Government Expenditure on Agriculture and Its Effect on Agricultural Productivity in Nigeria

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Abstract

The role of agriculture in any economy cannot be over-emphasized. It is one of the most dominant sectors in any economy. It serves as a source of food, foreign exchange earnings, raw materials for industries etc. It is in recognition of this pivotal role played by the agricultural sector of the economy that this study becomes imperative. The main object of the study is to investigate the effect of government expenditure on agricultural productivity in Nigeria. The research relied mainly on secondary sources of data such as existing books, journals, internet/online materials, magazine, newspapers article etc published by various scholars on the subject matter. The study discovered that agricultural budgetary allocation to a great extent affects economic growth, however, in Nigeria budgetary allocation to the sector is below the 25% and 10% recommendation by the Food and Agricultural Organisation (FAO) and African Union (AU), respectively. It concluded that for agricultural sector to perform optimally the government should increase spending on the sector. The study recommended that for government expenditure to achieve the desired results, government expenditure needs to be closely monitored. This will help ensure that budget allocations are channeled into the required targets that will help improve the economy.

Key Words: Government, Expenditure, Agriculture and Productivity.
Word Count: 200

Introduction

1.1 Background to the Study

Before the discovery of crude oil, agriculture was the main stay of Nigeria economy (Akinboyo, 2008) as it provided food, raw materials for industries, revenue to farmers and the government. Others are it provided employment with at least 60 percent being women; and generation of foreign exchange earnings (DFID, 2005, Action Aid, 2015) etc. It was the

biggest sector in Nigeria and still accounts for more than 25 percent of the Gross Domestic Product (CBN, 2018). The food crop sub-sector contributed about 76% of the share of the agricultural sector's contribution to GDP; livestock contributed 10% with the remainder made up by forestry and fisheries sub-sectors (CBN, 2018). The agricultural sector was responsible for the regional developments and growths witnessed during the precolonial, colonial and FirstRrepublic (Eluhaiwe, 2010).

However, despite the contribution of the agricultural sector to the Nigerian economy, a review of the sector's performance showed mixed results (Ihimodu, 2007). The sector performance has been hampered by the crude oil discovery and placing it above all other resources, non-conducive macro-economic policies that discourage medium and long term investment, insecurity, the poor state of infrastructures especially in the rural areas, poor budgetary allocation to agricultural sector; inadequate inputs and, poor credit facilities. All these problems and many others have negatively affected agricultural production (Olomola et al., 2015).

Literature abounds that stagnation in agricultural production negatively affects the economy of the Nigerian State. While an accelerated development of the agricultural sector is the key to industrialization as experienced in Europe and other advance countries of the world (Yuen. 2013). The Nigerian government which is the most powerful organization within the Nigerian State is expected to perform some important functions which include formulating and implementing policies required for development of all the sector (Heisey et al, 2011). However, overtime the agricultural output in Nigeria has been experiencing a significant decline in agricultural output when compared to other developing countries (Curtis, 2013; Ishola et al, 2013). This is because the government funding of the sector has been very poor, coupled with many misguided government policies. Hence, the sector contribution to the development of the Nigerian state has been below per (Alabi, 2014; Ewubare et al, 2015).

Consequently, following the stunted growth in agricultural output in Nigeria, low agricultural investments have been seen as a major contributory factor to this development, (Mogues, et al, 2012). As such, government fiscal responsibility which is often viewed as a prerequisite to achieving sustainable output (Ramaila et al, 2011). The Food and Agricultural Organisation (FAO, 2015) recommends that 25 percent of the government capital budget be allocated to agricultural development. This has not been achieved by the various administrations of Nigeria, thereby affecting government programs and policies for the sector (Iganiga and Unemhili, 2011).

