

Nigerian Economic Growth and Recovery: Role of Agriculture

Biwet Mwanret Inusa^{1*}, Pewam Calvin Daniel², Dangyil Fidelis dayagal² and Nyamdu Stephen Chiya²

¹Department of Finance and Supplies, Bokkos Local Government council, Plateau State, Nigeria

²Department of General Studies Plateau State Polytechnic, Barkin-Ladi Plateau State, Nigeria

Abstract

This research paper investigates the impact of agriculture on economic growth of Nigeria, considering the impact it will have to ensure the achievement of economic growth and recovery, from the devastating effects recession had on the economy from 2016 to the second quarter of 2017. Using Ordinary Least Squares (OLS) regression technique at 5% level of significance, it was discovered that exchange rate has positively and significantly impacted on agricultural output. Loans and advances, and total savings were also discovered to have significantly impacted agricultural output as a component of GDP. Based on the findings, the paper recommends that: moral suasion as a monetary policy be exercised, agricultural inputs be largely sourced locally and foreign exchange be made favorable, corruption that has eaten deep into the fabric of the society be effectively checked in the sector, government allocation to the sector be increased at the same time be monitored to ensure prudence in its usage, and finally government should encourage public private partnership in agriculture, for the achievement of stated goals.

Keywords: Nigeria; Economic recovery; Economic growth; Growth plan

Introduction

Agriculture has been the main stay of the Nigeria economy right from the time of independence (1960), but due to relevance of oil as a major contributor to the GDP over the years led to its relegation by government. However, due to fall in international price of oil in the third quarter of 2014 resulting to a decline in revenue thereby, leading to contraction of economic activities which subsequently plunged the economy into recession. The shock experienced as a result of the fall in oil price severely affected the Nigerian economy. The economy drastically slowed down in 2015 as annual GDP growth declined to 2.7% from 6.2 in 2014. By 2016, the Nigerian economy registered its first recession since 1991, recording a growth of -1.5% as oil production shortage prolonged due to activities of Niger Delta militants and decline in oil price. Notably, the under performance in the oil sector spilled over to the non-oil sector through the exchange rate channel with non-oil sector contributing 0.2% to record its worst performance since 1984. However, by the second quarter of 2017, the Nigerian economy exited its recession recording a positive growth rate of 0.5% [1]. By and large, the shock experienced during this recession is still being felt by the people to the extent that feeding well becomes a problem.

Therefore, in an attempt to revamp the economy from the devastating effects of recession, the government came up with an economic plan known as Economic Recovery and Growth Plan (ERGP). Agriculture being one of the key sectors of the economy has been outlined in the ERGP to help arrest the problem of food insecurity, generate employment, improve foreign exchange earnings and drive industrialization. Thus, it must be pragmatically supported to ensure the achievement of the stated goals.

Thus, this research work has as an objective to investigate the impact agriculture will have in the economic recovery and growth plan of the country. The research work also intends to give recommendations that will help to improve growth and development of the agricultural sector for meaningful contribution to nation's GDP.

Empirical Review

Abula and Ben [2] research into the impact of agricultural output on economic development in Nigeria within the period of 1986 to 2014.

They used annual time series data and employed Augmented Dickey-Fuller unit root test and vector Autoregressive model, the variables used were Agricultural input and public Agriculture expenditure to explain economic development provide by per capita income. The result shows that agriculture plays an important role on Nigeria economic development.

Oje-Okoro [3] made an analysis of the contributions of agricultural sector on the Nigeria economic development multiple regression was used to analyze the data collected. The result indicated a positive relationship between Gross Domestic Product (GDP) vis-à-vis domestic savings, government expenditure on agriculture, and Foreign Direct Investment (FDI) between the periods of 1986-2007. It was also revealed in the study that 81% variable in GDP could be explained by domestic savings, government expenditure on agriculture and foreign direct investment (FDI).

