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Effect of Agricultural Output on Economic Growth in Nigeria

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ABSTRACT

Agriculture has been a prominent economic sector in the Nigerian economy. Overtime, its contribution to economic development in relation with other competing sectors has been a source of scholarly debate. This study examines the pattern of the agricultural sector's activities and the effect of the sector on Nigeria's economic growth in this new democratic dispensation from 1999. The descriptive analysis revealed that the agricultural sector's contributions peaked at 37 per cent in 2002 and it is the highest contributor to economic output driven by crop production. The empirical inquiry using the Multiple Ordinary Least Square (MOLS) method with secondary data (between 1999-2018) from the National Bureau of Statistics (NBS) further indicates that the agricultural output positively impacted on economic growth significantly. However, trade output impacted negatively while the manufacturing sector's output impact was not statistically significant on the country's economic growth. The study recommends that the positive impact of agricultural output through crop production should be made to reflect on trade and the manufacturing sectors by the agricultural value chain in the Nigerian economy.

Keywords: Agricultural Output, Economic Growth, Nigerian Economy

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INTRODUCTION

Nigeria is a country blessed with abundant resources and huge arable land. Agriculture has been a major economic activity for a longer period of time than any other sector in the history of the Nigerian economy (Ekperiware and Olomu, 2015). From the definition of agriculture to any economic activity, agriculture through its value chain seems be pivotal to economic prosperity of any nation blessed with arable land besides various means of improving yield through technology in today's world. How much the Nigerian economy has benefited from agricultural sector is central to this thesis.

Although because of the blessed resources of the country, different sectors are seeking attention. Besides the oil boom in 1970 that hampered agricultural sector development, the sector still remains the highest employer of labor and one of the highest contributors to GDP as at 2018 according to the National Bureau of Statistics. This makes agricultural development essential to national development like the chicken that lays the golden egg. More so that the nation is implementing local content, self-sufficiency and trying to reduce importation, studying the development and the effect of the agricultural sector in Nigeria cannot be overemphasized (Amire and Arigbede, 2016). From the recommendation of Omorogiuwa, Zivkovi and Ademoh (2014), this study set out to examine the pattern of agricultural businesses and the effect of the agricultural sector on Nigeria's economic growth in this new democratic dispensation from 1999.

Ekperiware and Olomu (2015) studied the development and effect of the twin huge sectors in Nigeria: Agricultural and oil. The study focused on the interaction and feedback mechanism between the two sectors with economic output in Nigeria from 1981 to 2012. The study made use of the vector auto regression (VAR) methodology. The findings revealed that output response to oil revenue was only marginal in the short run. The study further found that the relationship between Nigeria's economic output and agriculture was positive. Hence, the probability of economic development occurring through investing in the agricultural sector is bright.

Amire and Arigbede (2016) also investigated the effect of agricultural productivity on economic growth in Nigeria from 2000 to 2014. The simple Ordinary Least Square (OLS) method revealed a long-run relationship between agricultural productivity and economic growth. Precisely, the agricultural sector's contribution to GDP, gross expenditure on agriculture and gross access to (agricultural) loans/credit indicated a positive signs in the Nigerian economy; revealing that they positively affect economic development in Nigeria.

Sertoğlu, Ugural and Bekun (2017) reinforce the position of Myrdal (1897) that agriculture is a panacea to economic growth by examining the impact of the agricultural sector on economic prosperity in Nigeria from 1981 to 2013. They observed a long-run relationship among gross domestic product, agricultural output and oil rent using vector error correction model. This was similar to Ekperiware and Olomu (2015) earlier findings. However, the earlier study found agriculture to be more additive to economic growth than the oil sector in Nigeria. More so, Oyakhilomen and Zibah (2014) also found a long-run positive relationship between agricultural production and economic growth in Nigeria in reducing poverty. However, the studies reviewed did not lay emphasis on the key aspects of the agricultural sector which is what this study is set out to achieve.

In another study, Inusa, Daniel, Dayagal, and Chiya (2016) looked at how agriculture impacts economic growth and recovery from recession in Nigeria. They used the ordinary least square regression to investigate the effect of exchange rate and savings including agricultural loans and advances on the agricultural sector. The findings revealed that exchange rate and agricultural loans and advances impacted agricultural output significantly as a component ofNigeria's GDP.

