

# Analysis of Effect of Agricultural Output on Nigeria Economic Growth (1990-2020)

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## ABSTRACT

In this study investigation of effect of agricultural output on the Nigerian economic growth, as well as the relationship that existed between agricultural output and economic growth was explored empirically within 1990 to 2015, with the use of time series data, obtained from the Central Bank of Nigeria, Africa Development Bank and World Bank. The dependent variable is Real Gross Domestic Product (RGDP), while Agricultural Output (AOP), Labour Force (LF), Capital Formation (CF) and Land (LA) are the independent variables. Augmented Dickey Fuller (ADF) test of stationarity shows that all the variables were stationary at first level of differencing. Regression analysis shows that Agricultural output (AOP) is significantly positively related to the agricultural Real GDP (RGDP). Labour force (LNL) also shows a significantly positive influence on the RGDP. However, both Land (LNLA) and Capital Formation (LNCF) influenced RGDP negatively. An adjusted  $R^2$  value of 0.50281 revealed that 52.81 percent of the explained variation in the economy growth in Nigeria is due to the joint contribution of all the independent variables specified in the regression model. Given the above, this study recommends a viable and achievable agricultural policy that will spur a radial and substantiate agricultural productivity which will enhance more National income via more agricultural employment for the youth with improved technological outfit.

**Keywords:** agricultural output, economic growth, agricultural productivity

## I. INTRODUCTION

Scholars and stakeholders in agricultural economy have proved beyond reasonable doubts assumed contributions of agricultural sector to economic growth and development. Agricultural GDP contribution has far reaching beneficial effects on most of the developing countries' economy. Hence, a review of agriculture impact on

the economy of the developing world has recently attracts the interest of the key players in agricultural sector and academics as affirmed by Amina and Nura, 2016 as cited in..... Agriculture contributes to economy growth and development in i. product ii. factor markets and iii. foreign exchange contributions().

Agriculture sector alone contributes almost 41 percent, in 2010; 22 percent in 2012 and 23 percent in 2014 of the total Gross Domestic Product (GDP), (NBS, 2010; 2014). It also accounts for over 90 percent rural dwellers source of livelihood, and more than 70 percent of the Nigeria labour force is being engaged in one form or the other of agricultural related economic activities. Despite the high comparative advantage Nigeria has in term of production of maize, cassava, yam, cowpea and fish, still the country is one of the major importers of grain, fish and livestock products (Adesiyan, (2016). Therefore the country is currently witnessing acute food insecurity for her teeming agriculture sector, thanks to the recent government policies on agriculture. Nevertheless, there are still more expectation from the government and all other concerned stakeholders in the agriculture sector.

Less than half of the cultivable arable land in Nigeria is presently put to cultivation out of more than 70 million of hectares of cultivable arable land. It is disheartening enough to see more than 70 percent of Nigerians, especially the rural people to be in an 'avoidable' poverty, in spite of heavenly endowed agricultural and natural resources. Further insight into poverty saga indicates that the scourge of poverty is more pronounced in the rural agrarian settings, where more than 80 percent of the population is living below standard minimum livelihood, couple with social amenities deprivations. Ironically, these voiceless rural poor farmers are the food hub producers of Nigeria - ever-astronomically increased population. Suffice to say that, apart from the degraded land, which hinders bountiful production,

diverse of one form of ill health or the other are the barrier to the brilliant performance of the farmers. The reason is not far fetching, as they lack financial capability, to enhance a good functionality. Also identification of a promising strategies are necessary to spur economic growth and adequately enhance agricultural productivity.

### 1.1 Statement of the problem.

According to Ewetan, Fakile, Urhie and Oduntan (2017). Agricultural output is the agricultural products value without, intra branch consumption, which are produce within the agreed accounting year and yet to be processed are offered for export and consumption.