Olajide, et al. [4] examined the relationship between Agriculture resources and economic Growth in Nigeria. They used ordinary least square method to analyze the data collected. They used Gross Domestic product (GDP) as explained variable while agricultural input on the explanatory variable. The result revealed a positive cause and effect relationship between GDP and agricultural input in Nigeria.

Mathew and Adeboye [5] Studied into the role of the agricultural sector in economic development of Nigeria. They used empirical data from 1970 to 2008 and employed the use of Johansen co-integration techniques of regression. The result shows that there is no significant impact of agricultural sector on economic development in Nigeria.

Kamil et al. [6] researched into the contributions of agricultural

***Corresponding author:** Biwet Mwanret Inusa, Department of Finance and Supplies, Bokkos Local Government council, Plateau State, Nigeria, Tel: +2348039737345; E-mail: mbiwet@gmail.com

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sector on economic growth of Nigeria, using time series data from 1981 to 2013. The findings revealed that real GDP, agricultural input and oil rent have a long run equilibrium relationship that is; there is a positive impact of agricultural input in economic growth of Nigeria, although the vector error correction model result shows that the speed of adjustment of the variables towards their long-run equilibrium path is low.

Oyinbo and Rekwot [7] provided an empirical relationship between agricultural production and the growth of Nigerian economy with focus on poverty reduction. Time series data were employed in the research at the analysis of the data were done using unit root test, and the bounds (ARDL) testing approach to co-integration. The result of the data analysis indicated that agricultural production was significant in influencing the favorable trend of economic growth in Nigeria.

Tolutope and Chununso [8] investigated into the contribution of agricultural sector to economic growth in Nigeria using the growth accounting framework and time series data from 1960 to 2011. They used granger test, which showed that agriculture growth Granger-cause GDP growth, however, no reverse relationship was found, the resilient nature of the sector is evident in its ability to recover more quality than other sectors from shocks resulting from disruptive events such as civil war and economic recession.

From the empirical review above, most scholars using various techniques and data agreed from their empirical findings that agriculture had a positive and significant impact on economic growth of Nigeria. However, Mathew and Adeboye used a Johansen co-integration technique found out that agriculture does not have positive effect on economic growth of Nigeria.

This research work however employed the use of normality test to validate the data used in the analysis, in which none of the scholars above made use of. Furthermore, Economic Recovery and Growth Plan were not in place as at the time of empirical studies by the above authors. Thus, this established the premise for this research.

Literature Review

Agriculture and economic growth

Nigeria has every potential to become a major factor in the world economy based on its wealth of human and natural resources. However, these potentials are grossly untapped over the years. The country has been relying on revenue generated from crude oil and gas from late 1960s after it had shifted from agriculture which has been the mainstay of the economy. However, since mid-2014, oil revenue declined alongside government's inability to diversify its sources of revenue and foreign exchange in the economy slowed the pace of economic growth. This actually led to recession in the second quarter of 2016. The government recognizes that the economy is likely to remain in a path of steady and steep decline if nothing is done to change the trajectory [9].

Agriculture undoubtedly contributed to GDP growth in Nigeria in a consistent manner. The sector grew by 4.88% in third quarter of 2016, and recorded 13% in the previous years, suggesting immense unrealized potentials (MB&NP, 2017). Increased investment in agriculture can really guarantee food security, have the potential to be a major contributor to job creation, and be able to arrest the problem of food insufficiency, and to a very large extent help improve the foreign exchange value by way of increasing the amount of export from the sector.

The contribution of agriculture to economic growth and development lies in providing food to expanding population, increasing the demand for industrial products, providing local foreign exchange earnings for the import of capital goods, increasing social income, providing productive employment and improving welfare of the rural people. When input expands with increase productivity it increases the income of the farmers. Rise in per capita income leads to substantial rise in the demand for food and industrial goods. As output and productivity of exportable goods expand the export of the country increases and result in larger foreign exchange earnings. Thus, agriculture surplus leads to capital formation when capital goods are imported with this foreign exchange [10].

