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Agricultural Output and Economic Growth: The Nigerian Case

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ABSTRACT

The study investigated the contribution of agricultural sector output to the growth of domestic economy in Nigeria for the period 1990-2017. The study examined the impact of agricultural output and economic growth, as well as to determine the response to shocks in the variable under studied. Cointegration test, Vector Error Correction Model (VECM) and variance decomposition test were utilized in the analysis. The variables employed in the investigation include real gross domestic product (RGDP), agricultural output (AGRIC), gross capital formation (GCF, exchange rate (EXC) and interest rate (INT.RATE).

A stationarity test was conducted through the application of the Augmented Dickey-Fuller (ADF) stationarity test and the result showed that all the variables were stationary at I(I) and 2(I0). The cointegration result indicated long run equilibrium relationship among the variables under study. The VECM result on the other hand, showed that value of agricultural output has positive and insignificant contribution to GDP. Thus, it is estimated on average that 1% increase in the value of agricultural output would lead to a little increase in real GDP.

The study recommends that government should increase its budgetary allocation on agriculture in order to boost the growth performance of the sector. The study also recommend that government should strengthen agricultural credit agencies to enable them monitor and ensure efficient disbursement of fund disbursed to agricultural producers in the country. In so doing, diversion and mismanagement of agricultural sector fund in Nigeria would be discouraged, hence, agricultural output would improve.

Key words: Agriculture (AGRIC), Economic Growth (GDP), Nigeria, Gross capital formation (GCF), Response to shocks, Variance decomposition test, unit root test, cointergratuion test

INTRODUCTION

The performance of an economy is usually looked at in terms of sectors. Sustainable and improved productivity in the Nigerian agricultural sector and its effects on macroeconomic goals have been very important issues over the decades. Thus, the agricultural sector refers to those areas of activities that result in the production of crops and rearing of animals for man use. In the agricultural sector, production is categorized into cash crops, staples, livestock, fishery, forestry and other produce, among others (Central Bank of Nigeria, 20014). Nigeria as a country has to work hard to produce goods and services vis-a-vis the agricultural sector to be able to compete favourably with other nations of the world. The ability to compete with other nations is a key element to survival as a nation, hence, there is need for sustained increase in production in the agricultural sector of the economy (Obayori, 2014).

Ewubare and Obayori (2015), also opined that there should be continuity and consistency of macroeconomic policy measures in the agricultural sector. This is because agricultural sector has high capacity to link with industrial sector and high value chain in the sector that can be used for further production. Thus, high agricultural sector output, with the right combination of other factors as well as good policy environment will result in higher output and economic growth. Given particularly the less favourable economic conditions that face most developing countries today, manifested in massive poverty and un-sustained performance of major macroeconomic variables, the need to improve the agricultural sector productivity cannot be over-emphasized. Therefore, Nigeria, like other developing countries of the world views high agricultural production as vital for rapid economic growth. Consequently, changes in the relative importance of agriculture have been recognized as the core of the growth process.

Meanwhile, public expenditure, which serves as the basis of financing the agricultural sector has constantly fallen short of the public expectation. For

instance, a collaborative study carried out by the International Food Policy and Research Institute (IFPRI) and the World Bank in 2008, revealed that federal government of Nigeria public expenditure on agriculture is less than 2% of total federal annual budget expenditure. This is significantly below compared to other developing countries like Kenya (6%), Brazil (18%) goal set by African Leaders Forum, under the Comprehensive Africa Agricultural Development Programme (Uger, 2013).

In spite of this little investment in the sector, agriculture has on the average contributed 32% of the country's GDP from 1996 to 2000 and 42% between 2001 and 20015 (Central bank of Nigeria, 2015). In most cases the growth in the economy of any nation is a clear indication of an improvement in the socioeconomic well-being of its people. A deterioration in the growth rate as shown in most developing countries is thus a manifestation of the fall in the standard of living of the people that cumulates into poverty (Gafar, Mukaila, Raji and Michael, 2015). The Nigeria's experience (in recent times) is pathetic having witnessed a fall in its Gross Domestic Product (GDP) from an annual average rate of 10.5 percent in 1980 to 3.2 percent in recent years (ADB 20015). Subsequently, the country also witnessed a decline in its per capita income from US $1600 in 1980 to US $1160 in recent years (ADB 2015). One of the consequences of these declines is the rate of poverty which has increased from 28.1 percent in 1980 to about 78.2 percent in recent times (Gafar, 2015). In spite of this pathetic situation, it is still apparent to examine the agricultural output and economic growth in Nigeria over time (1990-2017).

