

**THE IMPACT OF AGRICULTURAL EXPENDITURE ON ECONOMIC
GROWTH IN NIGERIA (1980-2013)**

BY

ALADETIMI TEMITOPE CHARLES

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FACULTY OF HUMANITIES AND SOCIAL SCIENCES,
FEDERAL UNIVERSITY OYE EKITI, EKITI STATE, NIGERIA.**

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CERTIFICATION

I hereby certify that this research project was written by Aladetimi Temitope Charles with the matriculation number EDS/11/0161 of Faculty of Humanities and Social Sciences, Department of Economics and Development Studies, Federal University Oye Ekiti, Ekiti.

Temitope

ALADETIMI TEMITOPE C.
RESEARCHER

14/09/15

Date

Y.O

Mrs. Y.O Adegoke

14/09/15

Date

SUPERVISOR **HOD**
DEPT. OF ECONOMICS
& DEV. STUDIES

Ehinomen 09 OCT 2015

FEDERAL UNIVERSITY, OYE-EKITI

Dr. Christopher Ehinomen

HEAD OF DEPARTMENT

28/09/2015

Date

EXTERNAL EXAMINER

Date

DEDICATION

I dedicate this project work to Almighty God, for sparing my life since the beginning of the programme up to the completion stage of the course.

“All Glory in Heaven and on Earth be unto God in Highest”

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Abstract

This study empirically examined the impact of agricultural expenditure on agriculture on economic growth in Nigeria over the years (1980-2013). The main objective of this study is to determine the impact of agricultural expenditure on economic growth in Nigeria from 1980-2013. This study used secondary source of data, which covers about 35 years. Co-integration estimating 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 and GDP are positively related, government expenditure on agriculture and GDP was negatively related. It was found that a negative relationship exist between agricultural expenditure and the 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, enthrone adequate and appropriate extension services, among other measures laid by the government.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Agriculture is the foundation and bedrock upon which the development of stable human community has depended on throughout the whole universe such as rural and urban communities. It is concerned with the husbandry of crops and animals for food and other purpose. The study of the history of economics shows with ample evidence that agricultural revolution is a fundamental pre-condition for economic development. In spite of these efforts, it is heartrending to note that as from the mid70s, 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 431,000tons 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, 1997:1921). The period between 1929 and 1945 was a difficult one for the agricultural sector in Nigeria. This was the period of great depression when the world prices on commodities fluctuated. This affected the agricultural sector negatively because the volume of agricultural product increased but the value did not increase proportionally. The period 1945 to 1975 marked the period of expert boom, because countries were just recovering from the Second World War and these countries needed to develop. They depended on primary production for the beginning stage of industrialization. They needed to revitalize their industrial sector by demanding primary goods. Prices of primary products rose higher again because there were speculations that there would be a third world war due to the outbreak of the Korean War. However, after this period, there came another period of price instability. This made the reliance on agriculture and its products to fall, leading to the establishment of a market board. This board bought these products from the local farmers and sold them overseas.

In spite of all the period, Nigeria made great revenue from agriculture. In the pre-independence era, the agricultural sector contributed most to the GDP of Nigeria. Helleiner (1966) said that in 1929, export production amounted to 57% of Nigeria's revenue of which agriculture contributed about 80% of the export. On attainment of political independence in 1960, the trend was still very much the same, the Nigeria economy could reasonably be described as an agricultural economy, because agriculture served as the engine of growth of

the overall economy (Ogen, 2003). According to Alkali (1997), Nigeria was the world's second largest producer of cocoa, largest exporter of palm oil during the period. And was also a leading exporter of other major commodities such as cotton, groundnut, rubber and hides and skins. Between 1964 -1965, agricultural output accounted for 55% of GDP and employed 70% of the adult workforce (Malton, 1981). In 1970, agricultural export crops like cocoa, groundnut, cotton, rubber, palm oil, palm kernel, etc. accounted for an average of between 65% and 75% of Nigerian foreign exchange earnings and provided the most important source of revenue for the federal as well as state government through export products and sale taxes (Ekundare, 1973). Despite the reliance of Nigerian peasant farmers on traditional tools and indigenous farming methods, these farmers produced 70% of Nigerian's exports and 95% of its food needs (Lawal, 1997). However, the 1967 to 1970 civil war in Nigeria coincided with the oil boom era, which resulted in extensive exploration and exportation of petroleum and its strong agriculture in favour of an unhealthy dependence on oil (United States Department of state, 2005). Ever since then, Nigeria has been witnessing extreme poverty and insufficiency of basic food items. The agricultural sector contributions now accounts for less than 5% of Nigeria's GDP (Olagbaju and Fashola, 1996). It is against this backdrop that we set out to research on the impact of agricultural development on Nigeria economic growth.