The growth of agricultural sector could be a catalyst for national output growth via its effect on rural incomes and provision of resources for transformation into an industrialized economy. In an effort to improve output and economic growth, the Federal government of Nigeria has implemented several agriculture policies and programs. While some of the programs were abandoned or restructured, some are still in place. Some of which are: Farm Settlement Scheme, National Accelerated Food Production Programme (NAFPP), Agricultural Development Projects (ADPs), River Basin Development Authorities (RBDAs), Nigerian Agricultural Corporation and Rural Development Bank (NACRDB), Operation Feed the Nation (OFN). Despite all these policies and programmes, the sector has not performed impressively, in terms of its contribution to the country's development [11].

Nigeria agriculture and economic recovery plan

Agriculture remains the leading non-oil sector of Nigeria's economy, supporting about 60% of the population directly and providing nearly 70% of non-petroleum exports. In the 1950s, and early 1960s, agriculture was not only the leading sector but also the mainstay of the Nigerian economy contributing ₦1,342 Million to the GDP in 1958/1959, and ₦1,808 Million in 1973/74. However, the relative contribution of agriculture to GDP from 1958/59 to 1973/74 had been declining constantly since 1958/1959 and became negative throughout most of the 1970s and the early 1980s [12].

The Economic Recovery and Growth Plan (ERGP), a medium term for 2017-2020, builds on the strategic Implementation Plan (SIP), and has been developed for the purpose of restoring economic growth. The ERGP has three broad strategic objectives that are planned to achieve the vision of inclusive growth comprised of investment in human resources, building a globally competitive economy and drive to a GDP growth of 7%. This is specifically planned to focus on achieving macro-economic stability and economic diversification with particular focus on agriculture, energy, Micro, Small and Medium scale enterprises (MSME), lead growth in industry, manufacturing and key services by leveraging science and technology [13].

Theoretical Framework

This study adopted the structural change theory as framework. This was developed by Levis Arthur in the year 1954 and called it Development with Unlimited Supply of Labour. According to him, economy is basically made up of the following: traditional (Subsistence) sector and the other is the modern (capitalist, industrial or manufacturing) sector. This gave rise to the two sector model. The theory has it that the development of an economy is dependent on the growth of two sectors.

$$Y=f(\text{Agric}, \text{Ind}).$$

Where: Y=Economic Development

Agric=Agricultural Sector

Ind=Industrial Sector.

The agricultural sector and the industrial sector are interrelated. The agricultural sector employs capital, labour, expertise and is also a final consumer of the output of the industrial sector, while the industrial sector employs labour and inputs of the agricultural sector.

This theory focuses on the mechanism by which underdeveloped economies can transform their domestic economic structures from a heavy emphasis on traditional subsistence agriculture to a more modern and more advanced agricultural practice through heavy financial support in order to attain industrial breakthrough. The benefits here can only be achieved if and only if the government support system are created which provide the necessary incentives, economic opportunities and most importantly access to needed inputs to enable expansion in output and raise productivity. The theory suggested structural changes that control productivity examples: bank loans, fertilizers distribution, public credit agencies and so on.

Methodology

This study investigates the impact of agriculture on Nigeria's Economic Recovery and Growth Plan (ERNGP). This is a step taken by the government to enable it fully recover from the shocks experienced during recession period. A macroeconomic model that clearly stated the working relationship among the variables was formulated. In this work, qualitative and also analytical techniques were used to assess the impact of agriculture on ERGP of the country. These analytical tools are further discussed below. It is worth mentioning that data used in this paper was secondary, and was obtained from statistical bulletin of the central Bank of Nigeria (CBN) and National Bureau of statistics (NBS).

The hypothesis used here is:

Ho: The error term is normally distributed.

Decision rule: Reject Ho, if the P-value is less than 5% level of significance, otherwise retain Ho.