There is a lot of confusion of whether the unbalanced strategy of the Nigerian economy is deliberate or not and whether the development in the oil sector is really contributing to the development of other sectors like agriculture, manufacturing among others. This problem has remained the daily cup of tea to the young talented Nigerians who see the future of the Nigeria economy since the so-called leading sector (oil) is exhaustible in nature. The enormous influx of cash resulting from oil tends to foster,

overzealous and imprudent expenditure, high oil revenue raises exchange rates, promotes adverse balance of payment as the cost of imports rises. In fact, it kills incentive to risk investment in non-oil sectors, the competiveness of all non-oil sectors such as agriculture sector has been crowded out. The employment of both labour and other resources has been exchanged for unemployment as the government and private expenditure multipliers have been exported abroad

In-spite of Nigeria's rich agricultural resource endowment, there has been a sharp decline in agriculture's contributions to the nation's economy. In the 1960s, agriculture accounted for 65-70% of total exports; it fell to about 40% in the 1970s, and crashed to less than 2% in the late 1990s and 2000s (Olagbaju, 1996). The decline in the agricultural sector was largely due to the discovery of crude oil in the early 1970s, despite all the aforementioned policies and programmes, the performance of the Agricultural sector in Nigeria is abysmal in terms of product contribution, factor contribution, market contribution and foreign exchange contribution (Ehigiamusoe, 2012).

It is obvious that the agricultural sector, being one of the real sectors of the Nigerian economy, has got a lot to contribute to the nation's economic growth. But these are not attainable because of the multifarious problems besieging this sector of the economy. It is in this light that this study seeks to examine the impact of agricultural output to the nation's GDP; to ascertain the response to economic growth as a result of shocks to agricultural output and to determine the impulse of investment in agriculture output and economic growth.

Review of relevant literature

Badiene (2008), in his view believes that the poor performance of agricultural sector and production can be blamed on poor management of public resources, inappropriate incentives and more fundamentally, structural

factors especially technological constraints. He also opined that agriculture has suffered because of mass migration. Few numbers of able young people are left behind in the rural areas to carry out farming activities thereby reducing agricultural productivity.

Udo (2000), opined that the transformation from a subsistence agriculture to modern agriculture leads to the development of industries. Once agriculture emerges from its stagnatory, subsistence state and starts to specialize and produce goods for exports and industry develops, the two sectors; agriculture and industry become very much inter-dependent. The industrial sector adds to the demand for goods produced by agricultural sector and absorbs surplus labour which may raise productivity in agriculture. The agricultural sector in turn provides an outlet for industrial goods out of rising real income and makes a factor contribution to development through the release of resources i.e. if productivity rises faster than the demand for commodities

According to Olukoy (2007), since the discovery of crude oil in Nigeria, "the non-oil export sector of the economy, more specifically, the agricultural sector, has been declining consistently with further increases in oil exports".

Ehigiamusoe (2012), believed the advent of the Oil Boom to be the major problem of agriculture as people migrated from rural to urban areas in attempt to reap from the windfall from oil. In his words "you didn't have to farm to eat anymore, as a Nigerian, all you just needed to do was to come with your bowls to the nation's capital city and collect your own share of oil money. So people felt it was no longer necessary to farm".

Ogen (2004), observed that food is very important but rather neglected aspect of agricultural development. More emphasis is usually placed by government on policies to increase food production with little or no consideration on how to distribute food produced efficiently in a manner that will increase food productivity.

Ikala (2010), argued that the dwindling agricultural production in Nigeria is a confirmation of the unattractiveness of agriculture as a result of low returns

and compensation being paid to farmers which tend to discourage increased production.

