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IS THERE ANY RELATIONSHIP BETWEEN AGRICULTURAL PERFORMANCE AND INCLUSIVE GROWTH IN NIGERIA?

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Abstract

In examining the initial role of the Agricultural sector in Nigeria, the sector is seen to be an indispensable sector in establishing the framework for the nation's economic growth. Hence, increased agricultural production is expected to be a core pre-requisite for rapid economic growth in a developing nation like Nigeria. Efforts by the successive governments to sustain the country's agricultural sector are evident in various yearly allocations to this sector with respect to lending and budgetary provisions. However, the issue of concern is, why has the increase in government financing of the agricultural sector not translated into the expected increase in agricultural inclusive growth. It is therefore, worthy of note that the neglect of this sector overtime has brought about an increase in rural poverty, migration, hunger and crimes, in the last few years of our economic growth. Hence, this study assesses the impact of agricultural performance on inclusive growth in Nigeria. Using Johansen Co-integration test and fully-Modified Ordinary Least Square. The study found a long run relationship among the variables of interest, while agricultural financing exact more long run effect on per capita income (economic inclusive growth indicator). This paper concludes that, government should invest more in activities that promotes agricultural gains and leads to pro-poor growth, in addition to broadly aligning agricultural spending, in order to stimulate qualitative growth in the sector by giving regular financial support to farmers. Such support however, must be monitored and periodically reviewed in order to access its effectiveness and prevent misallocation of funds.

Keywords: **Agricultural Sector; Inclusive Growth; Nigeria; Economic Growth and Budgetary**

JEL Classification: Q1; O40; G32; G17; Q0.

INTRODUCTION

Nigeria is a Sub Saharan African nation, which is abundant in natural resources, with 84 million hectares of arable land, 279 billion cubic meters of surface water. She possesses three of the eight major river systems in Africa and has an estimated over 170 million people in population, projected to grow to 470 million by year 2050 which infers a large internal market [1]. A close examination of the agricultural contributions to the economy shows that the sector employs about 75 percent of nation's work force, as is the case in most sub-Saharan African countries [2]. It is also of note that agriculture is the major source of food and livelihood in Nigeria, which make the sector a critical component of every economic planning that seek to alleviate poverty and attain food security. But, the sector's productivity estimates for Nigeria reveal a short-fall in agricultural productivity growth since the 1970s.

Inclusive growth on the other hand, refers to economic growth which results in a wider access to sustainable socioeconomic opportunities by the majority of people, while protecting the vulnerable, in an environment of fairness and equality. According to Rauniyar and Kanbur [3], inclusive growth emphasizes that economic opportunities created by growth are available to all, particularly the vulnerable. Hence, growth is inclusive if the benefits will reach the poor, marginalized and social excluded groups in the society. This kind of growth should bring about social development and empower the weaker ones to gain access to assets and opportunities, while equitable distribution of assets and opportunities brings about sustainable economic growth and by extension

results in poverty reduction and inequality.

As a result inclusive growth is expected to be broad-based across all sectors and promote productive employment, while enhancing the resilience of the poor and marginalized groups in the society from adverse shocks. Notably that the agricultural sector is the main employer and driver of development in rural regions and partner countries of World Bank. According to FAO estimates, some 1.3 billion people work in agriculture around the world, 97 per cent of them in developing countries like Nigeria. In most developing countries, 30 to 50 percent of household income in rural areas is directly generated through farming. Thus, employment opportunities in agriculture are enormous, which is good for economic development, especially where agricultural output is on larger scale that can supply the food market or enterprises that deals with primary products. This increases employment in other sectors such as retail trade, services and food processing that is directly linked to agriculture. Hence, agriculturally driven inclusive growth is growth accompanied by gains manifested through more employment and income benefitting to those sections of the society which have been neglected by the recent consistent high economic growth rates. Inclusive growth is not strictly based on mere increase in growth rates, but improvement in productivity and standards of living of the vulnerable. Therefore, this study examines the impact of agricultural performance on inclusive growth in Nigeria.

Statement of Research Problem

In examining the initial role of the Agricultural sector in Nigeria, the sector is seen to be an indispensable sector in establishing the framework for the nation's economic growth. Literature affirms that the sector can supply inputs to other sectors; provide food for the population while increasing savings, capital and foreign exchange needs of the economy [4]. In their view said that there is a consensus in literature that increased agricultural production is a core pre-requisite for rapid economic growth. Meanwhile, the current poor performance of the sector was due to the advent of oil boom and the effect of trade liberalization on the economy [5,6]. But, another school of thought rejects this

argument; Aliyu [7] in his research findings asserted that allocation of capital to the agricultural sector during the pre-oil boom (1962-1974) was less than that of the post oil boom of 1975.