Analytical Techniques

Normality test

This test was conducted to examine whether the error term is normally distributed in the model and Jarque- Bera test was carried out to examine the model. This would make the least square estimates to be easily interpreted [14].

Unit root test

Macroeconomic data are generally characterized by a stochastic trend, and if untreated the statistically behavior of the estimates is influenced by such trend. That is, it is now necessary to ascertain the stationarity of the variables choose in econometric studies in order to have a variable result free from spurious regression result. Therefore, Philips-Perron unit root test was conducted to carry out this task so as to avoid having spurious result at the end.

Test for co-integration

The co-integration techniques allows for the estimation of a long-run equilibrium relationship. Economically speaking, two variables can

only be co-integrated if they have long-term or equilibrium relationship between them.

We adopt Johansen procedures, which is state as follows:

$$\Delta U_t = B_0 + dU_{t-1} + as + Y_{t-1} + e$$

The co-integration model can thus be written as:

$$\text{LOG AOP} = B_0 + B_1 \text{LOG TSV}_{t-1} + B_2 \text{LOG EXR}_{t-1} + \text{LOG LAA}_{t-1}$$

Structural Estimation Model

The structure model for estimation in the paper side-by-side the ordinary least square (OLS) regression techniques as the analytical tool was used, and the functional relationship and equation are presented as thus:

$$\text{LOG AOP} = F(\text{LOG TSV}, \text{LOG EXR}, \text{LOG LAA})$$

Where:

LOG AOP=LOG of Agriculture Output

LOG TSV=LOG of Total savings

LOG EXR=LOG Exchange Rate

LOG LAA=LOG Loans and Advances (given to farmers).

The functional relationship is transformed into econometrics model and thus become;

$$\text{LOG AOP} = B_0 + B_1 \text{LOG TSV} + B_2 \text{LOG EXR} + B_3 \text{LOG LAA} + U_t$$

Where B_0, B_1, B_2 and B_3 are the coefficients of regression while U_t is the stochastic error term.

A priori Expectation:

AOP>0, TSV>0, EXR>0 and LAA>0.

The hypothesis for normality test results are shown in Table 1.

Ho: The error term is normally distributed:

From the table above, it shows that the p-value is 0.4403 which is greater than 5% level of significance, as such we accept the null hypothesis and conclude that the error term is normally distributed and the model is fit.

Results

Normality, unit root and co-integration tests

The time series data used to carry out this research work, specifically pre-test and the main test analysis was presented in Table 1. The Philips-Perron test was used for this research work because it is a robust techniques that includes the constant and a linear time trend to dictate the presence of unit roots or stationary series in data sets, and it has better ability to correct the problem of mild serial correlation. The following results were obtained in Table 2.

From the result presented above, Agriculture output (AOP) was stationary at level, exchange rate was also stationary at level, while loans and Advances and total savings were stationary at first difference. The Johansen co-integration technique was used to verify if the variables

Normality	F-Statistics	Probability value
	1.6404	0.4403

Source: Authors computation using E-views version 7.

Table 1: Normality (Jarque-Bera) test result.

used have a long-run relationship, the result is presented below in Table 3.

From the table above, using the P-value gauge, it can be seen that all the values are less the 0.05 (i.e. 5%) which signifies that the entire variable used are co-integrated, that is, they have a long-run relationship [15] (Table 4).

Discussion

The result of OLS in Table 4 above shows that LOG EXR has a positive or direct relationship with LOG AOP and it is statistically significant at 5% with a coefficient of 1.289026 and a p-value of 0.0001. Thus, holding all other variables constant, a percentage increase in LOGEXR on an average increases LOGAOP by 128% in Nigeria. This is in conformity to the *apriori* expectation.