According to Ogen (2004), some major problems confronting Nigeria agriculture are poor infrastructural facilities such as poor feeder roads and road network, storage facilities, rural electrification, etc. poor manpower development, socio cultural factor like the land tenure system, poor Government/Regulatory policies. Poor state of agricultural development can lead to a situation of deficit food supply and higher demand for food which consequently leads to higher food importation to supplement domestic food production.

Thus, the gap in this literature (Agriculture output and economic growth in Nigeria) is to find out the interaction, response to shocks in investment in these variables within the time frame understudied (1990-2017), using the neoclassical growth theory, an extension of Solow growth model of economic growth.

METHODOLOGY

Theoretical Framework

Adopting various modification, the study utilized three econometric methods to achieve empirical results. The first method investigates the impact (long run equilibrium relationship) between the variables of the study, through the application of co-integration method. The second method examines the long run relationship and short run dynamics between agricultural output and economic growth by employing Vector Error Correction Model (VECM), while the third method employed the variance decomposition approach to examine the existence of shocks among variables in the model.

Model specification

The model expressing the impact of agricultural output and economic growth in Nigeria is shown mathematically as follows.

GDP = f (AGRIC, GCF, EXC, INT.RATE)

Model 1:

For the purpose of analyses, the model is generally specified as follows:

$GDP_t = \beta_0 + \beta_1 AGRIC_t + \beta 2GCF + \beta_3 EXC_t + \beta 4INT.RATE + u_t$ ..... (1)

Where:

GDP = Economic growth given by real GDP (naira)

AGRIC = Agricultural Output

GCF= Gross Capital Formation

EXC = Exchange rate (naira per US dollar)

INT.RATE= Interest rate

In order to capture the first objective of the study, a Vector Autoeregression (VAR) is econometrically specified following as

$$GDP_t = \alpha_1 + \sum_{i=1}^{p} \beta GDP_{t-i} + \sum_{i=1}^{p} \gamma_i AGRIC_{t-i} + \sum_{i=1}^{p} \theta_i GCF_{t-i} + \sum_{i=1}^{p} \phi_i EXC_{t-i} \sum_{i=1}^{p} \phi_i INT.RATE_{t-i} + u_{1t} \quad \text{.....(1)}$$

$$AGRIC_t = \alpha_2 + \sum_{j=1}^{p} \delta_j AGRIC_{t-j} + \sum_{j=1}^{p} \eta_j GDP_{t-j} + \sum_{j=1}^{p} \lambda_j GCF_{t-j} + \sum_{j=1}^{p} \mu_j EXC_{t-j} + \sum_{j=1}^{p} \mu_j INT.RATE_{t-j} + u_{2t} \quad \text{.....(2)}$$

$$GCF_t = \alpha_3 + \sum_{k=1}^{p} \pi_k GCF_{t-k} + \sum_{k=1}^{p} \rho_k AGRIC_{t-k} + \sum_{k=1}^{p} \sigma_k GDP_{t-k} + \sum_{k=1}^{p} \tau_k EXC_{t-k} + \sum_{k=1}^{p} \tau_k EXC_{t-k} + u_{3t} \quad \text{.....(4)}$$

$$EXC_t = \alpha_4 + \sum_{l=1}^{p} \omega_l EXC_{t-l} + \sum_{l=1}^{p} \upsilon_l AGRIC_{t-l} + \sum_{l=1}^{p} \psi_l GDP_{t-l} + \sum_{l=1}^{p} \xi_l GCF_{t-l} + \sum_{l=1}^{p} \xi_l INT.RATE_{t-l} + u_{4t} \quad \text{.....(5)}$$

$$INT.RATE_t = \alpha_4 + \sum_{l=1}^{p} \omega_l INT.RATE_{t-l} + \sum_{l=1}^{p} \upsilon_l AGRIC_{t-l} + \sum_{l=1}^{p} \psi_l GDP_{t-l} + \sum_{l=1}^{p} \xi_l GCF_{t-l} + \sum_{l=1}^{p} \xi_l EXC_{t-l} + u_{4t} \quad \text{.....(6)}$$

Model 2

In order to capture objective two and three of this study, the variance decomposition test was conducted to show the impulse response function (IRF) of the various variables. The reason is because the IRF is used to show how a variable known as the response variable responds to shocks from the imposed variable in a particular economy. Thus, the IRF Table will be used to show each result.