Submission from the literature reviewed is that the agricultural sector is a solution to economic growth. However, tracing which particular kind of agricultural businesses that are key in industrializing the country is a critical gap in the literature especially in Nigeria.

RESEARCH METHODOLOGY

This study keenly looks at the trend of the development of the agricultural sector in the country and attempts to examine the effect of such trend in the Nigerian economy. Hence, a descriptive analysis is used to illustrate the trend of agricultural sector of Nigeria and a simple multiple ordinary least square regression analysis will be used to determine the effect of agricultural sector in Nigeria. The simple regression model is established from the Cobb Douglas production function analysis where output is a function of input in the production process as shown below.

$$Y = (LK) \qquad (1)$$

Where Y is output growth rate of Nigeria (GDPR), L and K are labour and capital input used in the production of output.

Expanding equation 1 to representing the key variables of interest in this study is thus

$$Y = (\text{Agric}, \text{Manu}, \text{Trade}, \text{info}) \qquad (2)$$

Where AGRIC is agricultural output, MANU is manufacturing output, TRADE is trading output and INFO is information and communication output of Nigeria.

Presenting equation 2 in a more statistical representation in econometric form is thus

$$GDPR = \alpha + \beta_1 \text{Agric}_t + \beta_2 \text{Manu}_t + \beta_3 \text{Info}_t + \beta_4 \text{Trade}_t + \ell \qquad (3)$$

Data from the National Bureau of Statistics (NBS) from 1999 to 2018 is used in this study. The econometric analysis is a simple multiple regression analyses where the effects of outputs from the various sectors are considered.

RESULTS AND DISCUSSION

The study is keen to investigate the development in the agricultural sector and the effect of the agricultural sector on economic growth in Nigeria. In this subsection, a trend analysis of components that contributes to agricultural output in Nigeria are to be illustrated. This is to know the components that drive agricultural development in the country. Also prominent sectors including the agricultural sector are to be analyzed to reveal the key sectors that contribute to economic growth in Nigeria.

Trend Analysis of Agricultural Development in Nigeria

The trend analysis from figure 1 illustrates that four key components makes up the agricultural sector in the country. Two broad areas covered by agriculture from its meaning is cultivating crops, rearing of livestock and fishing. These areas are called agronomy and animal husbandry. The most contributive is the crop production component, followed by livestock production, fishery and forestry respectively in the country. Crop production is a viable business in Nigeria because of the vast arable land Nigeria is blessed with. Crop production from figure 1 contributes about 90% of agricultural output in the country. Some of the crops produced in Nigeria are rice, cassava, maize, and cocoa among others. These crops are produced in millions of tons for local consumption and export. In the livestock component of agriculture, cattle-rearing is one of the most practiced form of animal husbandry in Nigeria. Cattle-rearing is predominantly carried out in the Northern part of the country by nomads but has spread to the south mostly because of pasture. Other forms of livestock raised in country are goats, poultry and pigs. The fishing component of agriculture in Nigeria involves aquaculture and commercial fishing which involves using ships and trawlers to fish on a large scale. Catfish farming is a known aquaculture in Nigeria.