More so, the coefficient of loans and advances (LOGLAA) happened to be -0.026383 which shows a negative or inverse relationship existing between agricultural output and loans and advances also with a p-value of 0.9532 which means it's insignificant since it is quarter than 0.05. This does not conform to our *apriori* expectation. Furthermore, it was discovered that total saving with the coefficient of -0.644398 and a p-value of 0.5604 has a negative relationship with agricultural output though insignificant, since its p-value is greater than 0.05. This also does not conform to *apriori* expectation, which expected a positive or direct relationship between the variable. The R Square which has the value of 0.659813 (66%) indicates that about 66% change in agricultural output is caused by the changes in overall exchange rate, loans, advances and total savings, which shows that the explanatory variable have significant impact on agricultural output in Nigeria.

Generally speaking, it can be said that, the government has not

shown enough interest in the area of ensuring that agricultural sector gets enough funding to make it variable and subsequently make Nigeria better.

Conclusion

Agriculture is known to be an area that supports development, most especially in less developed countries (LOCs) like Nigeria where industrialization is under developed. It can be categorically said that, agricultural production in Nigeria has been backward, since the discovery of oil in the country which can actually be said to be a deterrent to its growth and development. This is because the sector (Agriculture) has been relegated to the background since oil discovery.

From the investigation carried out, it was confirmed that within the period of 2015 exchange rate had a direct relationship with agricultural input and such relationship was significant. Loans and advances from the investigation showed that it had an inverse relationship with agricultural output, which goes to say that the loans and advances located to agriculture had be directed to other things or areas, which had been thwarting the growth of the sector. An increase in total savings ordinarily should have a positive relationship with agricultural output but this was not the case because reverse happened to be the situation. As such, it can be concluded that loans are either not given out for agricultural production or the issue of adverse selection and moral hazard took the better of the situation as a result of high rate of interest placed on borrowing, or it can be suggested that corruption engulfed the whole process to the detriment of agricultural growth in the country.

Economic Recovery and Growth Plan (ERGP) drafted by the Nigerian government in order to revamp the economy is a wonderful initiative that if diligently pursue, a lot of gain will be made most

Variables	PP T-States	5% Critical Value	Order of Integration	Prob.
LOG AOP	-5.196157	-3.029970	I (0)	0.0006
LOG EXR	-5.186430	-3.029970	I (0)	0.0006
LOG LAA	-5.186430	-3.029970	I (0)	0.0000
LOG TSV	-7.968388	-3.040391	I (0)	0.0383

Source: Authors Computation using E-views version 7.

Table 2: Philips – Perron Unit root Result.

Hypothesis No. of CE (S)	Eigen Value	Trace Statistics	0.05 Critical value	Prob.**
None*	0.820535	71.02494	47.85613	0.0001
At most 1*	0.601445	40.10502	29.79707	0.0023
At most 2*	0.567298	15.4971	15.4971	0.0025
At most 3*	0.375273	3.841466	3.841466	0.0036

Trace test indicates 4 co-integration equation(s) at 0.05 level;
 *denotes rejection of the hypothesis at the 0.05 level,
 **Mackinnon-Haug-Michelis (1999)?-values,
 CE(s)=number of co-integrating equation(s),
 Source: Authors Computation using E-views version 7.

Table 3: Johansen co-integration result.

Variables	Coefficients	Std error	T-Statistics	Prob.
C	2.614593	1.173510	2.228011	0.0416
LOG EXR	1.289026	5.229427	5.229427	0.0001
D (LOG LAA)	-0.026383	-0.059738	-0.59738	0.9532
D (LOG TSV)	-0.644398	-0.595459	-0.595459	0.5604

R² 0.659813
 Adjusted R-square 0.591776
 F. Statistics 9.697811
 Prob. Stat. 0.000834.

Table 4: Ordinary least square (OLS) test result.

especially from the perspective of agriculture which is expected to arrest the problem of food insecurity in the country and to greatly improve foreign exchange. A lot need to be put in place in order to achieve that feat.