Diagnostic Test

The following diagnostic test will be carried out:

1. Pre-diagnostic Tests (Unit Root Test and cointegration)
2. Post-diagnostic Test (VECM and Variance Decomposition)

Source of Data

In order to investigate the impact of agriculture on Nigeria's economic growth, real GDP was used as a proxy for economic growth and per annual value of agricultural output was used. More so, gross capital formation was used as a proxy for investment (GCF) and annual exchange rate, interest rate were also used. The data/variables used in the study were obtained from the Central Bank of Nigeria (CBN) annual Statistical Bulletin ranging from 1990 to 2017.

Data Analysis

The behaviour of each of the variables is tested through the applications of Augmented Dickey-Fuller (ADF) unit root test, mainly to test for stationarity of the individual variables employed in the investigation. Hence, the Augmented Dickey-Fuller (ADF) test result shown in the below Tables1 is in both at first difference and second difference. In the estimation, the results of the tests indicate that all variable were not stationary at level. However, the results provided strong evidence indicating that all the variables became stationary at first and second differences at 1%, 5% and 10% critical values. Therefore, the study rejects the hypothesis of non-stationarity, and concludes that the variables are stationary. This means that the variables are integrated of order 1. Thus, there is need to proceed with co-integration analysis in order to examine the existence of long run equilibrium among the variables.

Table 1. Augmented Dickey Fuller (ADF) unit root test (Intercept)

Variables	ADF Statistics	1% critical Value	5% Critical Value	10% Critical Value	Prob./ Remark
GDP	-4.990712	-3.724070	-2.986225	-2.632604	0.0005/ 2(I)
AGRIC	-	-3.711457	-2.981038	-2.629906	0.0018/ I(I)

	4.425408				
GCF	-4.804888	-3.724070	-2.986225	-2.632604	0.0008/ I(I)
EXC	-5.655045	-3.711457	-2.981038	-2.629906	0.0001/ I(I)
INT. RATE	-4.553637	-3.711457	-2.981038	-2.629906	0.0013/ I(I)

Source: Authors' (E-view 8)

The results of the cointegration test are shown in the Tables 2a and 2b below. The result of the co-integration test shows that there is existence of long run equilibrium relationship among the variables. The result shows the trace statistic and the maximum eigenvalue statistic as estimated (Johansen co-integration test). In the estimation result of the co-integration test, both the trace statistic and the maximum eigenvalue statistic show that long run equilibrium relationship exist among the variables at 5% critical value, which implies that long run equilibrium (co-integrating) relationship exist between agricultural output and economic growth in Nigeria within the period under cover.

Table 2a. Result of the Johansen co-integration rank Test (Trace)

Hypothesis: No. of CE(s)	Eigenvalue	Trace	0.05	Prob.**
None*	0.987003	209.8802	69.81889	0.0000
At most 1*	0.933396	101.3052	47.85613	0.0000
At most 2*	0.583997	33.58053	29.79707	0.0175
At most 3*	0.264355	11.65397	15.49471	0.1743
At most 4*	0.147132	3.978767	3.841466	0.0461

Source: Authors' (E-view 8)

Table 2b. Result of the Johansen co-integration rank test (Maximum Eigenvalue)

Hypothesis: No. of CE(s)	Eigenvalue	Max-Eigen	0.05	Prob.**
None*	0.987003	108.5750	33.87687	0.0000
At most 1*	0.933396	67.72463	27.58434	0.0000
At most 2*	0.583997	21.92656	21.13162	0.0386
At most 3*	0.264355	7.675207	14.26460	0.4127
At most 4*	0.147132	3.978767	3.841466	0.0461

Source: Authors' (E-view 8)

The estimation results below depict the test of Vector Error Correction Model (VECM) as shown in Table 3. The estimated results indicate the value of ECM to be -0.341376, with its associated t-statistical value as -0.39326. The negative value of the ECM implies that the relationship among the variables met the a priori expectation and as well satisfies stability requirement. This claim is supported by the t-statistical value, which indicates that the variables for the study are statistically significant. The ECM result also shows that the speed of adjustment between the short run dynamics and the long run equilibrium relationship is 34.13%. Therefore, theoretically the ECM shows the length of period it will take to correct temporary short run disequilibrium within the long run equilibrium relationship among the variables under covered. The results also indicated that the value of agricultural output has positive contribution to the Nigeria economy growth (GDP) within the period covered. It is estimated on average that 1% increase in the value of agricultural output would result to an increase in the GDP. Similarly, the result shows that investment (GCF) and other variables have insignificant impact on the Nigeria economic growth within this period (1990-2017).

