Government Expenditure on Agriculture and Economic Growth in Nigeria

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Abstract: This study empirically examined the impact of government expenditure on agriculture on economic growth in Nigeria over the years. A time series data of 33 years sourced from the Central bank of Nigeria was used. Ordinary Least Square (OLS) technique of data analysis was used in evaluating the secondary data. GDP was used as a proxy to economic growth, while agricultural output and government expenditure on agriculture were used as indicators of government expenditure on agriculture. From the findings; agricultural output, government expenditure and GDP are positively related. It was found that a significant relationship exist between government expenditure in the agricultural sector and economic growth in Nigeria. The findings also revealed that the sector still encounter some problems like inadequate finance, poor infrastructure, and others. Therefore, the study recommends that it is imperative for the country to develop its agricultural sector through sufficient government spending in order to set-up its economic growth. It emphasizes the need to enlighten farmers, improve and provide infrastructures, accord a priority to the sector in budget allocation, enthroned adequate and appropriate extension services, among other measures laid by the government.

Keywords: Economic Growth, Government Expenditure, Gross Domestic Product, Agricultural Sector

JEL CLASSIFICATION: N57, O13

1. Introduction

The contribution of agricultural sector to the economy cannot be overemphasized when considering its building roles for sustainable development, in terms of employment potentials, export and financial impacts on the economy. Agriculture is an important sector of Nigerian economy. In the world today, agricultural sector acts as the catalyst that accelerates the pace of structural transformation and diversification of the economy, enabling the country to fully utilize its factor endowment, depending less on foreign supply of agricultural product or raw materials for its economic growth, development and sustainability. Apart from laying solid foundation for the economy, it also serves as import substituting sector, providing ready market for raw materials and intermediate goods. The agricultural sector contributes significantly to the nation’s economic development by: increasing government revenue through tax; improving the standard of living; infrastructural growth; contribution to Gross National Products (GNP); employment generation; enhance manpower development; It plays a key role by sourcing of food for man and animal and providing raw materials for the industrial sector; provision of employment and foreign exchange to the government, amongst others. Agriculture remains the most important single activity of the Nigerian economy; with about 70% of the working population still engaged in it. Despite the predominance of the oil and gas sector in Nigeria, agricultural sector still remains source of economic resilience in the Nigerian economy.

So far, it has been argued that the faster trend through which a nation can achieve sustainable economic growth and development is neither by the level of its endowed material resources, nor that of its vast human resources, but technological innovation, enterprise development (commercial farming of various types inclusive) and industrial capacity.

Government expenditure is perhaps the single most important policy instrument available to governments of most developing countries for promoting growth and equitable distribution. Aside the fact that government expenditure is used to improve technology, human capital and infrastructure development necessary for growth, it also provides the incentives and enabling environment to promote private sector investments in order to further growth. Public expenditure is the government spending from revenue derived from tax and other revenue. An important problem facing most countries is the low growth of government revenue at variance with rapid growth of public expenditure stimulated by the increase in demand for improved economic welfare by the people. This however leads to an increase in budget deficits with adverse effects on efficiency and macroeconomic stability. The people whose lives are directly affected by government expenditure expect the government to do more with their welfare; thus, annual budgets are eagerly awaited for possible indications of any change. In Nigeria, the general administration including defense and internal security, economic service like agriculture, communication, transportation, construction etc. along with social and community services, which also include education, low housing etc, have attracted government expenditure decisions. Other factors responsible for increase in the public expenditure are inflation, population; provision of infrastructure and encouragement of industrial development. On the other hand, public expenditure has helped the economy in numerous ways in attaining higher levels of production and growth, which obviously are inter-related. It has been used to create and maintain social overheads, human skills through education and training, encouraged the market sector of the economy for contributing to the process of economic growth and create demand for various products and stimulate private production (Ologbenga & Owoeye, 2008). Government performs two functions- protection and provisions of certain public goods (Abdullah 2000). Supporting this
view, scholars like (Al-Yousif, 2000), (Ranjan & Shrma, 2008) concluded that expansion of government expenditure contributes positively to economic growth. However, some scholars did not support the claim that increasing government expenditure promotes economic growth, instead they assert that higher government expenditure may slowdown overall performance of the economy. In fact, studies by (Landau 1986) suggested that large government expenditure has negative impact on economic growth.