Nonetheless, efforts by successive governments in Nigeria to sustain the agricultural sector output are evident in their various allocations to the sector in terms of lending and budgetary provisions. These budgetary allocations are either often spent on physical structures, grants or other inputs distributed to farmers or funding to agencies that perform agriculture-related services. Also, an assessment of the commitment of government in terms of programs, schemes and institution, clearly indicate that several programs, schemes and institutions on agricultural growth in Nigeria had been put in place. The issue then is what is responsible for the subsistence level of agriculture in Nigeria, as the sector is been reputed to be the highest employer of labor in the nation's labor force.

This study investigates the long run relationship between agriculture and economic growth while using recent advances in time series data in Nigeria. Although various authors like Izuchukwu [8], World bank [6], Awokuse [9], Awotide [10], Ogundele and Okoruwa [11] and Adofu [12] among others had looked at various objectives like, effects of domestic savings, foreign direct investment on agricultural output and agricultural production and its drivers in Nigeria, in previous studies, however not many of these authors or studies had taken a closer look at agricultural performance which consists majority of agricultural output in Nigeria, interest rate on agricultural loans and inclusive growth. Hence, this study fills this gap in the literature.

This study consists of six chapters; chapter one is the general introduction that includes study background and research problem. Chapter two consists of literature review from both developed and developing economies while chapter three covers stylized facts. Chapter four consists of theoretical framework and methodology. Presentation and discussion of result are presented in chapter fiver while chapter six covers conclusion and recommendation of the study.

REVIEW OF LITERATURE

Theoretical review

Lewis growth theory of unlimited supply of labor

Like the classical economists, Lewis believes that in many underdeveloped economies, an unlimited supply of labor is available at subsistence wage. Economic development takes place when capital accumulate as a result of the withdrawal of surplus labor for the subsistence sector to the capitalist sector. Lewis however, rejected the neo-classical assumption of full employment, market clearance and perfect competition, even though he saw it as a distant goal, along with Arrow. He explicitly recognized that not only the owner-operated agriculture but also the urban informal sector, lacking cooperating capital instead of land, was characterized by a system of bargaining rather than cooperative wages.

This theory has undergone several modification by Ranis and Fei [13], and Minami [14] among others. They have pointed out that Lewis contribute a major way to transit growth theory, to the notion of development phases and sub-phase, en-route to modern economic growth. The Lewis theory is applicable to overpopulated developing countries under certain assumption. But, the model assumption of constant wage rate in capitalist sector until the supply of labor is exhausted from the subsistence sector was refuted. This is unrealistic assumption because the wage rate continues to rise overtime in the industrial sector. However, the most challenging of the assumptions of Lewis growth model is the notion that “labor surplus” was interpreted as zero marginal productivity of agricultural labor, a highly unlikely event, statistically or conceptually, and one which was subjected to rigorous attacked by Schultz [15], who introduced evidence from India to show the withdrawal of a large portion of the agricultural output. This claim was also repudiated by Sen [16], who pointed out that as people leave agricultural, those who remain work harder. Hence, this theory is one sided theory because Lewis does not

consider the possibility of progress in the agricultural sector. As the industrial sector develops with the transfer of surplus labor, the demand for food and raw materials will rise which will, in turn, lead to the growth of the agricultural sector. Hence, the theory neglects total demand in the long run.

Solow Growth Theory

Solow theory of economic growth provides more useful framework for analyzing growth determinants in the literature. According to Spence [17], this theory relates to the explanation of the determinant of growth in the production side of the economy. Starting with the idea of production function, where, the quantity of output (Q) in any sector of the economy is a function of the quantity of inputs. These are land and natural resources (NR), Labor (L) and physical capital such as buildings and machines (K).

Q=f (NR, L, K)

This theory goes further to postulate that with detailed data for an economy's sub-sectors, it should be possible to explain the growth of output by the increase in quality and quantity of factor inputs. Any residual is attributed to "technological change" this can be attributed to shift in the production function not due to factor inputs. Solow's result challenged previous scholars who had seen savings and capital accumulation as the main determinants of economic growth. Spence [17] further explains that there are many factors that influence economic growth, and this number increase as the view is expanded from economic growth (GDP per capita) to include equitable growth and wellbeing. Some of such factors are savings and investment, technological change, human development, innovation systems, economic efficiency, trade and exports, infrastructural and services, governance and security.