Table 3. Vector error correction model (VECM) test result

Cointegrating Eq:	CointEq1					
AGRIC(-1)	1.000000					
EXC(-1)	-6450.368 (910.799) [-7.08210]					
GCF(-1)	97850.57 (6894.81) [14.1919]					
GDP(-1)	-0.218151 (0.00250) [-87.1190]					
INT_RATE(-1)	7994.922 (1336.95) [5.97995]					
C	-1141080.					
Error Correction:	D(AGRIC)	D(EXC)	D(GCF)	D(GDP)	D(INT_RATE)	

CointEq1	-1.374861	-9.68E-06	7.73E-07	-0.341376	4.45E-06
	(0.25786)	(3.0E-05)	(1.6E-06)	(0.86806)	(1.1E-05)
	[-5.33177]	[-0.32271]	[0.48382]	[-0.39326]	[0.39699]
D(AGRIC(-1))	0.323256	-1.17E-05	1.04E-06	-0.055049	5.59E-06
	(0.19952)	(2.3E-05)	(1.2E-06)	(0.67165)	(8.7E-06)
	[1.62021]	[-0.50315]	[0.83996]	[-0.08196]	[0.64457]
D(AGRIC(-2))	0.101251	1.30E-05	-1.33E-06	0.595548	-2.54E-06
	(0.20342)	(2.4E-05)	(1.3E-06)	(0.68480)	(8.8E-06)
	[0.49774]	[0.55117]	[-1.05109]	[0.86967]	[-0.28705]
D(EXC(-1))	-16831.75	-0.673478	0.007987	-8385.719	0.229185
	(4167.84)	(0.48478)	(0.02584)	(14030.6)	(0.18122)
	[-4.03849]	[-1.38925]	[0.30912]	[-0.59767]	[1.26467]
D(EXC(-2))	-18934.22	-0.640956	-0.002078	-13684.46	0.319557
	(6121.81)	(0.71205)	(0.03795)	(20608.4)	(0.26618)
	[-3.09291]	[-0.90015]	[-0.05475]	[-0.66402]	[1.20052]
D(GCF(-1))	76377.61	3.728717	0.100475	60086.49	0.572321
	(47341.0)	(5.50640)	(0.29346)	(159368.)	(2.05843)
	[1.61335]	[0.67716]	[0.34238]	[0.37703]	[0.27804]
D(GCF(-2))	16281.46	3.970498	-0.643263	-108478.0	1.688857
	(45903.2)	(5.33918)	(0.28455)	(154528.)	(1.99592)
	[0.35469]	[0.74365]	[-2.26063]	[-0.70199]	[0.84615]
D(GDP(-1))	0.159166	2.39E-05	4.17E-07	1.024238	-7.99E-06
	(0.12080)	(1.4E-05)	(7.5E-07)	(0.40666)	(5.3E-06)
	[1.31760]	[1.69822]	[0.55648]	[2.51865]	[-1.52054]
D(GDP(-2))	0.316939	-3.06E-05	-5.14E-08	-0.261448	6.44E-06
	(0.11937)	(1.4E-05)	(7.4E-07)	(0.40186)	(5.2E-06)
	[2.65500]	[-2.20126]	[-0.06945]	[-0.65059]	[1.24076]
D(INT_RATE(-1))	18582.30	0.159005	0.020817	16904.72	0.066479
	(6452.84)	(0.75055)	(0.04000)	(21722.8)	(0.28058)
	[2.87971]	[0.21185]	[0.52041]	[0.77820]	[0.23694]
D(INT_RATE(-2))	13697.10	-0.166350	-0.039194	-406.2899	-0.038695
	(6867.96)	(0.79884)	(0.04257)	(23120.3)	(0.29863)
	[1.99435]	[-0.20824]	[-0.92062]	[-0.01757]	[-0.12958]
C	-501134.7	18.66087	-0.675522	283056.7	-0.864507
	(229707.)	(26.7180)	(1.42393)	(773282.)	(9.98788)
	[-2.18163]	[0.69844]	[-0.47441]	[0.36605]	[-0.08656]
R-squared	0.734831	0.435741	0.432753	0.632837	0.343266
Adj. R-squared	0.510457	-0.041709	-0.047225	0.322161	-0.212433
Sum sq. Resids	1.80E+12	24402.93	69.31240	2.04E+13	3410.197
S.E. equation	372493.1	43.32607	2.309052	1253958.	16.19638
F-statistic	3.275025	0.912643	0.901609	2.036966	0.617719
Log likelihood	-347.9987	-121.5182	-48.22031	-378.3448	-96.91908
Akaike AIC	28.79990	10.68146	4.817625	31.22758	8.713527
Schwarz SC	29.38496	11.26652	5.402685	31.81264	9.298587
Mean dependent	540188.1	-0.396272	-0.042219	1955069.	0.235114
S.D. dependent	532381.2	42.44985	2.256388	1523069.	14.70921
Determinant resid covariance (dof adj.)		5.29E+27			
Determinant resid covariance		2.01E+26			