Agriculture is one of the significant sectors, as it contributes substantially to the economic growth of the country. As statistically evident, despite various agricultural heartwarming programs, yet agricultural production is not match with the teeming population explosion with regards to food security. The reason for this shortfall could be traced to inability of governments at the three tier levels (i.e. the Federal, State and Local governments) to recognized and adequately address the specific problems facing agriculture. As argued by Ruma (2008) that the full potential of agriculture is yet to be exploited which responsible to the avoidable hunger and poverty. Accessibility to credit is by the rural farmers (who are the major producer of agricultural products) are evidently lacking. Hence, there is limitation to the production activities of these farmers. To this, there a wide gulf between the food production and the population growth of the country. According to Mehrteab (2005) collateral security posed as a major constraint farmers are facing in the formal financial institutions.

Mehrteab (2005) opines that the main hurdle confronting the farmers when trying to acquire loans from formal financial institutions is the demand for collateral by those institutions. Records have shown that Nigerian GDP is on increase notwithstanding high poverty rate, agricultural output could be improved upon as to reduce the poverty rate in Nigeria. Also, Ayodele, Obafemi and Ebong, (2013), opined that to archive a low level of poverty, agricultural productivity must be given a deserved attention with respect to a vibrant and implementable domestic policies and substantially increase funding to agriculture. In spite of natural resources endowment of Nigeria. Agricultural productivity is low and basically stagnant, consequently low contribution of income to the Nigerian GDP (Ewetan, Fakile, Urhie and

Oduntan 2017). To this end its imperative to examine the effect of agricultural output on economic growth over the period 1990 to 2015. This study aims at establishing the (i) relationship between agricultural output and economic growth in Nigeria and (ii) investigate the effect of agricultural output on economic growth in Nigeria.

## II. REVIEW OF LITERATURE

Before the advent of crude oil, agriculture was the mainstay of the Nigerian economy. Cocoa production and rubber in the West, Palm oil in the East and groundnut pyramid in the North (Adesiyun, 2016). A substantial amount of contribution to the national income comes from agricultural sector and hence impetus to the Nigerian economic growth. This was the claim of Iyoha and Oriakhi (2002) in their study of sources of economic growth in Nigeria.

Further to this, study of Gollin et al. (2002), which investigated outputs of agriculture and economic growth, observed that agricultural output tremendously help in providing labour from agriculture to other non-agricultural sector, consequently enhancing growth and productivity of other sector and rise in the aggregate economy. Nigerian diversified agro ecological condition could be of advantage in the production of varieties of agricultural products Ehui and Tsigas (2013). This will greatly enhance productivity hence economic growth. Nigerian economy is the fastest growing economy in Africa and 26<sup>th</sup> in the world (NBS, 2014) and essentially depends on the crude oil since the early seventies for its budgetary revenues; nevertheless Nigeria is still primarily an agrarian society. However, unhappily, Nigeria that is known for exporting of agricultural produce, like groundnut, palm oil, rubber and coffee, is importer of some essential agricultural produce for her ever growing population (Egwu, 2016). Odetola and Etumnu (2013) also delve into study of agricultural sector contribution to the Nigerian economic growth. They empirically discovered that there exist a positive relationship between agricultural sector and national income growth (GDP).

Ehui and Tsigas (2009) study on agricultural output and economic growth in Nigeria revealed a contrast finding that agricultural output might not be able to foster economic growth. They argued on the premise that agricultural policies in Nigeria are not viable enough to achieve the objective of spurring economic growth.

### III. RESEARCH METHOD

#### 3.1 Data Source and Description

This study, attempted to investigate the effect of agricultural output on economic growth in Nigeria between 1990 to 2015. Data were sought from the World Bank, Africa Development Bank and Central Bank of Nigeria.

#### 3.2 Variables Employed in the Study

Real Gross Domestic Product (RGDP) proxy for economic growth serves as the dependent variable, while the independent variables are, Agricultural Output (AOP), Capital Formation (CF), Labour Force employed (LF), and Land (LA).