Furthermore, Nigeria has also consistently failed to reach the 10 percent agriculture budget standard of the Maputo declaration, which has negative implications for food security (Ochigbo, 2012). Total expenditure on agriculture, as a percentage of overall expenditure, fluctuated from 4.57 percent between1986-1993 to an average of 4.51 percent per annum between 1994-1998, to 3.53 percent between 1999-2005; this reflects intensified efforts by the government to reduce its size (Udoh, 2011). This incessant reduction in agricultural expenditure over the years relative to the overall expenditure of Nigeria has led to inadequate funds for the sector. In this light, Ujah and Okoro, (2009) emphasized that the inadequate funding of the agricultural sector could never make the sector sustainable. While agricultural spending expressed as a share of total spending is generally low in African countries compared to other developing countries, Nigeria perform unfavourably within other African countries.

For instance, a collaborative study carried out by the International Food Policy and Research Institute (IFPRI) and the World Bank in 2008 revealed that Nigeria's public expenditure on agriculture is less than two percent of total federal annual budget expenditure. This is significantly below the expected amount or international standard compared to other developing countries like Kenya (6 percent), Brazil (18 percent), and the 10 percent goal set by the African Leaders Forum, under the Comprehensive Africa Agricultural Development Programme (CAADP) in the current decade. Despite the poor investment, agriculture has on average contributed 32 percent of the country's GDP from 1996 to 2000 and 42 percent between 2001 and 2009 (CBN, 2010). According to the Central Bank of Nigeria (CBN), in 2011 agriculture accounted for 40 percent of the nation's GDP, yet it received only one percent of the total commercial bank loans, (Uger, 2013). Therefore, budgetary allocation to the agricultural sector and its effects in enhancing agricultural productivity is imperative and is the case that this paper seeks to address.

1.2 Statement of the Problem

The Nigerian government yearly make budget which is the proposed expenditure in all sector of the economy. The government over the years have allocated little allocation to agricultural sector that is believed to be the main stay of the Nigerian State. These have led to reduction in agricultural productivity, thereby leading to food insecurity and the high prices of the little food that are available. The government at various levels have introduce various agricultural policies to boost agricultural productivity. However, the economy has failed to respond to these unending policies due to the inconsistent nature of the policies. The policymakers have pointed accusing fingers to the citizens linking the failure of the policies to over-dependence on foreign goods and neglect of the agricultural sector by the citizens in search for white-collar jobs. While the citizens on the other hand, point accusing

fingers at the government linking the failure of policies to a high rate of corruption, embezzlement, and wrong policies by the leaders. All these made the agricultural sector stagnant and the economy is faced with problems such as unemployment, inflation, recession, low price of local produce, over-dependence on one sector, low agricultural productivity, etc. A large percentage of Nigeria's farmers seem not to benefit from government expenditure in the agricultural sector. Thus, the intended objectives and goals of government expenditure have been largely defeated.

Nigeria has consistently had deficit spending over the years without an equivalent rate of economic growth. Data shows that the output of Nigeria has been fluctuating for some years and the sources of these shocks may not be clear. This has led to heavy importation of food crops to meet up with the country's consumption over the years. In 2018, the federal government spent N172.8 billion on agriculture, representing 2 percent of its total budget of N8.6 trillion for the year. N53.8 billion is for recurrent, while N118.9 billion is for capital votes. In 2017, of the N7.3 trillion budgets for the year, the federal government voted only N123 billion (1.6 percent) for agriculture. Salaries and overheads got N31.7 billion while the remaining N91.6 billion was for capital projects. The central government spent N75.8 billion (1.26 percent) on agriculture in 2016 out of its total budget of N6 trillion. N29.6 billion of the amount was for bureaucratic expenses, leaving N46.17 billion for agricultural service (Nurudden, 2018).

Agriculture, which accounted for 25% of GDP in 2017, grew by 4.23% in Q4 2017; the Federal Government estimated 3.5% growth in 2018 is quite achievable (Adekunle, 2018). It is expected that as the public expenditure expands, the output is expected to expand also because public expenditure should be translated into output growth. Alternatively, does it imply that much of the public expenditure find their ways into some other paths different from the intended routes? In Nigeria, the key challenge for the government has been to increase the productivity of all agriculture and horticulture crops in the country to keep pace with the growing need of the population. However, efforts on the part of the agriculture sector have not yet produced the desired outcome; this is partly due to the inconsistency in agriculture policies, low expenditure on agriculture, the problem of food insecurity, etc. Government expenditure results in more inefficiency and wasteful allocation of resources. Government expenditure has not succeeded in solving the problem of low agricultural productivity in Nigeria due to poor incentives in the public sector, lack of information, bureaucracy, and administration costs higher in the public sector, and decisions taken for political reasons. Therefore, the question arises if government expenditure in the country has any significant and positive impact on the agricultural productivity in Nigeria. This raises the question of what needs to be done to improve the

performance of the agricultural sector to realize its full potential. With the above problem at hand, this paper tried to assess the effect of Government expenditure on agricultural productivity in Nigeria.