Methodology and Empirical Review

Odi [18] and Anowor [19] used multi modelling econometric method to assess

agricultural related effects. While Anowor [19] investigated the effect of trade liberalisation on the Nigeria Agricultural sector; Odi assessed the effect of Agricultural Co-operative Rural Development Bank on financing Agriculture in Nigeria. However, both studies employed Ordinary Least Square technique, ADF stationarity test, Johansen co-integration test and Error Correction Model. In their study, they assessed the impact of trade liberalisation on the Nigerian agricultural sector. They found contrary to the postulation that, although trade openness is advantageous but in Nigeria the reverse may be the case. The study recommends that for the economy to take advantage of trade liberalisation, import restriction and price control of agricultural products should be imposed by the government.

Ayinde and Olatunji [20] on their empirical research on the impact of climate change on agricultural productivity in Nigeria, found out that agricultural productivity is critical, given its impact on changing livelihood patterns of citizenry. This finding demonstrated that, while the rate of agricultural productivity increased between 1981 and 1995, it followed by a much lower growth rate in 1996-2000 sub-periods, as a result of variations in the trend of rainfall, while temperature was not relatively constant either. Temperature change was revealed to exert negative effect while rainfall change exerts a positive effect on agricultural productivity. Using descriptive and co-integration techniques to analyze the time series data in the work. The augmented Dickey-Fuller test for unit root revealed that agricultural productivity is not stationary and likewise the annual rainfall, but became stationary after differencing. Annual temperature on the other hand is stationary at level. Temperature change was revealed to exert negative effect while rainfall change exerts a positive effect on agricultural productivity.

Adofu [12] investigated the economic effect of improved agricultural technologies on cassava productivity in Kogi State of Nigeria. The analysis was drawn from a household survey covering the agricultural season of 2009/2010. The results revealed that around 79.33% of the respondents adopted the use of improved variety within the period under study. The analysis done on the revenue of the respondents before and after the adoption of the improved agricultural technology shows that, revenue generated by

farmers after the adoption of innovations increased more than revenue per farmer before adoption, by ₦27, 750. Their finding was found to be consistent with the study by Idachaba and Ayoola [21] who observed that improved agricultural activities help in increasing agricultural productivity. From this, it is clearly understood that improved agricultural technological development has a great economic impact on productivity as well as the socioeconomic emancipation of farmers from abject poverty. This can be said to be the major panacea through which farmers can increase their output, income and welfare.

Awokuse [9] in his study on agricultural growth and economic development explained from the result that agriculture is an engine of economic growth while trade openness has a positive effect on GDP per capita. In the study, he used an autoregressive distributed lag (ARDL) by Pesaran approach to co-integration and an error correction model (ECM). Tiffin and Irz [22] used bivariate granger causality test to assess the causal relationships between agricultural output and economic growth for a panel of both developing and developed countries. They found strong evidence to support causality from agriculture to economic growth for developing countries, while the causality results for developed countries were inconclusive.

Aminu and Abdulrahman [23] empirically investigated the contribution of Agricultural and Petroleum sectors to the economic growth of Nigeria from 1960 to 2010. They found evidence that agricultural sector contributes higher than petroleum sector while both contributions are positive. They recommend increase spending by government in agriculture in order to stimulate significant rise in sectorial-productivity which could change the social indicators of the economy. Suleiman and Aminu [23] also substantiated that agricultural sector`s contribution to GDP has always been higher than that of petroleum and manufacturing sector, but the sector can still contribute more, if all the available opportunities are harnessed. Their study assessed the contributions of agriculture, petroleum and manufacturing sector to the Nigeria economy. However, their study recommended that the government should increase spending in agricultural sector. They employed the following econometrics procedure: the ordinary least square,