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 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 neighbouring 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.

Every industrialized country today passed through the agrarian era, in fact, the industrial sector takes its roots from the agricultural sector. In a developing nation, government fiscal responsibility is very central to all facets of development including agriculture. The agricultural sector has the potentials to be the industrial and economic springboard from which a country's development can take off. Indeed, more often than not, agricultural activities are usually concentrated in the less developed rural areas where there is a need for rural transformation, redistribution, poverty alleviation and socio-economic development. The importance of agriculture in the economy of any nation cannot be over emphasized; agriculture plays a major role in virtually all social and economic activities of countries. Many researchers have explained that agriculture is crucial for the "take-off stage" of a nation's economic growth and development. The relationship between agriculture and economic growth has been re-examined in literature in recent years. A strong and efficient agricultural sector would enable a country to feed its growing population, generate employment, earn foreign exchange and provide raw materials for industries. The agricultural sector has a multiplier effect on any nation's socio-economic and industrial fabric because of the multifunctional nature of agriculture (Ogen, 2007).

The agricultural sector has the potentials to shape the landscape, provide environmental benefits such as conservation, guarantee sustainable management of renewable natural

resources, preserve biodiversity and contribute to the viability of rural areas development. Through its spheres of activities at both the macro and micro levels, the agricultural sector is strategically positioned to have a high multiple and linkage effect on any nation's quest for socio-economic and industrial development. The growth of the agricultural sector in Nigeria was not smooth. As noted earlier, the neglect of the agricultural sector and the dependence of Nigeria on a mono-cultural crude oil based economy had not augured well for the well-being of the Nigerian economy. It becomes therefore imperative to study the impact of agricultural expenditure on economic growth.

1.2 Statement of the problem

The agricultural sector has suffered from years of poor management, inconsistent and poorly implemented government policies, government neglect basic infrastructure. Agriculture accounted for 30% of the GDP in 2010 (World Fact book, January 9, 2012). Nigeria is no longer a major exporter of cocoa, groundnut, rubber and palm products. Cocoa production mostly from obsolete varieties and over-aged trees are stagnant at around 150,000 tonnes annually. There is also a decline in groundnut, palm oil and other major export crops (United States Department of State, 2005). The decline in agricultural production was largely due to the rise of oil shipments (Sekumade 2009). Dependence on oil is not only the cause of the under-development of the Nigerian agricultural sector, the Nigerian agriculture is characterized and surrounded by bunch of illiterate farmers who live in rural areas, producing over 90% of the total food consumed and other agricultural products and with regards to their educational status giving little or no room for improvement through scientific research. And also more than 90% of the consumed food in Nigeria is provided by the small-scale farmers. The problem of finance; the agricultural sector is poorly financed in Nigeria. They do not get credit easily from financial institutions, like commercial banks. The agriculturists find it difficult to finance projects which are capital intensive. The commercial banks cannot grant loans easily to small scale farmer because of low produce and low profit which results to a failure in paying back the loan.

Most of the research works that have been carried out on the impact of agricultural expenditure on economic growth in Nigeria and other countries have used data that spanned from 1980-2010. This study is set to carry out an updated work on the relationship between agricultural expenditure and economic growth by employing a data that span from 1980-2013. Just like the work of Onunze Martin Tochukwu (2012); *The Impact of Agricultural Development on Nigeria Economic Growth (1980-2010)*.

1.3 Objectives of the study

The broad objective of this study is to determine the impact of agricultural expenditure on economic growth in Nigeria from 1980-2013.

The specific objectives are to;

1. Examine the impact of agricultural financing on the economic growth in Nigeria.
2. Determine the effect of agricultural output on economic growth in Nigeria.