1.3 Research Aim and Objectives of the Study

The broad objective of the study is to assess the impact of government expenditure on agricultural productivity in Nigeria. The specific objectives are to:

i. review the trend of government expenditure on agriculture in Nigeria.
ii. Investigate the effect of government budgetary allocation and actual expenditure on agricultural productivity in Nigeria.
iii. Find out the factors affecting agricultural productivity

1.4 Research Questions

i. What is the trend of government expenditure on agricultural productivity in Nigeria?
ii. What are the effect of agricultural public expenditure on agricultural productivity in Nigeria?
iii. What are the factors affecting government expenditure and agricultural productivity in Nigeria?

2.0 Literature Review

2.1 Conceptual Clarification

Agriculture: is the production of food, feed, fiber, and other goods by the systematic growing and harvesting of plants and animals. It is the science of making use of the land to raise plants and animals. It is the simplification of natures' food webs and the rechanneling of energy for human planting and animal consumption (Olorunfemi, 2008). As used in this study, it is the production of food and the rearing of livestock for food and other purposes.

Agricultural Productivity: According to Fulginiti et al (1998), as cited in Amire et all (2016), agricultural productivity refers to the output produced by a given level of inputs in the agricultural sector of a given economy. More formally, it can be defined as "the ratio of the value of total farms outputs to the value of total inputs used in farm production" Put differently, agricultural productivity is measured as the ratio of the final output, in appropriate units to some measure of inputs, (Iwala, 2013).

Public expenditure is a core instrument of governance used to promote economic growth which is an essential ingredient for sustainable development. The role of government expenditure is very vital in every economy irrespective of the economic system in place.

Government expenditure includes all expenses incurred by the government for the maintenance of itself and provision of public goods, services, and works needed to foster or promote economic growth and improve the welfare of people in the society. Government (public) expenditures are generally categorized into expenditures on administration, defense, internal securities, health, education, foreign affairs, etc., and have both capital and recurrent components (Aigheyisi, 2013). Government expenditure is a major component of national income as seen in the expenditure approach to measuring national income: (Y = C+I+G + (X–M)).

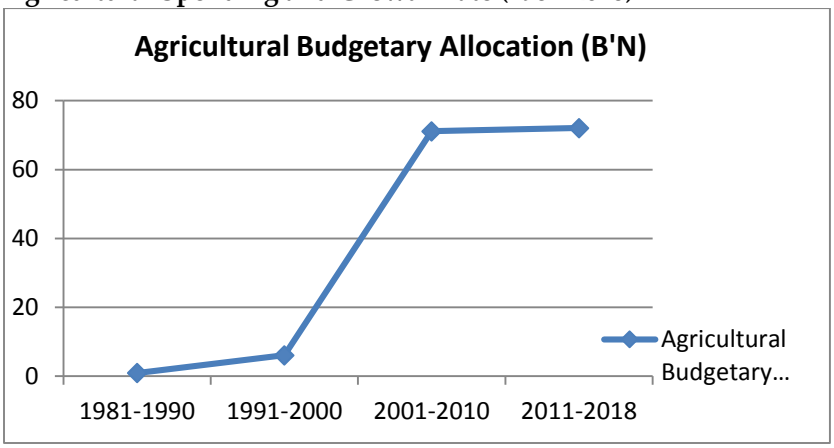
This implies that government expenditure is a key determinant of the size of the economy and economic growth. However, it can be used to expand the economy or deflate it. It could significantly boost aggregate output, especially in developing countries where there are massive market failures and poverty traps, and it could also have adverse consequences such as unintended inflation and boom-bust cycles (Wang and Wen, 2013). The effectiveness of government expenditure in expanding the economy and fostering rapid economic growth depends on whether it is productive or unproductive. All things being equal, productive government expenditure would have a positive effect on the economy, while unproductive expenditure would have the reverse effect (Aigheyisi, 2013). Government expenditure is categorized into capital or recurrent.