#### 3.2 Model of Specification

The model employed for the effect of Agricultural Output on the Economic Growth in Nigeria (1990 - 2015) is stated below.

$$RGDP = \beta_0 + \beta_1 AOP + \beta_2 LF + \beta_3 LA + \beta_4 CF + E_i$$

RGDP = Real Gross Domestic Product

AOP = Agricultural Output

LF = Labour Force Employed

CF = Capital Formation

LA = Land

$E_i$  = Error Term

#### 3.3 Method of Data Analysis

##### 3.3.1. UNIT ROOT TEST (Augmented Dickey Fuller)

Traditionally, time series data needed to be tested for the stationarity and determination of the order of integration of the employed variables. Therefore Augmented Dickey Fuller (ADF) test was employed.

### IV. RESULTS AND DISCUSSION

#### 4.1 Unit Root Test - Using Augmented Dickey Fuller (ADF) Test

In order to avoid spurious regression analysis in this study, an Augmented Dickey Fuller (ADF) test was carried out to first examine whether the variables considered in this study are stationary. When the Augmented Dickey Fuller (ADF) unit root test conducted on the variables, at the level it was shown that the variables are non stationary, but at the first level of differencing at 1% level of significant. As indicated in the table 1 below.

Table 1 Unit Root Test (An augmented DF Test)

Variables	ADF Statistics	Critical Value	Oder of integration
LN RGDP	-4.4523	1% = -4.5892	1(1)
		5% = -3.8881	
		10% = -3.5666	
LN AOP	-4.7806	1% = -4.4432	1(1)
		5% = -4.2046	
		10% = -3.3312	
LN LF	-4.3244	1% = -4.7482	1(1)
		5% = -4.6791	
		10% = -3.6634	
LN LA	-3.2572	1% = -4.5017	1(1)
		5% = -4.2471	
		10% = -3.4388	
LN CF	-4.1011	1% = -4.4444	1(1)
		5% = -4.3710	
		10% = -3.86	

#### 4.2 Regression Result

##### 4.2.1 Agricultural output (LNAOP)

The result of this estimate clearly shows that Agricultural output (AOP) in the country was positively related to agricultural GDP. Its coefficient was 2.10198 and its p value was 0.0007 which was significant at 5% probability level. It means that the more the quantity of Agricultural Output (AOP), the higher the value of GDP within the period of examination.

##### 4.2.2 Labour Force (LNLF)

Table 2 also reveals that Labour Force (LF) have a positive coefficient of 0.87402 which is significant at 5%. This implies that labour force has a direct influence on economic growth (RGDP). Therefore the more the quantity of labour employed the higher the value of agricultural GDP

#### 4.2.3 Land (LNLA)

Land as shown in Table 2 has negative influence with the co-efficient of -0.65841 and is statistically significant at 5% level. This implies that a unit increase in land will bring about decrease in GDP, this is not expected relationship, ceteri paribus. Other factors which are not within the scope of this study could be responsible for the negative relationship.

#### 4.2.4 Capital formation (LNCF)

Table 2 further reveals that capital formation has negative influence with the

coefficient of -0.38894 and its P-value was 0.0467 which was statistically significant at 10% probability level.

An adjusted R<sup>2</sup> value of 0.50281 revealed that 52.81 percent of the explained variation in the economy growth in Nigeria is due to the joint contribution of all the independent variables specified in the regression model, while the rest 47.19 percent of the unexplained variation in the OLS regression may be due to other variables of interest not specified in the regression model but are presented in the error term.