Log likelihood	-934.4341
Akaike information criterion	79.95473
Schwarz criterion	83.12380

Source: Authors' (E-view 8)

In the AGRIC decomposition, taking from period 3 (short run) of the table 4 below, shows that AGRIC has 90.2% shock fluctuation on itself (own shock), while EXC has 5.2%, GCF 0.2%, GDP 1.9% and INT.RATE 2.3% shocks influence In AGRIC. Meaning that, at the short run, these variable can cause these percentage fluctuations in AGRIC. But, at the long run, AGRIC has own shock to be 49.2%, while EXC 44.9%, GCF 3.3%, GDP 2.0% and INT.RATE 0.4% impulses can cause fluctuation in AGRIC. Above all, its observed that AGRIC contributed more shocks than other variable in itself, both at the short run and long run, but had a reduced shock at long run period 10. All other variables had increase shocks (period 10) in AGRIC, but their shocks were not significant compared with AGRIC.

Exchange rate (EXC) in the short run shows a 81.3% shock in EXC (own shock) in period 3, and AGRIC 8.7%, GCF 9.5%, GDP 0.3% and INT.RATE 0.05% shocks in EXC. EXC contributed more shocks in this period 3 than every other variable (AGRIC,GCF,GDP and INT,RATE—insignificant). The long run (period 10) has EXC (own) shock 69.4%, while AGRIC 21.8%, GCF 7.4%, GDP 0.4% and INT.RATE 0.9% have shocks in EXC. In the short run, EXC contributed more shocks than other variables. The long run (period 10), EXC and GCF have reduced shocks, while AGRIC 21.8%, GCF 7.4%, GDP 0.4% and INT.RATE 0.9% have impulse increases in EXC. EXC contributed more shock in itself (significant), although its shock reduced at the long run, while GCF (reduces shock) and other variables having increases in their shock contributions were insignificant.

Gross capital formation (GCF) in the short run shows a 70% shock in GCF (own shock) in period 3, and AGRIC 23.7%, EXC 5.1%, GDP 0.08% and INT.RATE 1% shocks in GCF. GCF contributed more shocks in this period 3 than every other variable (AGRIC, GCF, GDP and INT,RATE—insignificant). The long run (period 10) has GCF (own) shock 42.7%, while AGRIC 39.8%, GCF 16.1%, GDP 0.5% and INT.RATE **0.**6% have shocks in GCF. In the short run, GCF contributed more

shocks than other variables. GCF contributed more shock in itself (significant), although its shock reduced at the long run, as well as INT.RATE (shock reduction) in the long run while other variables have increases in their shock contributions, but, insignificant.