Capital expenditure refers to the amount spent in the acquisition of fixed (productive) assets (whose useful life extends beyond the accounting or fiscal year), as well as expenditure incurred in the upgrade/improvement of existing fixed assets such as lands, building, roads, machines, and equipment, etc., including intangible assets. Expenditure in research also falls within this component of government expenditure. Capital expenditure is usually seen as expenditure creating future benefits, as there could be some lags between when it is incurred and when it takes effect on the economy.

Recurrent expenditure on the other hand refers to expenditure on purchase of goods and services, wages and salaries, operations as well as current grants and subsidies (usually classified as transfer payments). Recurrent expenditure, excluding transfer payments, is also referred to as government final consumption expenditure. The annual budget spells out the direction of the expected expenditure, as it contains details of the proposed expenditure for each year, though the actual expenditures may differ from the budget

figures due, for example, to extra-budgetary expenditures or allocations during the fiscal year (Aigheyisi, 2013).

2.2. **Agricultural Spending and Growth Rate (1981-2018)**



Source: CBN Annual Report, (2018).

Over the years, the trend of agricultural output has been on the increase over the last four decades. Average annual agricultural output between the years 1981-1991 was N54.86b. Between the years 1992-2002, agricultural output in Nigeria has risen to N1321.84b in agricultural output. The average figure for agricultural value added between 2003 and 2018 was N13,972.92b (CBN Annual Reports various issues). However, despite this increases in Agricultural output, the problem of food insecurity and poverty continue to bemoan Nigerians. The United Nations World Poverty Clock (2018) reported that 46 percent of Nigerians live in extreme poverty. By July 2020, this figure has increased to 50 percent. This poor outcome has been attributed to erratic and inefficient public expenditure on agriculture. The trend of government expenditure in agriculture has been erratic and fluctuating over the past three decades. Between 1981 and 1990, average capital expenditure by the federal government on agriculture was N0.938 billion. This trend increased to N6.103 billion between 1991 to 2000. Average capital expenditure on agriculture for the period 2001 to 2010 was N 71.14 billion. The figure for average capital expenditure for the period 2011 to 2018 was N72.06 (CBN Annual Reports 2018).

A look at these average figures depicts an increasing trend when one looks at it from decade to decade. However, when the figures are viewed on annual basis, the trend becomes erratic and fluctuating. This same trend is also observable when examining the trend of recurrent expenditure during the period under study. For example, annual

recurrent expenditure on agriculture between 1981 and 1998 was below N2billon. However, the incoming civilian administration increased the figure for recurrent expenditure on agriculture to N59.32billion in the year 1999. By the next three years of 2000, 2001 and 2002, recurrent expenditure on agriculture fell to N6.34, N7.06, and N9.99 respectively. Between 2004 and 2011, average annual recurrent spending on agriculture rose to N29.40. Afterwards, the trend began to decline by 2012 and began rising again to N36.30, N50.26 and N53.99 for by 2016, 2017 and 2018 respectively (CBN Annual Reports 2018).

2.3. **Government Expenditure and Agricultural Productivity**

Many studies have been carried out on the impact of government expenditure on agricultural productivity in Nigeria and other parts of the world, Mogues et al (2008) demonstrated in their descriptive study on agriculture public spending in Nigeria that public spending on agriculture is exceedingly low. They indicated that less than 2 percent of total federal expenditure was on agriculture, which was far lower than spending in other key sectors such as education, health, and water. They revealed that the spending on agriculture contrasts dramatically with the sector's importance in the Nigerian economy and the policy emphasis on diversifying away from oil, and falls well below the 10 percent goal set by African leaders in the 2003 Maputo Declaration. Since their study was only exploratory one, they suggested the need for an applied research to address critical knowledge gaps in agricultural public expenditure in Nigeria.

