	-2.5293
pp- statistic	-3.2972	-2.9492	-2.5123

C) Short-Run Error Correction Solution of Model Equation

The method adopted in this section is derived parsimonious error correction model by adopting the general to specific (GTS) methodology. The lag period has been consciously selected to enable a robust identification of the main dynamic patterns in the models and to avoid unwarranted restriction that a too short lag length could generate. The interpretation of an over-parameterised model appears difficult to interpret; this has thus informed its reduction to a parsimonious model. The reduction is carried out by eliminating the variables with insignificant coefficients successively based on the imposition on these variables zero coefficients as they bear low t-statistics of less than 2.0 or high probability values of more than 0.05. The criterion of maximum R-bar squared was also applied in selecting the parsimonious model.

D) Effects of Federal Government Agricultural Expenditure on Agricultural Output

In this section, the agricultural investment model will be tested. The investment in agriculture is proxied as capital expenditure on agriculture. An over-parameterised agriculture investment models, which incorporates the lagged changes of the model variables is constructed. This is then simplified until theory consistent and data coherent results are achieved by gradually deleting insignificant variables. The result of the parsimonious model is shown in Table 4.

Table 4: Parsimonious error correction for federal government agricultural expenditure, modeling DInVAO by OLS

Regressor	*Coefficient*	*Std error*	*T-statistic*	*Probability*
DInVAO (-2)	0.0032	0.0008	2.3271	0.0052
C	-0.8321	0.4283	-1.9082	0.0721
DInGEA	0.6432	0.1020	1.2321	0.1000
DInGEA (-1)	0.4314	0.1011	5.3211	0.0021
DInCPI (-3)	0.1467	0.1372	1.0562	0.3321
DInTCA	-0.7957	0.2221	-3.5781	0.0151
DInTCA (-1)	-0.4498	0.2737	-2.1781	0.0731
DInAAR	0.0135	0.1992	0.0677	0.9487
DInAAR (-3)	-0.2772	0.1015	-2.7452	0.0121
DInFIV	0.1681	0.0984	1.71128	0.1018
DInFIV (-2)	-0.2531	0.08851	-2.8362	0.0099
DInPGR	0.0946	0.0535	1.7652	0.0920
DInPGR(-1)	-0.1172	0.0504	-2.3354	0.0295
DInGGR(-3)	0.2342	1.3249	2.2752	0.0336
ECM(-1)	-0.4231	0.1531	-2.560	0.0136

R^{-2} = 0.63, F= 776: DW =1.914

The result of the parsimonious model shows that the two-year period lag of the value of agricultural output is positively related to the contemporaneous value of current agricultural out-

put. The coefficient of VAO (-2) is 0.0032 indicating that 1000 percent point increase in this variable leads to 3 percent increase in the current value of agricultural output.

The variable of one-year period lag of federal capital agricultural expenditure on agricultural output is positively related to agricultural output and bears a coefficient of 0.4314, implying that a 10 percent.

Increase in capital expenditure variable leads to about 4.31 percent increase in agricultural output. The variable is also found to be significant at 5 percent significance level. It is instructive to note that the contemporaneous and a two year lag variables had been eliminated in the process of model reducing due to the insignificant nature of the coefficients. It could be concluded that agricultural expenditure has proven to have a positive impact on agricultural product. It should be noted that this impact is not instantaneous hence; the current value of agricultural expenditure is insignificant. Urhie (2008), had similar result. This calls for the need on the part of policy formulators to always make robust and reasonably forecast. Whenever any investment in agriculture decision is to be made as their present decision will definitely have a lot of future implications on the welfare of their citizens.

This finding of positive effect of investment on agriculture an agricultural output supports findings from previous studies like, (Ihimodu 1993; Venkaka 2003; Yee et al. 2001)

The three-year period lag variable CPI (consumer price index) has a positive relationship with agricultural output in the current year. This is in line with the *apriori* expectation of positive sign. The value of the coefficient is 0.1467, though insignificant. This implies that a 10 percent increase in the general price of goods and services, CPI will lead to 1.467 increase in the value of agricultural product. Thus, the farmers are stimulated to produce more if there is an increase in the price of their products, though the increment is not instantaneous.

Total credit to agriculture variable (TCA) does not conform to the a priori expectation as it is negative and significant. The value is 0.7952 and 0.4498 for the current and a one-year lag respectively. This implies that a 10 percent increase in the TCA and TCF will occasion 7.952 and 4.498 reduction in VAO. These coefficients are significant at 5 percent level. This confirms the fact that most agricultural credits are not directed to the purpose for which is sort. Most of these credits are directed to other uses (Urhie 2008).

The variables, annual average rainfall (AAR) in the current year has a positive relation with agricultural output in the current year. This is in line with a prior expectation, though, not significant. Contrary to expectation, the three-year lag period is negative and significant at 0.05 level. This point to the fact that irrigation is more important as it guarantees constant supply of water to the farmers. This is why the supply of farm produce from northern Nigeria is relatively stable.

Population growth rate (PGR) in one year period lag has a negative significant impact on agricultural output. Contrary to theoretical expectation, as the population grows, more hands should be available to produce more agricultural output. The situation is not so in Nigeria due to rural-urban drift in search of white-collar jobs. This further emphasizes the need to control the population growth rate in Nigeria to avoid Malthus' Prediction of hunger and strife due to over bloated population. The coefficient shows, that if population growth rule increased by 10 percent, agricultural output will plummet by 1.12 percent with in probability ruling of 0.03. On the external front, food import value (FIV) lagged two periods would reduced agricultural output by 0.25 percent with a significant probability for policy makers to introduce stringent measures to control he influx of foreign food.

The overall goodness of the model as shown by the adjusted coefficient of determination is 0.63, which shows that the variations in the regressors explained about 63 percent variations in agricultural output having taken degree of freedom into consideration. The coefficient of error correction terms (ECM) bears the required negative sign and also significant. Its magnitude of 0.4231 implies that about 42 percent of the previous year disequilibrium in agricultural product is adjusted for in the following year. This points to the fact that, to a greater extent, the value of agricultural output is endogenously determined in Nigeria.

CONCLUSION

The findings from this study show that the focus of the Nigerian government was mainly

on current capital expenditure on agriculture with less attention being paid to other cooperating factors like importation of foods, irrigation, rural-urban drifts and mechanization. These factors are crucial to the growth of agricultural output. The negative effects from total credit to agriculture and population growth rate confirmed that it is not enough to give out credit facilities without proper monitoring. This informs the need on the part of policy formulators to always put in place virile policies to check mate population growth rate to avoid the Malthusian prediction.

From the findings, a number of policy issues stand-out clearly. First, the emphasis of the government on the capital expenditure revives the ailing agricultural sector. This should be complemented with well- monitored credit facilities to acquire modern farming techniques and equipment. River basins and irrigation facilities should be made a priority to have all-year round production. Food importation should be banned to encourage local producers and population control measures should be intensified in the rural settings.

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