In period 3, the short run of GDP decomposition shows 1.6% impulse fluctuation in GDP (own shock) and AGRIC 73.2%, EXC 18.4%, GCF 5.6%, and INT.RATE 0.9% shock in GDP. In this period (short run), AGRIC shows a greater shock fluctuation in GDP (significant) than every other variables (insignificant). In the long run, period 10, indicates GDP 2% and AGRIC 72.3%, EXC 23.2%, GCF 1.5% and INT.RATE 0.8% impulse response in GDP. It also shows AGRIC contributing more shocks (Significant) in GDP, while GCF, EXC, INT.RATE, including GDP (own shock) contributed less fluctuations (insignificant) in GDP. Although shocks of EXC and GDP increased at the long run, but not significant and AGRIC, GCF and INT.RATE reduced, only AGRIC has a strong significant in GDP. Meaning shocks in AGRIC will and can cause strong significance fluctuation in GDP.

INT.RATE shock at the short run show 72.7% (own shock), while AGRIC 3.8%, EXC 18.2 %, GCF 2.7 %, and GDP 2.3%. INT.RATE contributed more shock (significant) in INT.RATE. While contribution from other variables were not significant at this period. Period 10 (long run), shows INT.RATE 74% (own shock), while AGRIC 3.9%, EXC 8.3%, GCF 11.7% and GDP 1.5% impulses in INT.RATE. Both in short and long run, INT.RATE contributed a significant fluctuation in INT.RATE (own shock). Every other variable had insignificant shock fluctuation in INT.RATE at this period.

Table 4. Varian Decomposition Test Result

Varian Period	S.E.	Decomposition Of AGRIC				
		AGRIC	EXC	GCF	GDP	INT_RATE
1	372493.1	100.0000	0.000000	0.000000	0.000000	0.000000
2	605319.6	93.13420	3.073925	0.001959	0.979627	2.810287
3	924669.7	**90.24880**	**5.203386**	**0.224484**	**1.981763**	**2.341569**
4	1663247.	43.29336	54.21217	0.218580	1.513050	0.762845

5	2273212.	52.66021	43.90077	1.089811	1.940417	0.408790
6	2486209.	59.53444	37.05254	1.125673	1.930672	0.356672
7	2593478.	58.08218	35.85083	3.778722	1.944237	0.344030
8	2783504.	54.87120	38.03829	4.370450	2.306007	0.414052
9	3137846.	49.91797	43.72492	3.680149	2.195250	0.481720
10	3383949.	**49.23472**	**44.90092**	**3.300898**	**2.079181**	**0.484274**

Decompositi

Variance on Of EXC

Period	S.E.	AGRIC	EXC	GCF	GDP	INT_RATE
1	43.32607	2.658777	97.34122	0.000000	0.000000	0.000000
2	60.58054	8.234572	86.25221	5.050346	0.430431	0.032445
3	63.99214	**8.744427**	**81.30378**	**9.510583**	**0.385903**	**0.055312**
4	66.77452	10.98988	78.70842	9.762925	0.451693	0.087080
5	69.70909	13.08435	76.48772	9.714162	0.454331	0.259438
6	78.49671	11.88751	78.74404	8.454520	0.358517	0.555412
7	88.07410	9.962776	81.25574	7.842112	0.296653	0.642719
8	88.89074	9.917587	80.78662	8.367293	0.296467	0.632034
9	94.19706	18.38578	72.16506	8.259116	0.520963	0.669081
10	106.2140	**21.82771**	**69.41744**	**7.401793**	**0.428168**	**0.924888**

Decompositi

Variance on Of GCF

Period	S.E.	AGRIC	EXC	GCF	GDP	INT_RATE
1	2.309052	6.078340	6.614514	87.30715	0.000000	0.000000
2	3.901143	18.52734	6.192901	74.42339	0.000249	0.856116
3	4.414046	**23.74925**	**5.117942**	**70.04779**	**0.084590**	**1.000427**
4	4.755378	27.93908	5.093298	65.85047	0.255039	0.862113
5	5.473478	27.55158	14.31279	57.18526	0.287456	0.662912
6	6.413943	34.29172	11.83085	52.85846	0.356226	0.662741
7	6.987139	37.06258	10.41614	51.27793	0.326477	0.916880
8	7.221022	37.77981	11.33851	49.60168	0.342238	0.937755
9	7.942922	38.20187	15.67261	44.78684	0.550066	0.788606
10	8.947377	**39.83442**	**16.17437**	**42.76316**	**0.566653**	**0.661390**