Inadequate funding of the agricultural sector has been re-echoed by several experts as an obstacle to increased agricultural output (CBN, 2007; Bernard, 2009). However, from a nominal point of view, it is evident that in Nigeria, government spending on agriculture continue to increase over the years while empirical evidence have revealed that the performance of the agricultural sector has been inadequate (CBN, 2000; Ekerete, 2000). The agricultural sector in Nigeria which was the main stay of the economy is no longer performing the lead role it was known for. By mid 1970’s Nigeria’s agriculture started to experience problems; agricultural exports began to decline and food shortages started emerging. From 1975, emboldened by considerable increased revenue from petroleum, government assumed heavier responsibilities for agricultural production, input supply and marketing; in addition to adopting credit control and other allocative policies in favour of agriculture (Ojo & Akanji 1996). Agricultural production stagnated at less than 1 percent annual growth rate between 1970 and 1982. There was a sharp decline in export crop production, while food production increased only marginally. Thus, domestic food supply had to be augmented with large imports. Food import bill rose from a mere N113.88 million annually in 1970-1974 to N1,964 million in 1991 (CBN, 2003). Also, in 1993, the agricultural sector performed below the projected 7.2% of budgetary output (Lawal, 1997).

Further contribution of agricultural sector to economic growth has been decreasing continuously after the Structural Adjustment Programme (SAP) period. Presently, in Nigeria, there has been a conflicting view about spending on agriculture; the performance of the agricultural sector had fared better than it was before independence. Theoretically, input-output theory in economics posits that input determines output, which is needed to increase government spending in order to boosts economic growth. Therefore there is need to examine the extent to which government expenditure as an input has affected agricultural production which in turn boosts economic growth. It is on this background that there is need to investigate the impact of government expenditure on agricultural sector on economic growth in Nigeria is important. Problems particular to the economy of Nigeria include; excessive dependence on imports for consumption and capital goods, dysfunctional social and economic infrastructure, unprecedented fall in capacity utilization rate in industry and neglect of the agricultural sector, among others. These have resulted in fallen incomes and devalued standards of living amongst Nigerians (Anyanwu, 2004). Although, SAP was introduced in 1986 to address these problems, no notable improvement has taken place. From a middle income nation in the 1970s and early 1980s, Nigeria is today among the 30 poorest nations in the world. In view of this, the question is; does the agricultural sector “ceteris paribus” has impact on the economic growth of the nation in view of the Vision 20;2020. The statement to be set to test in this paper is to examine whether there is a significant relationship between government spending on agricultural sector and economic growth in Nigeria.

The remaining of this paper is organized with literature review; where some empirical works of other scholars are reviewed, Methods of analysis, analysis and interpretation and lastly, recommendation and policy implication of the study.

2. Literature Review

The motivation for endogenous growth model stems from the failure of the neoclassical theories to explain the sources of long-run economic growth. The neoclassical theory does not explain the intrinsic characteristics of economies that cause them to grow over extended period of time. The neoclassical theory focuses on the dynamic process through which capital-labour ratios approach long-run equilibrium. In the absence of external technological change, which is not clearly explained in the neoclassical model, all economies will converge to zero growth.

The neoclassical theory see rising GDP as a temporary phenomenon resulting from technological change or a short-term equilibrating process in which an economy approaches its long run equilibrium. The neoclassical theory credits the bulk of economic growth to a completely independent process of technological progress. According to neoclassical theory, the low capital-labor ratios of developing countries promise exceptionally high rates of return on investment. Based on this premise, it was expected that the free market reforms imposed on highly indebted countries by the World Bank and the International Monetary Fund should have prompted higher investment, rising productivity, and improved standards of living. Yet even after the prescribed Liberalization of trade and domestic markets, many LDCs experienced little or no growth and failed to attract new foreign investment or to halt the flight of domestic capital. The anomalous behavior of developing world capital flows (from poor to rich nations) helped provide the impetus for the development of the concept of endogenous growth or, more simply, the new growth theory. The new growth theory represents a key component of the emerging development theory. The new growth theory provides a theoretical framework for analyzing endogenous growth, persistent GDP growth that is determined by the system governing the production process rather than by forces outside that system. In contrast to traditional neoclassical theory, these models hold GDP growth to be a natural consequence of long-run equilibrium.