1.4 Research Hypotheses

To achieve the stated objectives, the hypotheses of this study are stated as thus:

1. H_0 – there is no significant relationship between agricultural financing and economic growth.
2. H_1 – there is significant relationship between agricultural financing and economic growth.
3. H_0 – there is no significant relationship between agricultural output and economic growth.
4. H_1 – there is significant relationship between agricultural output and economic growth.

1.5 Significance of the study

The significance of this study depends on the fact that with improved economy Nigeria stands to gain in its effect towards development. This work attempts to answer the question: What is the relevance of agricultural expenditure on economic growth, the cause of agricultural backwardness, and how the present state of our agricultural productivity will be improved. Nigeria as a whole; the research work intends to bring forth ways to increase agricultural output both for the purpose of consumption and exportation which ultimately will bring an increased favourable Balance Of Payment (BOP) for the nation. This work will be advantageous to schools (staffs and students) and will help them understand the importance of farming no matter how small the scale of production may be.

1.6 Scope of the study

This research work focuses on the impact of agricultural expenditure on the economic growth of Nigeria between the periods of 1980 to 2013.

1.7 Organisation of the study

This research work is divided into five chapters: chapter one is the introduction. In Chapter two, previous studies were reviewed. Chapter three consists of research methodology. Chapter four gives the data presentation, analysis of results and findings. Finally, Chapter five gives the summary, conclusion and policy recommendations.

1.8 Definition of terms

Agricultural output: These are the commodities derived from agricultural production.

Government expenditure on agriculture: These are the expenses government make on agriculture or agricultural sector in order to increase economic growth.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction

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. The role of agriculture in transforming the economic framework of any economy cannot be over emphasized given that it is the source of food for man and animal and provides raw materials for the industrial sector. Nigeria has been an agricultural economy and has targeted the agricultural sector as the principal source of growth and revenue, the role of agriculture in the economy has since independence been experiencing a downward trend due majorly to lack of finance. Development economists have focused on how agriculture can best contribute to overall economic growth and modernization. With the increasing food demand in Nigeria, the country has available natural resources and potential for increasing the volume of crop production towards meeting the food and nutritional requirement of the rapidly increasing population and guarantee food security in the country. Therefore, the source of national wealth is essentially agriculture.

According to Manyong (2005), more than half of Nigeria's population currently employed in the agricultural sector and with the vast majority of these individuals living in rural areas, the agricultural sector is the key to Nigeria's economic development. Though agriculture accounts for about 40 percent of GDP, the level of growth in that sector has lagged behind other sectors, real annual GDP growth from 2000 to 2007 in the Nigerian economy averaged 8.8 percent, while the agricultural sector grew at 3.7 percent in 2007 (Phillip, 2009). Low agricultural productivity in Nigeria is due to a wide variety of factors including poor soil quality caused by pollution, erosion and leaching, the negative impact of climate change on

weather patterns, the scarcity and high cost of inputs, rudimentary implements, and outdated farming practices.

History had it that during the colonial period from 1861 to 1960, attentions was given to agricultural research and extension services. Among the activities that were done was the establishment of a research station in Lagos by Sir Claude McDonald in 1893: Landmark of 10.4 km was acquired by the British Cotton Growing Association (BCGA) in 1899 for experimental purpose strictly for cotton and was named "Moor Plantation" in Ibadan. In 1912, the Department of Agriculture was established in each of the then southern and Northern Nigeria, but the activities of the department were virtually suspended between 1912 and 1921 as a result of the First World War and its aftermath.

This chapter focuses on the following:

1. Conceptual issues
2. Theoretical framework
3. Empirical evidence

2.2 Conceptual issues

Government expenditure can be defined as expenses incurred in the public sector, it is the expenses incurred by the government at various levels which include the Federal, State and local government levels in Nigeria (Siyan, 2000). Public expenditure is used to provide public goods and services to the populace through which economic growth is induced (Bello, 2003). This work focused on government expenditure on the agricultural sector in Nigeria. Government expenditure is classified into two broad themes, namely recurrent and capital expenditures. Recurrent expenditures are goods, which includes all consumption items that occur in a year, they are payments for non-repayable transactions such as salaries, wages and allowances. Capital expenditure relates to payments for the use of non-financial assets used in production process which contributes to long-term development. Examples of capital expenditure include spending on agriculture, health, education, roads, and electricity. Expenditures are further classified into functional and economic composition (Bello, 2003). He further explained that the functional composition defines the purpose of expenditure and the sector to target, while the economic composition looks at the outlay such as capital, wages and salaries etc involves in providing such services. According to Samuelson (2003), no where can the changes in government's role are seen more clearly than in the area of