Table 2 OLS Regression Result

Variables	Coefficient	P – value
LNAOP	2.10198	0.0007**
LNLF	0.87402	0.0024**
LNLA	-0.65841	0.0020**
LNCF	-0.38894	0.0467*
C	0.99824	0.0001**

$$R^2 = 0.53712$$

$$\text{Adj}R^2 = 0.50281$$

$$\text{D.W stat} = 1.9284$$

$$\text{F Stat} = 11.8723$$

$$\text{RW (F- Stat)} = 0.0000$$

$$\text{RGDP} = 0.99824 - 2.10198\text{AOP} + 0.87402\text{LF} - 0.65841\text{LA} - 0.38894\text{CF}$$

(0,007)    (0, 0024)    (0.0020)    (0.0467)    (0.0001)

## V. SUMMARY AND CONCLUSION

The study examined the effect of agricultural output on the Nigerian economic growth between 1990-2015. The results show that there is evidently revealed a positive relationship and significant influence of agricultural output and economic growth in Nigeria within the years under examination.

## VI. POLICY IMPLICATION

Policies on agriculture need to be revisited, with regards to viable and workable agricultural sector. This will encourage Nigerian youth and foreign investors. Hence, engineers more productivity and increase its contribution to the national income, and serves as the supplier of raw materials to the industries.

## REFERENCES

- [1]. Adesiyun, O.I. (2016). Payment for Environmental Services, Rural Poverty Reduction and Agricultural Land Conservation in Oyo state Farm Settlements, Nigeria. An unpublished Ph.D thesis, Universiti Utara Malaysia.
- [2]. Ayodele, O. S., Obafemi, F. N., & Ebong, F. S. (2013). Challenges facing the achievement of the Nigeria vision. *Global Advanced Research Journal of Social Sciences*, 27, 143-157.
- [3]. Amina Abubakar Ismail and Nura Aliyu Kabuga (2013). Impact of Agricultural Output On Economic Growth In Nigeria Using ARDL Econometric Approach.
- [4]. Ehui and Tsigas (2013). Agricultural Output and Economic Growth in Nigeria
- [5]. Egwu, Patricia Ngozi. (2016). Impact of Agricultural Financing on Agricultural Output, Economic Growth and Poverty Alleviation in Nigeria. *Journal of Biology, Agriculture and Healthcare* [www.iiste.org](http://www.iiste.org) ISSN 2224-3208 (Paper) ISSN 2225-093X (Online) Vol.6, No.2, 2016
- [6]. Ewetan Olabanji, Fakile Adebisi, Urhie Ese and Oduntan Emmanuel (2017), "Agricultural Output and Economic

- Growth in Nigeria “, Journal of African Research in Business and Technology, Vol. 2017, Article ID 516093, DOI: 10.5171/2017.516093.
- [7]. (IFAD, 2012). IFAD (2012). Rural Poverty in Africa. International Fund for Agricultural Development, Rome Italy.
- [8]. Gollin, D., and Rogerson, R. Parente, S. (2002). Impact of Agricultural Output On Economic Growth.
- [9]. Iyoha, M. and Oriakhi, D. (2002). Explaining African Economic Growth Performance: The Case of Nigeria. Revised Interim Report on Nigerian Case Study prepared for the African Economic Research Consortium Research Project titled “ Explaining African
- [10]. Economic Growth Performance” . NBS (2012). Nigeria Poverty Profile. National Bureau of Statistics.
- [11]. Odetola, T. and Etumnu, C. (2013). Contribution of Agriculture to Economic Growth in Nigeria. The paper was presented at: The 18th Annual Conference of the African Econometric Society (AES) Accra, Ghana at the session organized by the Association for the Advancement of African Women Economists (AAWE), 22nd and 23rd July, 2013.
- [12]. Omorogiuwa, O., Zivkovic, J., & Ademoh, (2014). The Role of Agriculture in the Economic Development of Nigeria. European Scientific Journal.(10).
- [13]. N B S (2010). Poverty Profile for Nigeria. Abuja, Nigeria: National Bureau of Statistics.
- [14]. NBS (2012). Poverty Profile for Nigeria. Abuja, Nigeria: National Bureau of Statistic.
- [15]. NBS (2014). Poverty Profile for Nigeria. Abuja, Nigeria : National Bureau of Statistic.