The principal motivations of the new growth theory are to explain both growth rate differentials across countries and a greater proportion of the growth observed. In particular, endogenous growth theorists seek to explain the factors
that determine the rate of growth of GDP that is left unexplained and exogenously determined in the Solow neoclassical growth equation (that is, the Solow residual).

Models of endogenous growth bear some structural resemblance to their neoclassical counterparts, but they differ considerably in their underlying assumptions and the conclusions drawn. The most 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 focussing on the role of externalities in determining the rate of return on capital investments. By assuming that public and private investments in human capital generate external economies and productivity improvements, that offset the natural tendency for diminishing returns, endogenous growth theory seeks to explain the existence of increasing returns to scale and the divergent long-term growth patterns among countries. And whereas technology still plays an important role in these models, it is no longer necessary to explain long term growth. A useful way to contrast the new (endogenous) growth with traditional neoclassical theory is to recognize that many endogenous growth theories can be expressed by the simple equation $Y = AK$ as in the Harrod-Domar model. In this formulation, $A$ is intended to represent any factor that affects technology, and $K$ again includes both physical and human capital.

Agriculture is the art and science of crop and livestock production. In its broadest sense, agriculture comprises the entire range of technologies associated with the production of useful products from plants and animals, including soil cultivation, crop and livestock management, and the activities of processing and marketing. The term agribusiness has been coined to include all the technologies that mesh in the total inputs and outputs of the farming sector. In this light, agriculture encompasses the whole range of economic activities involved in manufacturing and distributing the industrial inputs used in farming: the farm production of crops, animals and animal products, the processing of their materials into finished products and the provision of products at a time and place demanded by consumers. Agriculture was the key development that led to the rise of human civilization, with the husbandry of domesticated animals and plants (i.e., crops) creating food surpluses that enabled the development of more densely populated and stratified societies. Agriculture encompasses a wide variety of specialties and techniques, including ways to expand the lands suitable for plant rising, by digging water channels and other forms of irrigation. Cultivation of crops on arable land and the pastoral herding of livestock on rangeland remain at the foundation of agriculture. In the past century there has been increasing concern to identify and quantify various forms of agriculture (e.g. perm culture or organic agriculture) and intensive farming (e.g. industrial agriculture). Interestingly, the Nigerian economy, during the first decade after independence could reasonably be described as an agricultural economy because agriculture served as the engine of growth of the overall economy (Ogen, 2003).

From the standpoint of occupational distribution and contribution to the GDP, agriculture was the leading sector. During this period Nigeria was the world’s second largest producer of cocoa, largest exporter of palm kernel and largest producer and exporter of palm oil. Nigeria was also a leading exporter of other major commodities such as cotton, groundnut, rubber and hides and skins (Alkali, 1997). The agricultural sector contributed over 60% of the GDP in the 1960s and despite the reliance of Nigerian peasant farmers on traditional tools and indigenous farming methods, these farmers produced 70% of Nigeria’s exports and 95% of its food needs (Lawal, 1997). However, the agricultural sector suffered neglect during the hey-days of the oil boom in the 1970s. Ever since then Nigeria has been witnessing extreme poverty and the insufficiency of basic food items. Historically, the roots of the crisis in the Nigerian economy lie in the neglect of agriculture and the increased dependence on a monocultural economy based on oil. The agricultural sector now accounts for less than 5% of Nigeria’s GDP (Olagbaju & Falola 1996). The neglect of the agricultural sector and the dependence of Nigeria on a monocultural, crude oil-based economy have not augured well for the well-being of the Nigerian economy. In a bid to address this drift, the Nigerian government as from 1975 became directly involved in the commercial production of food crops. Several large-scale agricultural projects specializing in the production of grains, livestock, dairies and animal feeds, to mention but a few were established. Sugar factories were also established at Nunam, Lafiaji and Sunyi (Lawal, 1997). The Nigerian Agricultural and Co-operative Bank (NACB) was established in 1973 as part of government’s effort to inject oil wealth into the agricultural sector through the provision of credit facilities to support agriculture and agro-allied businesses (Olagunju, 2000). In spite of these efforts, it is heartrending to note that as from the mid 70s, Nigeria became a net importer of various agricultural products. In 1982 alone, Nigeria imported 153,000mt tons of palm oil at the cost of 92 million USD and 55,000mt tons of cotton valued at 92 million USD (Alkali, 1997). Between 1973 and 1980, a total of 7.07 million tons of wheat, 1.62 million tons of rice and 431,000 tons of maize were imported. Thus, from N47.8 million in the 60s, the cost of food imports in Nigeria rose to N88.2 million in 1970 and N656,527.0million in 1995 (Alkali, 1997:19-21).