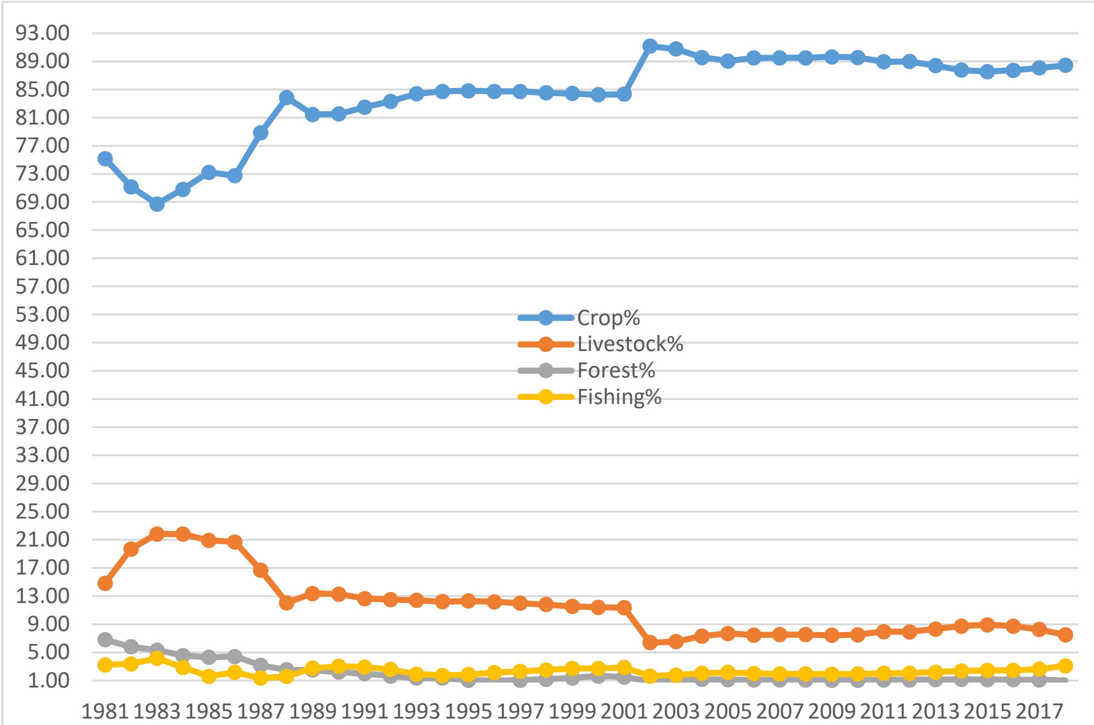

Figure 1: Percentage Contribution to Agricultural Output in Nigeria
Source: NBS (2018)

Another agricultural development analysis is looking at how among other sectors, agriculture contributes to economic growth in Nigeria. Among major contributors to economic output in Nigeria from 1981 to 2018, the agricultural sector contributed the most. The percentage contribution of the agricultural sector peaked 37 per cent in 2002. A further investigation for likely reasons or cause of the high output from the agricultural sector from figure 1 indicates that crop production was at its highest in that the same year (2002). This shows that crop production which contributes somewhat more than 90 per cent to the entire agricultural output in Nigeria also stands out in influencing total GDP in Nigeria. In 2018, the agricultural sector was still the leading contributor to total economic output among other sectors such as mining, manufacturing, trade and information and communications. Analysis from these other sectors revealed that while the agricultural sector contributed 37 per cent to GDP in 2002, trade contributed 13 per cent, followed by manufacturing sector with 9 per cent. The mining sector contributed 9 per cent in 2002 while the information and communications sector contributed just 2 per cent contribution to GDP. The percentage contribution of agriculture mining, manufacturing, trade and information & communications sectors examined in 2018 changed with the manufacturing sector taking the lead with 33 per cent followed by the agriculture sector with 21 per cent. The trade sector as at 2018 contributed about 17 per cent while mining and information and communications sectors contributed around 10 per cent each respectively as shown in figure 2 below.Furthermore, besides the agricultural sector, two other sectors that the agricultural value chain is critically related to are the service and industrial sectors. A trend analysis of these sectors revealed that the service sector was leading the agricultural and industrial sectors in contribution to GDP in Nigeria followed by the agricultural and industrial sector respectively from figure 3 below. According to Ehigiator (2017) the average economic growth of 7 per cent from 2000 to 2011 in Nigeria was as a result of strong service sector output during that period. Ehigiator (2017) further reports the service sector as an enhancer to other sectors in economic development including the agricultural value chain.