government spending. Kalra (2006) opined that there was a time when public expenditure was considered the economy's revenue and so the best policy was considered one which kept the public expenditure to its absolute minimum. A sound public expenditure policy produces good effects both on production and distribution; it corrects the mal-adjustments in the personal distribution of wealth.

2.2.1 Agricultural Output

Agriculture is the production of foods, feeds, fibre and other goods by the systematic growing and harvesting of plants and animals. It is the science of making use of land to raise plants and animals (Akinboyo, 2008). Nigeria's wide range of climate variations allows it to produce a variety of food and cash crops. The staple food crops include cassava, yams, corn, cocoyam, cow-peas, beans, sweet potatoes, millet, plantains, bananas, rice sorghum, and a variety of fruits and vegetables. The leading cash crops are cocoa, citrus, cotton, groundnut, palm oil, plan kernel, benniseed, and rubber. They were also Nigeria's major exports in the 1960s and early 1970s until petroleum took over the economy, chief among the export destinations for Nigerian agricultural exports are Britain, The United States, Canada, France, and Germany. The oil glut of the early 1980s reduced substantially, inflows of foreign exchange and consequently, participation of government in investment activities. Most of the companies erected at the wake of the oil boom witnessed low capacity utilization and in extreme cases out-right closure (CBN, 2001). This led to a drastic rise in food import bills and the price of imported goods. To redress this situation, the government embarked on integrated programmes aimed at increasing agricultural production and productivity (CBN, 2001). Furthermore Olaokun (1979) explained that agriculture is a source of food and raw materials for industrial sector, it creates more employment opportunities, it helps in the reduction of poverty and improve income distribution, it speeds up industrialization and easing the pressure on balance of payment.

2.2.2 History of Agricultural sector

The exploitation of the agricultural sector since the 1960s provided the main source of employment, income and foreign exchange earnings for Nigeria. This was due to focus on regional policies based on commodity comparative advantage. The sector employed over 70 percent of the labour force, fed the population estimated at 55million and 60million in 1963 and 1965 respectively, guaranteeing the greater percentage of the food security of the average household. In the same period, export of cash crops earned 70 and 62.2 percent respectively,

of Nigeria's total foreign exchange and contributed 56.7 and 66.4 per cent of GDP in 1960 and 1965 respectively. The dominant position of the agricultural sector in this period in the Nigerian economy was therefore, not in doubt. Agriculture, since independence, held the key to Nigeria's rapid economic transformation, poverty alleviation, stable civil and good governance as well as national and food security. Agriculture employs about two-third of Nigeria's labour force, contributes over 40% of the Gross Domestic Product (GDP) and provides about 88% of non-oil earnings. The Crop sector contributes 85% of the agricultural GDP, Livestock (10%), Fisheries (4%) and Forestry (1%). Over 90% of the Nigerian agricultural output is accounted for by small-scale and subsistence farmers with less than two (2) hectares of farm holding. Generally, it is estimated that about 75% of Nigeria's total land area amounting to 68 million hectares has agricultural use potential while about 33 million hectares is actually under cultivation. Also, of the estimated 3.14 million hectares irrigable land, only about 220, 000 hectares or 7% is utilized. With diverse and rich vegetation that can support heavy livestock population, it also has a surface and underground water of about 267.7 billion cubic meters and 57.9 billion cubic meters respectively.

The Nigerian agricultural sector has remained resilient sustainers of the economy and the Nigerian people in terms of food supply, employment, national income generation and industrialization. It has also struggled to perform the above functions over the years in spite of declining effectiveness of policy attention since the 1980s.