The First National Development Plan (1962-1968) emphasized light industry and assembling activities. The second plan (1970-1975) had a somewhat similar thrust and focus, but the emphasis shifted in the third plan (1975-1980) towards heavy industries. Major projects were initiated in the steel and petroleum refinery sector. For the fourth plan (1980-1985), the broad direction was in consonance with the third: it retained the stress on heavy industries. But several of the grandiose plans were short changed with the onset of the profound economic crisis in the early 1980s.

Onayemi (2003) put forward that the economy of Nigeria is too dependent on oil and it is not progressing significantly due to inconsistency in macroeconomic policies for the growth of different sectors in the economy.
When the government only works to safeguard the oil companies’ interests, the price of oil does not remain at an affordable level and the agricultural farmers have to pay more for the energy resources they consume in the cultivating of land for crops (i.e. irrigation etc.) and rearing of animal processes. When there is news about the discovery of more crude oil wells in the country, foreign investors start paying attention toward it, resulting in the rise of foreign direct investment (FDI) as well as the employment rate. In this way, the economy of Nigeria is determined by oil production and oil prices. It is therefore evident that Nigeria remains highly dependent on oil, which accounts for 80% or more of its foreign exchange during the last four decades.

This policy has proved to be quite harmful to the country because oil price fluctuation has a negative impact on the economy, causing a certain level of instability and uncertainty, aside the fact that the surface of area covered can no longer be useful for agricultural activities. The government neglected the non-oil sectors including agricultural sector, which has made Nigeria one of the least country in the region. The fluctuation in oil prices further contributed to the economic instability of the country and poverty was widespread, especially in the rural areas. Though the Nigerian agricultural sector cannot support economic development in its present condition; it has great potential since Nigeria is one of the most attention-grabbing markets of the region by having over 150 million consumers and millions more consumers in the neighboring countries. The importance of the agricultural sector is also realized from the fact that private consumption expenditures are significantly increasing in the country up to the rate of 20 to 25% per year. However, many problems are hindering the growth of the agricultural sector in Nigeria and as a result, the country is progressing very slowly towards economic diversification. The economy of Nigeria and the role of the agricultural sector were summed by identifying the main hurdles that mostly and historically affect its development and growth. These barriers include insecurity, political instability, market-distorting, state-owned monopolies, weak infrastructure and unavailability of finance while Adenikinju (2003) added excessive bureaucracy and rampant corruption. Agricultural activities have significant impact on the economy of a nation. In developed economies, for instance, they account for a substantial proportion of total economic activities. In a developing country, through economic stabilization, stimulation of investment activity and so on, government expenditure maintains a rate of growth, which is steady in nature. In an underdeveloped country like Nigeria, government expenditure plays active role in reducing regional disparities, developing social overheads, creation of infrastructure of economic growth in form of communication and transport facilities, education and training, growth of capital and consumer goods industries, basic and key industries, research and development and so on (Bhatia, 2008).