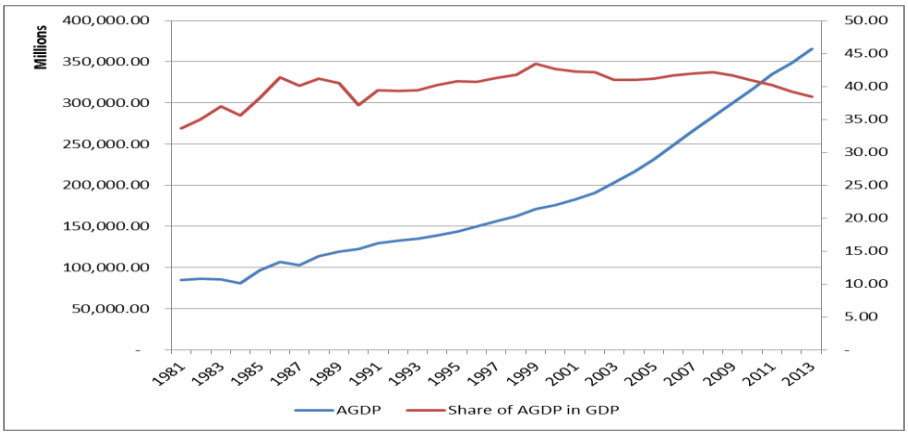
Augmented Dickey-Fuller (ADF) stationary test, Chow break point and forecast test, to investigate the contribution of Agricultural and Petroleum sectors to the economic growth of Nigeria [24-29].

Stylized Facts

Trend of agricultural GDP and share of AGDP in Nigeria

Productivity in Agricultural sector has been rising but at a very slow pace while its contribution to Gross Domestic Product (GDP) was oscillating around 33 percent to 40 percent. This could be due to a number of reasons such as neglect of the sector after the oil boom of 1970s, the impediments in Land Use Act of Nigeria and the failure of the youths to be gainfully involved in agriculture in Nigeria (Figure 1). From 1981, the growth rate of agricultural GDP maintained a continuous rise but its sectorial contribution decline at decreasing rate till 2001 with a sharp rise in 2002 and a continuous decline till 2014 (Figure 1) [30-36].

Figure 1: Agricultural GDP and share of AGDP in GDP in Nigeria.

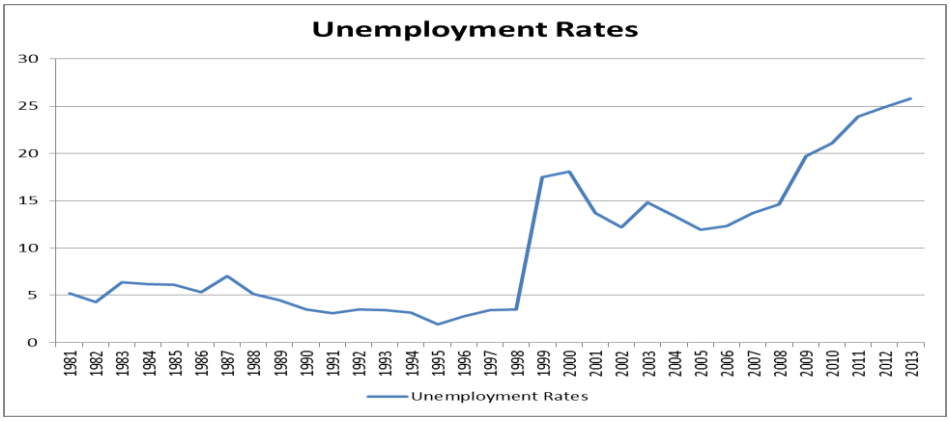


Source: Author's Computation from CBN 2014 statistical data.

Trends analysis of unemployment rate in Nigeria

The level of unemployment in Nigeria was stable, oscillating around 5 percent from 1981 to 1998 but rose significantly to two digit in 1999. The unemployment rate fell and rose marginally from 2000 to 2005 after which it remain on the upward trend till 2014. However, the rate of unemployment in the country was two digits above 12 percent from the beginning of the 21th century till date and majority of those affected are the youth (Figure 2).

Figure 2: Unemployment rate in Nigeria.