Decompositi

Variance on Of GDP

Period	S.E.	AGRIC	EXC	GCF	GDP	INT_RATE
1	1253958.	58.67854	34.14088	5.586654	1.593929	0.000000
2	2692333.	64.47054	26.06698	7.309074	1.657944	0.495459
3	4037208.	**73.29290**	**18.49405**	**5.678782**	**1.613809**	**0.920466**
4	5152917.	76.29678	16.97556	3.898956	1.704745	1.123954
5	6394935.	77.04228	17.07249	2.824819	1.873616	1.186798
6	7813305.	74.30008	20.29503	2.405166	1.899425	1.100298
7	9292152.	72.67660	22.19637	2.219331	1.903201	1.004497
8	10499127	73.57245	21.45062	2.045847	1.959143	0.971939
9	11457726	73.69517	21.61134	1.762836	2.007324	0.923330
10	12432303	**72.33988**	**23.24430**	**1.516571**	**2.063762**	**0.835490**

Decompositi

Variance on Of INT.RATE

Period	S.E.	AGRIC	EXC	GCF	GDP	INT_RATE
1	16.19638	0.171384	30.20196	0.415219	1.078708	68.13273
2	23.86080	4.412282	23.03244	0.658322	2.377415	69.51954
3	29.01874	**3.894425**	**18.21398**	**2.746207**	**2.358748**	**72.78664**
4	35.80559	5.669748	12.74628	12.00946	1.683021	67.89149
5	39.88730	5.326341	10.40555	13.37581	1.682293	69.21000
6	42.37491	4.749078	9.235560	11.97614	1.692725	72.34650

7	44.94477	4.273150	8.769939	11.17766	1.626801	74.15245
8	47.64732	3.802339	8.694103	11.07203	1.698295	74.73323
9	50.59879	3.854802	8.270699	11.40474	1.609574	74.86019
10	53.80231	**3.989183**	**8.380509**	**11.70110**	**1.534464**	**74.39475**

Choles
k Y Odering: AGRIC EXC GDP INT. RATE

Source: Authors' (E-view 8)

CONCLUSION

This research examines the significant contribution of agricultural output to the growth of Nigeria domestic economy for the period 1990-2017. Cointegration test, vector error correction model (VECM) and variance decomposition were used in the analysis. The variables used include real GDP as the dependent variable while the independent variables are agricultural output (AGRIC), gross capital formation (GCF), exchange rate (EXC) and interest rate (INT.RATE). A stationarity test was conducted through the applications of Augmented Dickey-Fuller (ADF) test at 1%, 5% and 10% level significance. The unit root test results indicated that all the variables were stationary at first I (1) and second 2(I) differences.

The cointegration test shows evidence of long run equilibrium relationship among the variables estimated (cointegrating equation). Furthermore, the results of the vector error correction model (VECM) indicated that agricultural output has positive and insignificant contribution to the growth of Nigeria economy growth. Thus, it is estimated on average that 1% increase in the agricultural output would lead to a little margin (insignificant) increase in real GDP of Nigeria. Similarly, the result shows that both the gross capital formation (GCF)) and other variables use have insignificant impact on economic growth in Nigeria.

POLICY RECOMMENDATION

Above all, the study therefore recommends that government should improve its budgetary allocation on agriculture, in order to boost the growth in this sector, as well as its contribution to the growth of the domestic economy. Government is as well advised to avoid inconsistencies in its agricultural policies and programs; rather it should embrace consistent, stable and sustainable agricultural policies, as that would help to improve agricultural output in Nigeria. The study as well recommends that government should strengthen agricultural credit agencies in order to monitor and ensure efficient disbursement of fund allocated to agricultural producers, in so doing, mismanagement and diversion of agricultural fund in Nigeria would be discouraged, hence, improve agricultural output, which in turn grows the Nigeria economy.

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