Iganiga and Unemhilin (2011) studied the effect of federal government agricultural expenditure and other determinants of agricultural production on the value of agricultural output in Nigeria. A Cobb Douglas growth model was specified that included commercial credits to agriculture, consumer price index, annual average rainfall, population growth rate, food importation and GDP growth rate. Co-integration and Error Correction methodology were employed to draw out both long-run and short-run dynamic impacts of these variables on the value of agricultural output. Their results showed that federal government capital expenditure was found to be positively related to agricultural output. However, the study failed to account for the endogeneity of agricultural public spending, because it undermined the notion of programme placement effects in their analyses. Aina, & Omojola, (2017) examined the impact of government expenditure on agricultural sector performance in Nigeria for the period 1980 and 2013 using secondary data from the Central Bank of Nigeria Statistical bulletin. The result of the Error correction modeling shows that there is a significant and positive relationship between government expenditure on agriculture and agricultural production output.

Similarly, Udoh (2011) explored the relationship between public expenditure, private investment and growth in the agricultural sector in Nigeria. Making use of data from 1970 to 2008, their growth model incorporated variables such as agricultural output, labor force participation rate, gross fixed capital formation and total foreign direct investment. The VECM model used in his study indicated a positive relationship between public expenditure and output in the short run. This study did not consider the impacts of other components of agricultural expenditure on agricultural sector in Nigeria.

Using time series data, Lawal (2011) attempted to verify the amount of federal government expenditure on agriculture in the thirty-year period (1979-2007). Using trend analysis and a simple linear regression, the study showed that agricultural spending does not follow a regular pattern and that the contribution of the agricultural sector to the GDP is in direct relationship with government funding to the sector. The simple linear equation approach he used may not be able to handle the complex relationship between government expenditure and agricultural productivity.

In another development, Itodo, et al (2012) examined the impact of government expenditure on agriculture and agricultural output in Nigeria from 1975-2010, using Cob-Douglas production function and the ordinary least square (OLS) econometric technique, they estimated a multiple regression of agricultural output against some variables. The results revealed a positive but insignificant relationship between government expenditure and agricultural sector and agricultural output within the scope of their research. This finding may be biased because the OLS methodology they employed may be consistent and unbiased but less efficient compared with Generalized Least Squares approach employed in Seemingly Unrelated Regression (SUR) model (Cameron and Trivedi, 2010); Cameron and Trivedi, 2009).

Ihugba et al (2013) empirically analyzed the relationship between Nigeria government expenditure on the agricultural sector and its contribution to economic growth, using time series data from 1980 to 2011. They employed the Engle-Granger two step modelling (EGM) procedure to co-integration based on unrestricted Error Correction Model and Pair wise Granger Causality tests. From the analysis, their findings indicated that agricultural contribution to Gross Domestic Product and total government expenditure on agriculture are co-integrated. Therefore, they concluded that any reduction in government expenditure on agriculture would have a negative repercussion on economic growth in Nigeria. The relationship between government expenditure and GDP may occur through many links. Therefore, single equation model as specified in this study may not be able to

capture the various links (Greene, 2012). This may also cast doubt on the estimated results from this study.

Olomola et al (2014) using Public Expenditure Approach to investigate agricultural spending in Nigeria observed that budgetary allocation in Nigeria to agriculture compared with other key sectors is low despite the sector's role in the fight against poverty, hunger, and unemployment and in the pursuit of economic development. Their findings on the benefit incidence of public spending on fertilizer subsidy suggest that the target population of the programme has not benefited as intended. They recommended the need for impact analysis of relevant components of agricultural public expenditure in Nigeria, especially on those components that take greater proportion of the expenditure.

Ewubare and Eyitope (2015) examined the effects of government spending on the agricultural sector in Nigeria. The ordinary least square (OLS) of multiple regressions, the Johansen co-integration techniques, and the error correction model were used for the analysis. They implied that government expenditure has positive impact on agricultural sector in Nigeria. Based on the above findings, they recommended for an increase funding of the agricultural sector in Nigeria. The fact that agriculture public spending may be an outcome rather than the cause of agricultural productivity was not tested in the study and that may bias their estimate upward or backward.