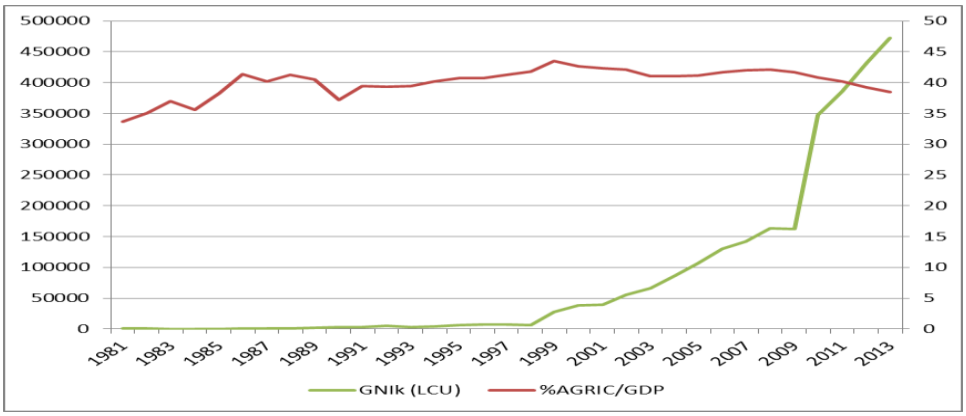


Source: Author's Computation from NBS 2014 statistical bulletin

Trend of share of agriculture in GDP and per capita income (GNIk)

The per capita income (in local currency unit - naira) rose at decreasing rate from 1981 to 1998, rising at increasing rate from 1999 till 2014. However, the agricultural contribution to productivity was rising and falling but fell in most of the years from 1981 to 2014. This suggests that agricultural productivity might not be responsible for the increase in income per head in Nigeria during the period (Figure 3) [37-44].

Figure 3: Trend of share of Agriculture in GDP and per capita income.



Source: Author's Computation from WDI (2014).

METHODOLOGY

Theoretical Framework

The new growth theory represents a key component of the emerging theory of development. This theory provides a better framework for analyzing endogenous growth and persistent Gross National Income (GNI) growth that is determined by the factors affecting the production process rather than, by factors outside the system. In contrast to traditional neoclassical theory, these models hold GNI growth to be a natural consequence of long-run equilibrium.

In furtherance to this, endogenous growth theorists seek to explain the factors that determine the rate growth of GDP that is left unexplained and exogenously determined in the Solow neoclassical growth equation. Models of endogenous growth bear some structural resemblance to their neoclassical counterparts, but they are considerably different in their underlying assumptions and the conclusions drawn. This significant theoretical differences stem from discarding the neoclassical assumption of diminishing marginal returns to capital investments, permitting increasing returns to scale in aggregate production, and frequently focusing on the role of externalities in determining the rate of return on capital investments.

Model Specification

This study employs Lewis Spellman's theory with financial intermediation on the typical Cobb Douglas model which relates productivity to factor inputs capital and labor. Cobb Douglas Model is stated as follows;

$$Q=f(L^{\alpha}, K^{\beta}) \quad (1)$$

Where Q represents productivity, L represent Labor inputs and K represent Capital input. Then, this study evaluates the elasticity of capital inputs on the productivity in the agricultural sector in Nigeria and the labor-output elasticity.

$$Q=f(L^{\alpha}, K^{\beta}) \quad (2)$$

$$Q=\alpha L + \beta K \quad (3)$$

The capital inputs in the sector were decomposed into Agricultural productivity and Agricultural Credits Guarantee Scheme Funds while unemployment rate was used to proxy labor component.
The model was re-written as follows;

$$GNIk=f(AGDP^{\beta}_1, ACGSF^{\beta}_2, UNEMP^{\beta}_3) \quad (4)$$

Where GNIk stand for Per capita Income (that is inclusive growth), AGDP stands for Agricultural productivity, ACGSF stands for Agricultural Credits Guarantee Scheme Funds and UNEMP stands for Unemployment rate.

In applying Log to equation (3) except unemployment rate, it becomes;

$$\ln GNIk_t=\beta_0+ \beta_1 \ln AGDP_t + \beta_2 \ln ACGSF_t + \beta_3 UNEMP_t + \mu_t \quad (5)$$

Techniques of Estimation

This study applies the Johansen co-integration (1995) test approach. This approach does not only tests for co-integration among variables, but also allows the estimation of an error correction specification. It accounts for the shortcomings of the Engel Granger approach, which is an alternative method that can be used to test for co-integration. The Engel Granger approach is static and does not account for the dynamic interrelationship among variables. But, the Johansen technique estimates both the long-run and the short-run dynamics in the model defined in Equation 4.

Data Sources and Measurements

Annual time series data covering third-two years (1981-2014) were used for the empirical analysis in this study. The data were collected on Per Capita Income, Agricultural Credits Guarantee Scheme Funds and unemployment rate from World Bank Development Index (WDI), Central Bank of Nigeria (CBN) Statistical Bulletin and National Bureau of Statistics (NBS) Annual Statistical Publications.