Government expenditure on infrastructural facilities has a great role to play in form of stimulating the economy. The mechanism in which the government spending on public infrastructure is expected to affect the pace of economic growth depends largely upon the precise form and size of total public expenditure allocated to economic and social development projects in the economy. When government expenditure is incurred, by itself, it may be directed to particular investments or may be able to bring about reallocation of the investible resources in the private sector of the economy. This effect, therefore, is basically in the nature of re-allocation of resources from less to more desirable lines of investment. An importance way in which government expenditure can accelerate the pace of economic growth is by narrowing down the difference between social and private marginal productivity of certain investments. Here, public expenditure on social and economic infrastructural like education, health, transport, communication, water disposal, electricity, water and sanitation etc., has the potential of contributing to the performance of the economy based on promotion of infant industries in the economy. Reduction in the unemployment rate; Stabilization of the general prices in the economy; Reduction in the poverty rate and increase the standard of living of the people; Promotes economic growth by attracting foreign investment; and Promotes higher productivity, tracing the work of Rostow and Musgrave, where they put forward development model under the causes for growth in public expenditure.

Under this model, public expenditure is a prerequisite of economic development. The public sector initially provides economic infrastructure such as roads, railways, water supply and sanitation. As economic growth takes place, balance of public investment shift towards human capital development through increases spending on education, health and welfare services. In this model, the state is assumed to grow like an organism making decision on behalf of the citizens. Society demand for infrastructural facilities such as education, health, electricity, transport etc., grow faster than per capita income. Many of the goods and services provided by government are called public goods (items consumed collectively rather than by single individuals). These include such things as highways, national defense, and social amenities like electricity, water supply. Still, some people question how many services provided and therefore, how many expenditures government should provide. Some people want more roads, schools, and welfare programs, while other people want fewer. People also do not seem to agree on whether government should have any role at all in such activities as supply of the electric power. Another area on which people cannot seem to agree is which services should be provided by the federal government and which services should be provided by state and local government. No matter what their opinion, however, people in general, agree that public sector spending is important to everyone, especially since more and more seems to be spent in agricultural sector each year. This sector is divided into conceptual and theoretical framework:

Public expenditure policy is one of the most important instruments of public sector policy. Traditionally, the normative theory of public finance starting with Musgrave identifies three functions of fiscal policy as: allocation,

In this model, he finds a non-linear relationship between public expenditures, which are complementary inputs to private production, and a negative relationship between government expenditure and growth of the economy.

This study, hence, is set forth, using a time series data from 1980-2012 sourced from the Central Bank of Nigeria, to explore the average contribution of the agricultural sector to the national earning of Nigeria over the years, say ceteris paribus, what will be the fortune of the agricultural sector in Nigeria.

3. Methodology

3.1 Sources of Data

Data for this study is secondary in nature because the researchers were not the originators of the data. Time series data for the period 1980-2012 on the Federal Government expenditure on Agriculture were used. In a bid to explain the relationship between government expenditure, agricultural sector and economic growth, the researchers collected secondary data in its quantitative nature. This data includes the Gross Domestic Product (GDP) at constant purchaser prices being dependent variable and agricultural sector output and government Expenditure (capital) being the independent variables. Multiple Linear Regression analysis of Ordinary Least Square (OLS) was used to analyse and estimate the parameters.

Model Specification

Model specification is a mathematical expression showing the interrelationship between the economic relationship existing between economic variables (dependent and independent). The model is a three-variable model and stated covers the Gross Domestic Product (GDP) at constant prices as the dependent variable to capture economic growth while agricultural sector output and government expenditure (General) were the independent variables to capture government expenditure on agriculture in Nigeria.