Ayunku and Etale (2015) investigated the effect of agriculture spending on economic growth in Nigeria from 1977 to 2010 with particular focus on sectorial expenditure analysis. The study employed Augmented Dickey Fuller (ADF) and Phillips Perron (PP) unit root tests, as well as Johansen Cointegration and followed by Error Correction Model (ECM) tests. Their empirical results indicated that Real GDP was particularly influenced by changes in Agriculture Expenditure (AGR), Inflation Rate (INF), Interest Rate (INT) and Exchange Rate (EXR), these variables as they stand.

2.4 Governments Expenditure on Agriculture from other Countries

As from 2007 and 2009, Rwanda had increased its investment in agriculture by 30%, and in Sierra Leone, agriculture has gone from 2% of the budget to 10% in 2010 (New African, 2014). According to ONE (2014), Burkina Faso averaged 17% of public spending on agriculture from 2003 and 2010; this step had created 235,000 agricultural jobs within the period. This has also led to the doubling of cotton growing households in Burkina Faso. In the same vein, Ethiopia also spent 15% of her budget on agriculture and the poverty declined by 49% within the same period. This led to increase in the number of agricultural extension service by 100%. Generally, countries that adopted CAADP since its inception

in 2003, by increasing their agriculture government expenditure toward 10% experienced an annual increase in their agricultural productivity of around 6% to 7%, and those countries that did not implement the CAADP goals had farm productivity growth of less than 3% (Badiane, et al., 2016).

Public expenditures on agriculture include short-term costs as well as long-term investments. Investment in agriculture and forestry includes government expenditures directed to agricultural infrastructure, research and development and education and training. Data on the proportion of all central government expenditures spent on agriculture and forestry are incomplete, particularly for African countries. Comparisons between developed and developing countries reveal that there is greater variation among developing countries than industrial countries. In industrial countries in 1992, the range of expenditures was between 0.4 to 9.1 percent, with most countries clustered around 1.5 percent. For those developing countries reporting, agricultural expenditures were between 1.5 to 7.9 percent in Africa, 1.7 to 23 percent in Latin America and 0.20 to 19 percent in Asia (IMF, 1995). As a percentage of expenditures, agricultural expenditures generally declined from 1988 to 1993 in Africa, Eastern Europe and industrialized nations, declined for some Asian countries, increased for China and were mixed for Latin America.

2.5 **Factors influencing Agricultural Productivity**

Human Capital

Human capital directly influences agricultural productivity by affecting the way in which inputs are used and combined by farmers. Improvements in human capital affect acquisition, assimilation and implementation of information and technology. Human capital also affects one's ability to adapt technology to a particular situation or to changing needs. Schultz's (1963) classic work attributed between 21 to 23 percent of the growth in U.S. income, between 1929 and 1957, to education of the labour force. Contemporaneously, Griliches (1963) focused on minimizing the unexplained portion of growth in U.S. agriculture by adjusting labour for quality, using education. When he included research and extension expenditure as an input to production, he found that virtually all the "unexplained" growth could be explained by economies of scale, R&D and labour quality changes. Romer (1986) and Lucas (1988) provide theoretical grounds for human capital being the driving force behind economic growth.

Jamison and Lau (1982) explored the role of farmer education and extension on farm efficiency. They found that farmer education and extension were not only important to enhancing production on Thai, Korean and Malaysian farms, but that there was an interaction effect between education and extension. In contrast, they found physical capital

had an insignificant impact on production and profits. On the other hand, some researchers are finding evidence that returns to education are low, especially for those who stay in agriculture. In their summary of the findings on the determinants of rural poverty for six country studies based on econometrically estimated income equations, Lopez and Valdes (2000) conclude that the return to education in farming is surprisingly small in most cases. An increase in one year in the average level of schooling raises per capita annual income of the family by less than US$ 20 per person in most cases. The main contribution of education in rural areas appears to be to prepare young people to emigrate to urban areas and towns.