ANALYSIS AND DISCUSSION OF RESULTS

Stationarity Test

The results of the Philip Perron unit root test shows that all the variables are stationary at first difference, which is a pre-condition for using Johansen Co-integration approach. Table 1, show the results of the stationarity test in summary and the order of integration using Philip Perron test.

Table 1: Philip Perron Unit Root Test and Order of Integration.

Variables	Adj t-Statistic Value	5% Critical Value	Remark	Order of Integration
Lagdp	-3.198810	-2.957110	Stationary	I(1)
d(lacgsf)	-4.139154	-2.960411	Stationary	I(1)
Lacgsf	-0.206496	-2.957110	Non-Stationary	I(0)
d(lgnik)	-6.251793	-2.960411	Stationary	I(1)
Lgnik	0.143951	-2.957110	Non-Stationary	I(0)
d(unemp)	-5.208228	-2.960411	Stationary	I(1)
Unemp	-0.084502	-2.957110	Non-Stationary	I(0)
Source: Author's Computation from Eviews software.				

A variable is stationary when the absolute value of adjusted t-Statistic Value is greater than the absolute value of 5% Critical Value. Since only Lagdp is stationary at level while others were non-stationary at level, they were first differenced once, and the other variables became stationary.

Response of Cholesky one S.D. Innovation

Cholesky one standard deviation innnovation is used to assess the response of one variable to shock from of one variable.

Figure 4: Response of LGINK to LGNIK.

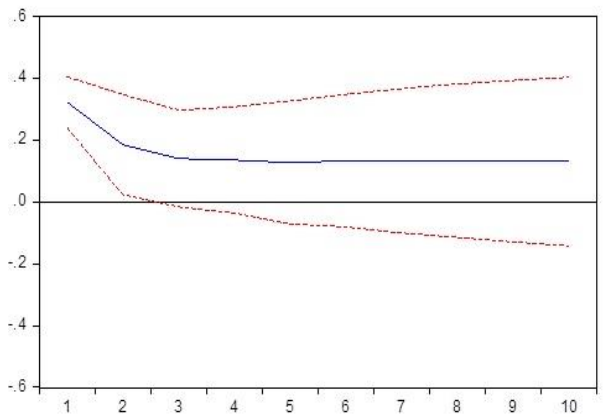


Figure 4 show the response of economic inclusive growth to one standard deviation shocks from its self (the response of LGNIK to LGNIK) in Nigeria. Thus, one standard deviation positive shock on AGDP by AGDP will remain negative in two out of the ten all through the 10 period. In fact, the shock was oscillating upwards and downwards.

Response of LGINK to LAGDP Shocks

Figure 5: Response of LGINK to LAGDP shocks.

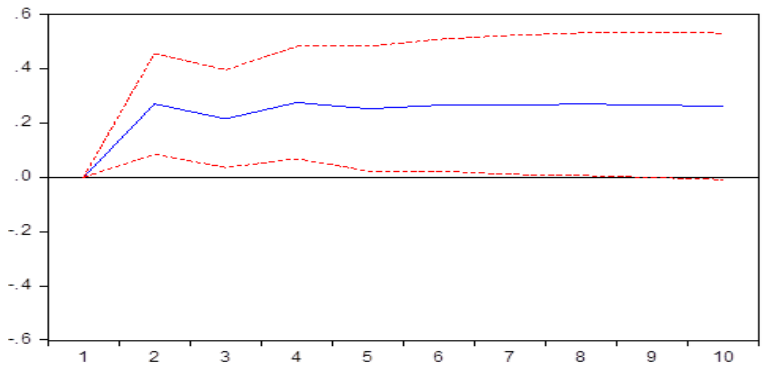


Figure 5 show the response of economic inclusive growth to one standard deviation shocks from agricultural share of GDP (the response of LGNIK to LAGDP) in Nigeria. There is one standard deviation positive shock on inclusive growth by agricultural productivity all through the 10 period.

Response of LGINK to LACGSF Shocks

Figure 6: Response of LGINK to LACGSF shocks.