Taking inference from Solow growth model, which was subsequently modified by Mankiw, Romer and Weil (1992) and is termed the “Augmented Solow growth model”, Solow (1956) postulated that economic growth resultant from the accumulation of physical capital and an expansion of the labor force in conjunction with an “exogenous” factor, technological progress, that makes physical capital and labor more productive (Udah, 2010). For the purpose of this research work the above will be adopted and build upon, proxing economic development with Gross Domestic Products (GDP); industrialization (proxy by agricultural sector output); and government expenditure to check government commitment on the provision of infrastructural facilities that will attract investor. With this adjustment incorporated into the model, it can therefore be specified in the form expressed below:

Harrod-Domar model \( Y = F (K, L) \)

\[ GDP = f(AGOUT, TGE) \]

Where:
- \( RGDP \) = Real Gross Domestic Product
- \( AGOUT \) = Agricultural sector output
- \( TGE \) = Total Government Expenditure

The model in its stochastic form is presented as;

\[ Gdp = \alpha_0 + \alpha_1 Agout + \alpha_2 Tge + \mu \]

Where: \( GDP = \) Gross Domestic Product
- \( \alpha_0 = \) Intercept
- \( \alpha_1 = \) Partial slope coefficient of agricultural sector output.
- \( \alpha_2 = \) Partial slope coefficient of total government expenditure
- \( \mu = \) the stochastic error term which denotes other explanatory variables not specified in the model

3. 2 A Priori Expectations

\[ RGDP = \alpha_0 + \alpha_1 AGOUT + \alpha_2 TGE + \mu \]

Where: \( a_0, a_1, a_2 > 0 \)

The a priori expectations of this model are based on the knowledge of the world economic theory. This implies that government expenditure on agricultural sector have a positive sign and thus denoting a positive relationship with GDP (economic growth) which is expected to exist. It is also expected that the coefficient of total government expenditure should be positive. Thus the following is the a priori expectation of the model is:

\( a_0 > 0, a_1 > 0, a_2 > 0, \mu = 0 \)

4. Data Analysis and Discussion of Findings

The data were analysed using multiple linear regression analysis. The significance level is 0.05% and the result is as follows:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
<th>F-Statistic</th>
<th>Level of Significance (α)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>44608.95</td>
<td>40.788</td>
<td>0.00</td>
<td>2979.2</td>
<td>0.05</td>
<td>0.9949</td>
</tr>
<tr>
<td>AGOUT</td>
<td>2.10328</td>
<td>22.810</td>
<td>0.00</td>
<td>0.00</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>TGE</td>
<td>0.01630</td>
<td>3.1046</td>
<td>0.00</td>
<td>0.00</td>
<td>0.41</td>
<td></td>
</tr>
</tbody>
</table>

\[ RGDP = 44608.95 + 2.103282AGOUT + 0.016300TGE + \mu \]
The results obtained from the equation estimated show the explanatory power of the model. About 99.50% of the variations in the GDP which is the proxy of the economic growth is explained by variation in agricultural output and total government expenditure. This is judged by the value of the coefficient of determination (R-squared). more so, the R² adjusted confirms the R² at 0.9946, taking into consideration the degree of freedom and the inclusion or exclusion of a variable. F-statistic shows that the model is statistically fit and the variables used were fit to explain economic growth in Nigeria.

Both variables conform to the a priori expectations in that the coefficients have positive signs. Total output in the agricultural sector has a positive and significant effect on economic growth in Nigeria. 1% increase in agricultural output will increase economic growth of Nigeria tremendously. Also, total government expenditure has a positive and significant effect on economic growth in Nigeria. As total expenditure increases, economic growth increases. This result shows that 1% increase in total government expenditure will increase economic growth by 1.63%.

5. Summary, Conclusion and Recommendation

The result shows that, there is a significant relationship between the exogenous and endogenous variables, while total output complied with the a priori expectation, there exists a positive relationship between government expenditure and agricultural sector. Thus, it is recommended that government should improve and encourage agricultural outputs and improve its expenditure in the agricultural sector geared towards economic growth.

This paper concludes that government expenditure on agricultural sector and agricultural outputs have a positive and significant effect on economic growth in Nigeria. This conclusion is in line with the findings of Bhattacharya (2008) and many others who have carried out related work. It is recommended in the light of this study that, for any nation, to grow, especially in Nigeria; the focused of government expenditure on the agricultural sector should not be overlooked, thus, the government should direct its spending efforts in productive means, through increase, improve and encourage the output of the agricultural sector as previously shown. This will create better avenues for job creation, growth and higher GDP levels.

References


Volume 3 Issue 9, September 2014
www.ijsr.net
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