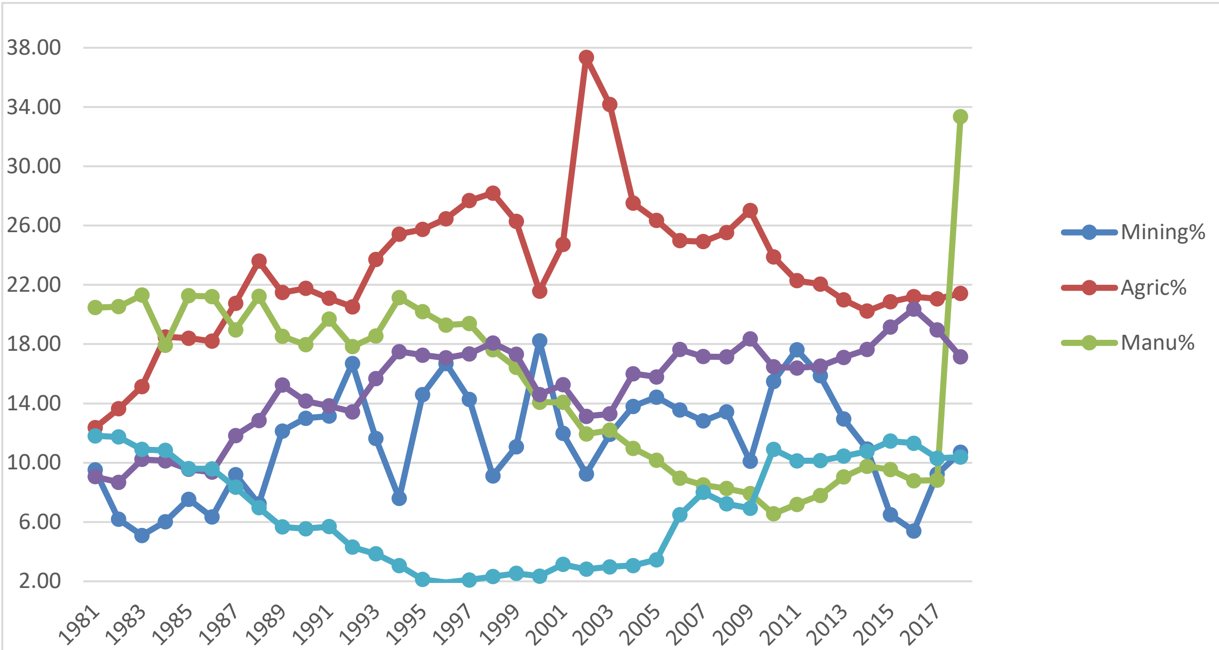

Figure 2: Agriculture, Mining, Manufacturing, Trade and Information & Communication Sectors' Percentage Contribution to Nigeria GDP

Source: NBS (2018).