Using an econometric approach, Nehru and Dhareshwar (1994) examined sources of TFP growth in 83 industrial and developing countries for the period 1960-1990. They found that human capital formation was three to four times more important than raw labour in explaining output growth. Using human capital as a separate variable, they found that the countries with the fastest growing economies have based their growth on factor accumulation (human capital, labour and physical capital), not growth in efficiency or technology.

Research and Technology Transfer

Research increases the available technology; hence agricultural R&D expenditures are used as a proxy for agricultural technological change. However, the development of technology does not always result in its adoption. In some cases, this may be because the technology being developed is not appropriate, that is, it does not meet the needs of agricultural producers. Hence, researchers focus on public expenditure as an explanatory variable in TFP growth. Additionally, public research has been shown to lead private research (Chavas and Cox, 1992).

Several caveats arise in focusing on public R&D to explain growth in agricultural TFP. Public R&D expenditures are used as proxy for R&D results, yet there is not an exact correspondence between expenditures and technology. Even when technology is produced, researchers may have different goals than farmers, e.g. yield maximization rather than profit maximization or risk minimization or improvement in commercial crops rather than staple crops. Additionally, when an appropriate technology does result, the process of technology adoption in agriculture is widely recognized as one that occurs over many years in which some adopt quickly and others wait for extension or the results of their neighbours to convince them to adopt.

Bearing this in mind, researchers have found that public investment in developing and extending agricultural technology is justified by the high rates of return to such investment. In a survey of studies on Asia, Pray and Evenson (1991) found rates of return to national research investment from 19 to 218 percent, returns to national extension investment from 15 to 215 percent and returns to international research investment of 68 to 108 percent. A report of the Taskforce on

Research Innovations for Productivity and Sustainability indicated that the returns to research, though variable, were always high, from 22 to 191 percent. Using an index number approach to calculate TFP for several crops in India, Rosegrant and Evenson (1992) and Evenson and McKinsey (1991) used econometric analysis to identify sources of growth in TFP. Rosegrant and Evenson (1992) found that public research accounted for 30 percent of growth and extension for about 25 percent, with rates of return for each respectively of 63 percent and 52 percent. Evenson and McKinsey (1991) found that public investment in India in research accounts for over half of growth, while extension contributes about one-third and infrastructure accounted for very little growth. They calculated internal rates of return of 218 percent for public research, 177 percent for public extension and 95 percent for private research expenditures in India.

Public Investment and Policy

Public policy and budgetary decisions regarding infrastructure also have a profound effect on agricultural production. The financing aspects of public R&D and human capital development were discussed above, but both physical and institutional infrastructure affects the development and transfer of technology. For example, irrigation systems and roads may be required to make a technology profitable to implement. Reforms in pricing policy or the marketing system may be needed to provide incentives.

A serious conflict arises with structural adjustment reforms. Budget cuts in public services often accompany market reforms. While fiscal restraint may be required to stabilize the economy in the short run, cuts in human capital development, public R&D, and infrastructure have a detrimental long-term effect on productivity growth. Policy makers need to choose carefully to mitigate the deleterious impacts of budget cuts on future growth.

Using an econometric approach, Jayne *et al*. (1994) demonstrated the complementarity of public policies and public investments in facilitating the use of new technology. They point to the sharp decline in public investments and growth in Zimbabwe during the 1980s. Pal

(1985) underscores the complementarity of public policy towards investment in irrigation technology and private variable input use.

The importance of policy reform is increasingly viewed as fundamental for agricultural productivity gains. Liberalizing markets so prices can send proper signals to producers is the fundamental objective of structural adjustment programs in developing countries and policy reform in economies in transition. Assigning property rights is viewed as a means of promoting development through the efficient and responsible use of resources (North, 1994) and therefore underlies the distribution of capital in economies in transition, land reform and most land policy. Block (1994) discusses the complementarity of economic reform and technical change, but cautions that policy reform offers a one-time effect.