The advent of commercial exploitation of oil resources, however, turned the trend against agriculture and its downstream industries from the rest of seventies onward. The oil boom, heralded an era of decay and decline in agricultural output and in the overall contribution of the sector to the economy, evidenced by the Dutch Disease. It lost its foreign exchange earnings Policy neglect has affected the key indicators of agricultural sector performance, Gross Domestic Product (GDP), amount of guaranteed loan received by farmers under the Agricultural Credit Guarantee Scheme Fund (ACGSF), total bank credit to the agricultural sector and the economy as a whole, capital expenditure of federal government on agriculture and all sectors of the economy and the share of labour force employed in agriculture.

In spite of this, the sector still showed some resilience. Its share in both aggregate GDP and non-oil GDP continued to increase. Credit flow to the agricultural sector (an indicator of the sector's capacity to invest and grow) measured by the amount of guaranteed loan that flowed to the sector under the agricultural credit guarantee scheme fund and the total bank credit to the sector. The nominal flow of guaranteed credit increased but sharply declined in real terms over the sub-periods, from about N44.2 million in the 1981 – 85 sub-periods to about 36.5

million in the 1986- 90 sub-periods and to only about 5.6 million in the 1996-2000 sub-period.

The agricultural share of National Gross Domestic Product (GDP) has been hovering around 40-41% annually since 2003. The largest subsector contribution to this national output is from the crops subsector which annually ranged between 36% (2003, 2004 and 2005) and 37% (2006 and 2007) in an increasing manner. The livestock subsector share of GDP is almost constant at 2.6% while the fishing subsector at 1.37% contribution. The agriculture sector GDP growth rate is the highest contributor to non-oil GDP growth rate. After an initial dip from 6.64% in 2003 to 6.50% in 2004, the growth rate appreciated per annum from 2004 (7.06%) to 7.43% in 2007.

The documented growth figures are expected to positively affect livelihoods, especially in terms of food prices and employment. The contrary, however, is the case.

2.2.3 Dutch Disease Syndrome

Dutch Disease refers to the adverse effect of a natural resource boom on the manufacturing or agricultural sector. As a result, the country's currency appreciates, thereby reducing the competitiveness of the country's traditional export sector. This tradable goods sector should contract, leading to structural changes and unemployment in the economy.

These tradable goods sector experiences a decrease in production since fewer international buyers are purchasing these goods due to their higher relative prices. In addition, since the boom causes the domestic price level to increase, producers of tradable goods face a higher production cost, which causes them to reduce their output. Neary and Van Wijnbergen (1986) develop the theoretical underpinnings by identifying the two components of Dutch Diseases: the spending effect and the resource movement effect.

A. Spending Effect

There is a spending effect caused by higher domestic income due to the increase revenues coming from the resource discovery. The higher incomes led to increased expenditures on both traded goods. The price of traded goods is determined in international markets, so the increase in income in this small country has no effect on the traded goods price.

However, price of non-traded goods are established in the domestic market and consequently, would rise due to the increase in demand caused by the rise in income and expenditures.

B. Resource-Movement Effect

Increase in oil proceeds increase the marginal revenue product of the oil sector. The marginal revenue product consists of marginal physical product and market price of the product. Therefore when the oil price rises, or the quantity exported rises or both, definitely oil export revenue as well as marginal revenue product of oil will increase.

As a result, remuneration to the factors of production and their prices will be increased. Consequently there would be a movement from factor input from other sectors to the oil sector. That is, resources (factor input) are pulled from other sectors to the oil sector. This resulted in the expansion of oil sector and contraction of other sectors in the economy.

2.2.4 Dutch Disease Syndrome and Agricultural Sector

During the 1960s, the Nigerian economy was driven by non oil sectors, especially the agricultural sector, with an average contribution of about 70 per cent to non oil sectors. The agricultural sector was vibrant and the country was self sufficient in food and a major exporter of agricultural products e.g., cocoa, groundnut, rubber among others.

The oil boom of the 1970s and 80s followed by the excessive appreciation of the exchange rate reduced agricultural competitiveness and encouraged rent seeking behaviour in the economy. Agriculture declined in GDP from 41.3% in the 1970s to 20.6% in the 1980s. Its contribution to GDP in the last five years averaged 5.6% the sector contributed about 65% of total employment as at 1970s and 80s. The economy therefore witnessed a prolonged economic stagnation, raising poverty level and destruction of infrastructures.