Recommendation

Base on the findings, the following recommendations were made:

i. An increase in government allocation to the sector is necessary, but currently not sufficient to ensuring that an improvement is realized. This is because increase in government allocation to agricultural sector is not synonymous with improved productivity, because such allocations are not monitored closely to ensure that they are used judiciously.

ii. Moral suasion as a monetary policy should be exercised closely, that is commercial banks should be constantly advised to give out loans and advances to more viable sectors of the economy especially agricultural sector at low interest rate as only through that, that the economy will be revamped.

iii. Exchange rate was found to be having a positive and a significant relationship with agricultural output, which goes to show that most of the input used in the sector are been imported into the country, as such, they are been affected by foreign exchange. Therefore, it is suggested that the government should make effort to either produce those inputs locally, or to ensure that foreign exchange becomes favourable to the country such that the sector is able to take advantage of that and by so doing the country's foreign exchange will further be better.

iv. The issue of corruption as mentioned earlier is really a stumbling block to the growth and development of agriculture in Nigeria. For the country's EGRP to be achieved, this menace must be handed effectively and efficiently, otherwise the notion of "if you cannot beat them, you join them" in the corruption act will continue, and all efforts will be frustrated.

v. One of the major problems of Nigeria as a system is its inability to implement policies made to help the economy grow. Such policies looked good on papers but lack of implementation kills it. Therefore, it is suggested that close monitoring should be made to ensure that ERGP is implemented to the later, and Nigeria will be the better for it.

vi. Finally, the government alone cannot effectively and efficiently achieve these objectives, as such, it is advised that the private sector be encourage to take active part in this by so doing, God helping us, the goals made will be achieved.

References

1. Nevin AS, Akinboye A, Fatai R, Bakare A (2017) Defining the path for Economic Growth, Retrieved 10th March 2018.
2. Abula M, Ben M (2006) The Impact of Agriculture output on Economic Development in Nigeria (1986-2014). *Archives of Current Research International* 4: 1-10.
3. Oje-Okoro I (2011) Analysis of the Contribution of Agricultural Sector on the Nigerian Economic Development. *World Review of Business Research* 1: 191-200.
4. Olajide OT, Akinlabe BH, Tijani AA (2010) Agriculture Research and Economic Growth in Nigeria. *European Scientific Journal* 8: 103-116.
5. Mathew AO, Adeboye BF (2010) The agricultural sector and economic development: The Nigeria Experience. *Journal of Management and Enterprise Development* 7: 1-15.
6. Kamil S, Seving U, Festus VB (2010) The contributions of agriculture sector on economic growth of Nigeria. *International Journal of Economic & Financial issues* 7: 547-552.
7. Oyenbo O, Rekwot GZ (2014) Agricultural production and Economic Growth in Nigeria: Implication for Rural Poverty Alleviation. *Quarterly Journal of International Agriculture* 53: 207-223.
8. Tolutope O, Chununso E (2013) Contribution of Agriculture & Economic Growth in Nigeria. A paper Presented at the 18th Annual Conference of African Economic Society (AES), Accra, Ghana.
9. Ministry of Budget & National Planning (2017) Economic Recovery & Growth Plan: 2017-2020.
10. Jhingan ML (2010) *The Economics of Development and Planning*, (39thedn), Vrinda Publication (P) Ltd, India.
11. Izuchukwu O (2011) Analysis of the Contributions of Agricultural Sector on the Nigerian Economic Development. *World Review of Business Research* 1: 191-200.
12. Akor ME (2009) *Nigeria's Agricultural Disorientation and the food Crisis*. Lokoja: Clear Mission Press.
13. National Bureau of Statistics (NBS 2015) *Social Statistics in Nigeria: Employment Data*. Abuja NBS Press.
14. Gujarati DN (2007) *Basic Econometrics* (4thedn), New-York: McGraw-Hills companies, USA.
15. Central Bank of Nigeria Statistical Bulletin (2015).