An example of the relation between policy reform and productivity is the implementation of China's "responsibility system" (RS) in 1980-81, which linked productivity to material reward, resulted in increased crop yields "for every major crop" (Wiens, 1983). McMillan, Whalley and Zhu (1989) calculated that in response to the RS and price reforms, output in the Chinese agricultural sector increased by over 61 percent between 1978 and 1984. They attribute 78 percent of the increase to the RS and 22 percent to higher prices for crops. They calculate the RS increased productivity in agriculture by 32 percent. Lin (1992) calculated that 42 to 47 percent of the growth in agricultural output was attributable to the RS during the same period.

In another development, price reforms in Egypt implemented in 1986 resulted in increased wheat and maize yields from 1987 to 1993. Rice production increased by 62 percent, while yields increased by 42 percent (Khedr et al, 1996). Bevan et al (1993) contrast the performance of agriculture in Kenya and Tanzania. In Kenya where there was little intervention production of food and cash crops increased by 4.6 and 5.5 percent per annum, respectively. In Tanzania, where policies controlled prices and taxed export crops, agricultural production stagnated until policy reforms were instituted in 1984. Using an econometric approach to estimate TFP for the United States dairy industry 1972-1992, Lachaal (1994) examined how protectionist policies in the form of direct subsidies to agriculture reduced productivity growth in the United States dairy industry. Lachaal showed that government subsidies encouraged using materials at the expense of feed and raised the cost of production by 1.8 percent for each 10 percent increase in subsidy. The subsidy policy was the source of technical inefficiency, creating biases that distorted factor usage.

Political Stability and Conflict

Another aspect of policy that can influence or hinder agricultural production is the political situation. In a study of the productivity growth of 83 industrial and developing countries between 1960 and 1990, Nehru and Dhareshwar (1994) found that the economies that perform the worst are those involved in wars (particularly civil wars) and those that have the most price distorting policies. They explore a variety of policy variables and find that apart from political stability and the initial endowments of a country, virtually no other policy variable is associated with growth.

The World Food Summit Plan of Action (items 2 and 3, 1996b) recognize the role of government in providing an environment conducive to investment, through guarantee of rights and law as well as policies encouraging investment. Corruption is the extreme case where law enforcement breaks down and incentives are lacking. While long-standing institutionalized bribery can be seen as simply an added cost of doing business, pervasive corruption and violence increase risk and result in capital flight, disinvestment and jeopardize assistance.

Conclusion and Recommendation

The role of agriculture in any society cannot be over-emphasized, as agriculture is the livewire of many nations. It is one of the most dominant sectors in any economy as the very survival of every nation depends on how the agricultural sector is managed. This study therefore concludes that government agricultural budgetary allocation and actual expenses determines the level of development of the agricultural sector and food security within the country, however, in the case of Nigeria it is far below 25% and 10% recommendation by Food and Agricultural Organisation (FAO) and Africa Union (AU) respectively. This therefore means that the different government policies are not really geared towards agricultural development.

Based on the finding, this study makes the following recommendations:

(i) Budgetary allocation to the agricultural sector should be increased significantly and policy formulation and proper implementation and monitoring should put in place so that adequate funds can be available for driving the activities of the sector.

(ii) Agricultural budget execution rate should be improved through quick passage and timely implementation of the budgets. Agricultural public expenditure should be realigned to favour investments in irrigation, R&D, human development and rural development which currently attracted lower budgetary allocations in Nigerian agricultural budgets.

(iii) For government expenditure to exhibit the desired results in the economy, government
expenditure needs to be closely monitored. This will help ensure that budget allocations
are channeled into the required targets that will help improve the economy. For local farmers to thrive there must be protection against external competition. Government should ensure stern regulation on importation of agricultural products.
To achieve this, government should open farm settlements across the nation and vast hectares of land can be acquired by the government and allocated to farmers. This will reduce the barrier of access to farmland.

(iv) Farming equipment such as machinery, tractors and inputs such as Improved seeds, improved breeds of animals, fertilizers and modern storage facilities
among others should be provided at subsidized rates. The infrastructures in rural areas should be developed. This will in turn reduce the rural-urban migration, increase retention of skilled labor in rural areas, reduce cost of production, thereby boosting the productivity of agricultural industries in the rural areas. This will greatly reduce poverty and unemployment levels in the economy.

(v) A stable political and conflict environment should be maintained, and development of human capital intensified.

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