Since the early 1970s, the Nigerian economy has become more reliant on oil earnings, with a negative impact on the non oil sector of the economy, resulting in the sector's declining contribution to GDP. Over the period of 1992 to 2002, growth in GDP averaged 2.25% with an estimated population growth rate of 2.8% per annum. This has resulted in contraction in per capita income. The gravity of the situation was made much worse by the high rates of inflation which recorded an average of 28.5% during that period.

Nigeria's effort to break away from manacle of the resources curse essentially began in 2003 with the unveiling of a home grown reform agenda titled the National Economic Empowerment Development Strategy (NEEDS). An economic reform refers to positive change in economic policies aimed at achieving different objectives. Reforms became necessary either when existing policies fail to achieve set targets or when set targets are found to be unsustainable and so need to change (Rodrik, 1989).

2.2.5 Challenges Facing Agricultural Productivity in Nigeria

Problem of land tenure: land is one of the most important factors in agricultural production. The land tenure is the way land is owned in a society. The prevailing land tenure systems in the country often discourage agricultural land utilization. Land is owned by inheritance hence land is fragmented over generations. Increase in population has increased the various alternatives to which land can be put. This further puts pressure on all the available land.

Problems of Finance or Poor Financing: Most agricultural activities in the developing countries are subsistent in nature, hence the farmers: (i) are very poor (ii) cannot secure the necessary collateral for loans (iii) cannot have access to enough credit facilities. (iv) Cannot pay the high interest rates on loans either from financial institutions or money lenders. (v) Cannot procure the most sophisticated machines. (vi) Cannot employ agricultural specialists whose salaries and wages are far above what the farmers can afford.

Poor Transportation: This includes (i) Bad roads (ii) inadequate vehicles (iii) Vehicles lack spare parts (iv) High cost of bringing the farm products from rural areas to urban centers. (v) Lack of transportation which increases the activities of middlemen in the movement of agricultural products from the farm to the urban centers where they are consumed. (vi) Lack of transport facilities which increases perish ability of farm crops.

Poor Communication: This includes lack of good radio, television, telephone, telex, fax machines for quick messages and assessment of latest discoveries in the agricultural sector. This makes the professional agriculturists to be unaware of recent developments in his filed.

Problems of Good Storage and Processing Facilities: Storage facilities like silo, rhombus, cribs, barns, rafters are inadequate, thus leading to: (a) Perish ability of crops like tomato, pepper, etc. (b) Pests and diseases which attack farm products (c) Farmers fumigating their products. (d) Glut during harvests and famine outside harvest periods. (e) The quality of farm products being reduced. (f) Farm products wasting. Processing facilities like thresher, miller, grater, canning machine and sealing machines are: (i) Very expensive to procure (ii) Highly technical for local farmers to operate (iii) Very difficult and expensive to maintain.

Lack of Good Agricultural education: Most of the farmers in the developing countries are not educated enough in the technicalities relating to agricultural product, hence, they are: (i) Dogmatic and adamant to changes (ii) Very superstitious in their beliefs (iii) Very suspicious of any new innovation (iv) Unscientific in mind and thinking (v) Not willing to accept technological changes (vi) Very uncooperative, hostile and unaccommodating (vii) Unwilling to even learn how to use and apply fertilizers, insecticides and new farm tools. All these bring about low agricultural productivity.

Poor Extension Activities: Extensive helps in disseminating recent information to a large number of people within a very short time. This is not the case in developing countries because: (i) Extension workers are too ill-equipped for the work. (ii) The period of training is too long. (iii) Language barriers. (iv) Lack of recent research work. (v) The uncooperative attitude of farmers. (vi) Lack of vehicles. (vii) Poor remuneration.

Poor Tools and Farm Machines: Farmers still rely on the use of tools like hoe, cutlass, rake, etc for their activities, instead of using the mechanized implements like ridges, ploughs, cultivators, etc. Poor tools can lead to: (i) Drudgery of the farmer (ii) Time wasting (iii) Short life span of the farmers (iv) Low yield (v) Low farmers income, While machines are: i) Very expensive to procure and maintain (ii) Highly technical to use (iii) Cannot be used in small farm holdings (iv) Cannot be used in some soils. (v) Cannot be used for some crops like yam.