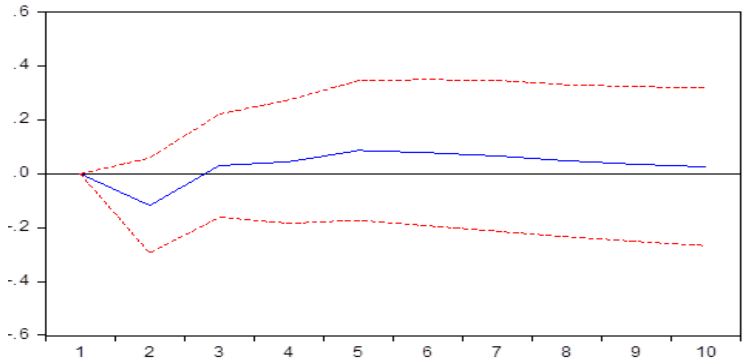


Figure 6 show the response of economic inclusive growth to one standard deviation shocks from agricultural financing (that is ACGSF) in Nigeria. There is one standard deviation negative shock on inclusive growth by agricultural financing all through the 10 period.

Response of LGINK to UNEMP shocks

Figure 7: Response of LGINK to UNEMP shocks.

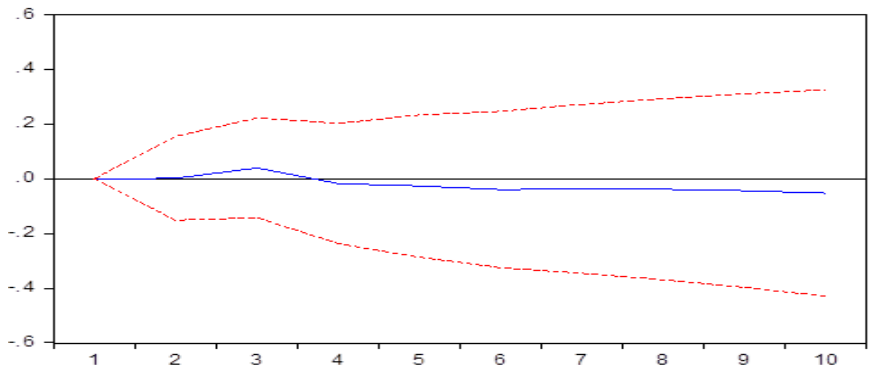


Figure 7 show the response of economic inclusive growth to one standard deviation shocks from unemployment rate in Nigeria. There is one standard deviation negative shock on inclusive growth by unemployment rate all through the 10 period.

In conclusion, agricultural productivity exhibits the most successive positive shock on inclusive growth among other variables.

Co-integration test

The co-integration test establishes whether a long-run equilibrium relationship exist among the variables of interest.

Test of co-integration Hypothesis:

H_0: γ=0 (No Co-integrating equation)

H_1: γ ≠ 0 (Co-integrating equations)

Table 2 presents the Unrestricted Co-integration Rank Test (Trace), the trace statistic (51.08087) is greater than 5% critical value (47.65813) hence, reject the null hypothesis of no co-integrating equation and accept the alternate hypothesis of co-integrating equations. To confirm this, the p-value of the null hypothesis from the trace table (0.0241) is less than 0.05. Therefore, reject the null hypothesis and accept alternate hypothesis. But accept the null hypothesis of "At most 1" and conclude that the model consist of one co-integrated equation. Therefore, using the unrestricted co-integrating rank test (trace), there is no co-integrating equations.

Another way to check for the presence of co-integration is the use of Unrestricted Co-integration Rank Test (Maximum Eigenvalue). Here, the Max-Eigen statistic (31.15783) is greater than 5% critical value (27.58434). Hence, reject the null hypothesis of no co-integrating equations and accept the alternate hypothesis of the presence of co-integration. Also, the p-value of the null hypothesis from the Max-Eigen table (0.0166) is less than 0.05. Therefore, reject the null hypothesis and accept the alternate hypothesis. But accept null hypothesis of "At most 1" and conclude that one co-integrated (Table 3). Hence, using the unrestricted co-integrating rank test (Max-Eigen), there is one co-integrating equation.

Therefore, conclusions from both unrestricted co-integrating rank test (Trace) and unrestricted co-integrating rank test (Max-Eigen) confirmed the presence of co-integrating equations. Hence, there is a long run relationship between the dependent variable (LGNIk) and the independent variables (LAGDP, LACGSF, UNEMP).

Table 2: Unrestricted co-integration Rank Test (Trace).