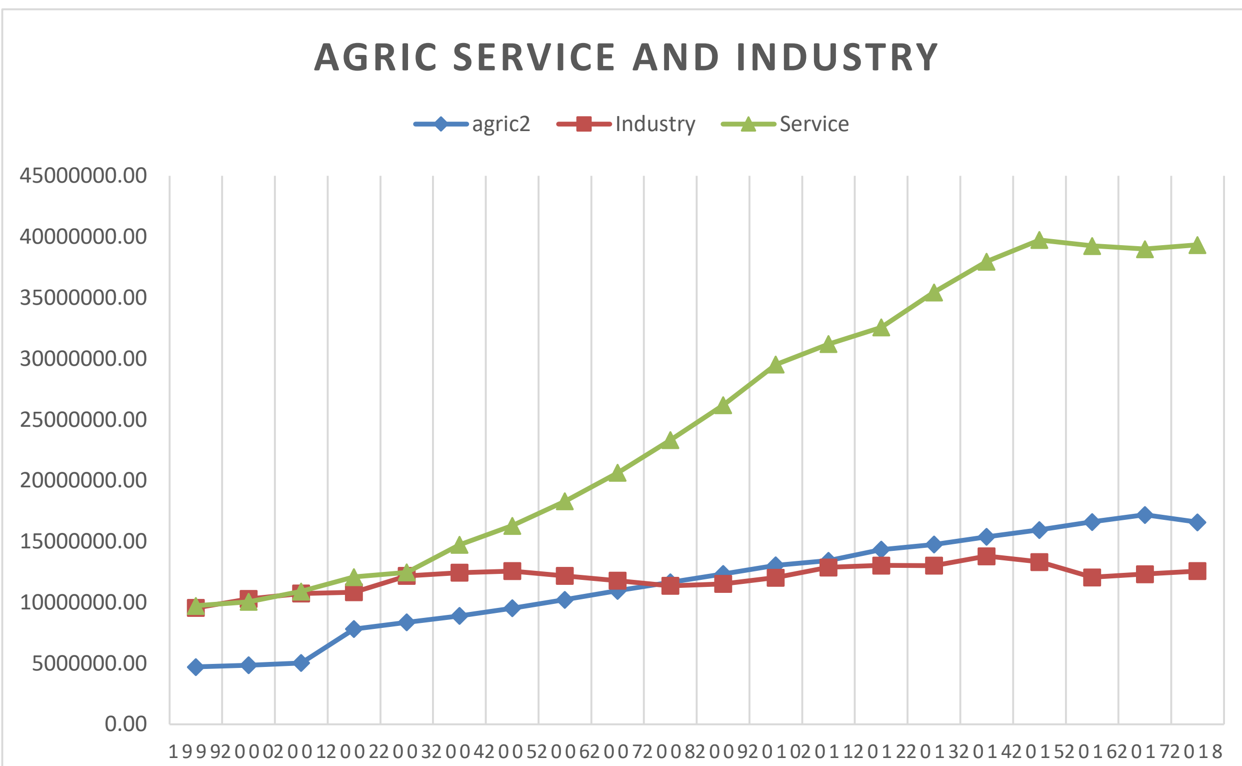

Figure 3: Agriculture, Service and Industry Sectors' Contribution to Nigeria GDP

Source: NBS (2018)

Effect of Agricultural Sector on Economic Growth in Nigeria
Agriculture is as old as the Nigerian economy. It has been a major occupation and employer of labor in all parts of the country. The effect of the agricultural sector on the Nigerian economy cannot be overemphasized but there is need to substantiate it empirically. Table 1 presents the relationship between agriculture, manufacturing, trade and information and communications sectors and economic growth in Nigeria. Agriculture output, manufacturing output, trade output and information and communications outputs are the predictor variables while economic growth rate is the response variable. The first point of analysis is the statistical significance of the model.

The p-value from the variables indicates that agricultural output is statistically significant as its p-value is less than 5%. This is similar with trade. However, manufacturing output and information and communications outputs in Nigeria were not significant as their p-value were greater than 5%. Although from the Durbin Watson statistic, there is a strong positive autocorrelation in the model, the F-statistic indicates a high value suggesting that the model in general is statistically fit. Looking at the coefficients, agricultural output variable revealed that the sector positively contributes to economic growth in the country at a significant level. Though, information and communications sector positively accounts for economic growth, it was not at a significant level. The study however found the manufacturing and trade sector negatively accounting for economic growth in the study as indicated in table 1 below.

Table 1: Multiple Regression ResultsDependent Variable: GDPR

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	4.751303	1.737267	2.734929	0.0153
AGRIC	1.68E-06	5.41E-07	3.09746	0.0074
MANU	-1.29E-07	1.01E-07	-1.28222	0.2192
TRADE	-2.06E-06	7.58E-07	-2.71375	0.016
INFO	1.59E-07	9.70E-07	0.163476	0.8723
R-squared	*0.602466*	*Mean dependent var*		*5.582008*
Adjusted R-squared	*0.496458*	*S.D. dependent var*		*3.674338*
S.E. of regression	*2.607337*	*Akaike info criterion*		*4.966854*
Sum squared resid	*101.9731*	*Schwarz criterion*		*5.215787*
Log likelihood	*-44.6685*	*Hannan-Quinn criter.*		*5.015448*
F-statistic	*5.683167*	*Durbin-Watson stat*		*1.777142*
Prob(F-statistic)		*0.005459*		

CONCLUSION

The agricultural sector over the years has accounted for economic growth in Nigeria substantially over the years. One major aspect of agriculture that has increased the agricultural's sector output is crop production or agronomy. Among other key sectors of the Nigerian economy, agriculture has constantly stood out from 1981 to 2018. More so, from the empirical analysis considered, the agricultural sector proved to impact on economic growth of the country. This corroborates findings from other studies reviewed in the study. Hence, the study concludes that the agricultural sector's development is essential to economic growth of Nigeria and that every effort to expand the value chain from the agricultural sector, especially the crop production aspect will amount to increase in prosperity and food security in the country.

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