Hypothesized		**Trace**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.633989			0.0241

		51.08087	47.85613	
At most 1	0.301596	19.92303	29.79707	0.4281
At most 2	0.234746	8.795334	15.49471	0.3847
At most 3	0.016043	0.501358	3.841466	0.4789
Trace test indicates 1 co-integrating eqn.(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Table 3: Unrestricted co-integration rank test (Maximum Eigenvalue).

Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.633989	31.15783	27.58434	0.0166
At most 1	0.301596	11.12770	21.13162	0.6346
At most 2	0.234746	8.293976	14.26460	0.3496
At most 3	0.016043	0.501358	3.841466	0.4789
Max-eigenvalue test indicates 1 cointegrating eqn.(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values				

Co-integrating Equation

This is used to evaluate the long run impact of the independent variables on the dependent variable. That is the long run impact of agricultural productivity, agricultural finance and unemployment rate on per capita income (economic inclusive growth parameter) of Nigeria.

Table 4: Fully modified OLS.

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LAGDP	0.2025	0.097376	2.079558	0.0468
LACGSF	0.975093	0.170536	5.7178	0
UNEMP	0.019537	0.042421	0.460543	0.6487
C	-18.295	3.720507	-4.91733	0
R-squared	0.934446	Mean dependent var		9.447407
Adjusted R-squared	0.927422	S.D. dependent var		2.402423
S.E. of regression	0.647219	Sum squared resid		11.729
Durbin-Watson stat	0.657483	Long-run variance		0.86278

Dependent Variable: LGNIK
Method: Fully Modified Least Squares (FMOLS)
Date: 01/08/16 Time: 19:02
Sample (adjusted): 1982 2013
Included observations: 32 after adjustments
Cointegrating equation deterministics: C
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth=4.0000)
No d.f. adjustment for standard errors and covariance.

The Adjusted R^2

The adjusted R^2 of 0.9274 indicates that the independent variables in the dynamic model jointly explain 92.7 percent variations in the dependent variable (per capita income) whereas other variables not captured in this model explained 7.3 percent variations in the dependent variable.

T-statistic test

Using the test for significance of variables from the dynamic systemic model in Table 4, the parameter estimates of agricultural productivity and agricultural finance were statistically significant at 5 percent while unemployment rate was insignificant.

All these significant independent variables were rightly signed as expected. Specifically, 1 percent rise in agricultural productivity will raise per capita income by 0.20 percent while 1 percent rise in agricultural finance will increase per capita income by 0.98 percent.

DISCUSSION

This study reveals that agricultural output stimulate a long run increasing effect on raise of per capita income in Nigeria though at a minimal level. Also, the per capita income responds positively to changes from the agricultural sector in Nigeria. However, further evidence reveals that the increase in agricultural output was mostly accounted to expansion in cultivated land rather than increase in productivity.

The descriptive analysis reveals that agricultural financing proxy by agricultural credit scheme funds and per capita income grew at a closer rate during the periods under review. This close association was confirmed by the presence of co-integrating equations using Johansen test for co-integration. Also, the response of per capita

income to shocks from this scheme further stressed the importance of government guaranteed-low interest rate credits to farmers to the growth of the agricultural sector. This implies that this scheme is a viable policy tool for improving agricultural productivity hence, the continuity of this scheme will be beneficial if the draining pipe of corruption is effectively blocked.

CONCLUSION

This study investigates the effects of agricultural performance on inclusive growth in Nigeria, using the time series data from 1981 to 2014; the endogenous theory formed the theoretical framework. This theory explains the long run growth rate of an economy on the basis of endogenous factors as against exogenous factors of the neoclassical growth theory.

The study goes further to employ Johansen Co-integration test and fully-Modified Ordinary Least Square, these techniques explains the long run relationship among variables of interest. While agricultural finance exact more long run effect on per capita income, it concludes that publicly supported agricultural interventions in Nigeria through Agricultural Credit Guarantee Scheme Funds were effective at driving productivity in the agricultural sector. However, unemployment rate in Nigeria had positive but insignificant effect on per capita income.

RECOMMENDATION

The Federal Government should broadly align agricultural spending and policy priorities in order to stimulate qualitative growth in the sector by giving financial support to farmers. Such support however, must be monitored and periodically reviewed in order to access its effectiveness and prevent misallocation of funds. Also, the Nigerian government should invest in activities that promotes agricultural gains and leads to pro-poor growth. Such investments should include basic and applied agricultural research, agricultural extension and capacity building, irrigation development and agribusiness

development. All these dimension of intervention will quicken and enhance the quality of agricultural yields.

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