Unstable Policies and Programmes of Government: Even government comes with different programmes which often tell on the farmers.

Poor Marketing System: The sole aim of commercial agriculture is profit making, but this cannot be achieved due to the following: (i) Activities of middlemen who try to remove all the gains, create artificial scarcity, etc. (ii) Poor pricing policies. (iii) Non-functional food commodity boards for food crops. (iv) There is also fluctuation in prices (v) Poor marketing channels for farm produce (vi) Lack of good roads. (vii) Poor storage facilities.

Pest and Diseases: They can: (i) Increase the cost of production (ii) Reduce the quality of farm produce (iii) Reduce the quality of farm produce (iv) Reduce farmers income (v) discourage farmers from further production.

Unpredictable Climate: This includes: (i) Drought or long period without rain which leads to poor harvest. (ii) Flooding or excessive rainfall which reduces yield. (iii) Excessive sunshine, which leads to increase in temperature. (iv) Inadequate sunshine which reduces the photosynthetic ability of plants. (v) Unfavourable climate which also reduces farm activities.

Agricultural Inputs: They include: agricultural chemicals like insecticides dieldrin dust, aldrin dust, fernasan, nematicide like rogor. Inputs like improved seeds and seedlings, improved animal materials like the parent stock in birds are lacking. Agricultural inputs are very expensive. The application of these chemicals can lead to pollution of the environment. Some inputs are very substandard and do not meet the desired result. Inputs like fertilizers are very expensive and also inadequate. Most of the inputs are imported and are very expensive to procure.

Sociological and Psychological Attitude Towards Farming: Young people feel that farming is for the dropouts or never-do-well in the society and a profession for poor people.

Farmers are believed to be low class and the public seldom reckons with them as they do to accountants, medical doctors, lawyers and engineers. Young people also prefer white collar jobs where they can dress impressively.

Smuggling: This means illegal exportation of food. It increases the cost of farm products. It places money in the hands of few individuals. It can cause hunger in the villages, as everybody will now want to engage in smuggling.

Environmental Degradation: This includes: (i) Pollution of the environment through the activities of the industries. (ii) Soil erosion destroying the structure of land. (iii) Setting up of forest fire, which increases environmental temperature. (iv) Deforestation reduces rainfall, forest trees and land protection. (v) Improper waste disposal can lead to spread of diseases in the environment.

2.2.6 Agricultural Policies and Strategies

There are several policies on agriculture that was initiated in order to improve agricultural productivity in Nigeria. Agricultural policies and strategies are frame work and action plans of government put together to achieve overall agricultural growth and development. The policy aims at the attainment of self sustaining growth in all the sub-sectors of agriculture and the structural transformation necessary for the overall socioeconomic development of the country as well as the improvement in the quality of life of Nigerians.

2.2.7 The National Agricultural Policy

In an attempt to tackle the problems facing the Agricultural Sector in Nigeria, Government has put in place the National Agricultural Policy, which was jointly formulated by the national stakeholders and International Development Partners and approved by the Federal Government in 2002. The major components of the National Agricultural Policy feed the National Economic Empowerment and Development Strategy (NEEDS) document. Specifically, the National Agricultural Policy assigns supportive roles to the government, while investments in the sector are left to the private sector initiative. The broad objectives of the National Agricultural Policy include: Promotion of self-sufficiency in food and raw materials for industries; recognition that agriculture is business, hence a private sector concern where the role of government is to facilitate and support private sector initiatives; promoting reliance on local resources; diversification of the sources of foreign exchange earnings through increased agricultural exports arising from adoption of appropriate technologies in food production and distribution, which specifically responds to the needs of women, bearing in mind that they constitute over 50% of the labour force in agriculture.

2.2.8 The Structural Adjustment Program

The Federal Government established the Structural Adjustment Program (SAP) which was launched in July 1986, to remove several administrative bottlenecks and adopting a free market oriented economy that would encourage private enterprises and more efficient use of resources. The objectives of SAP includes; to increase the production of exportable cash crop thereby diversifying the export base of the economy; to raise rural employment and income; to increase domestic food production and raise nutritional status and standard. The following policy instruments of SAP were design to influence the sector indirectly or directly such as the (i) Fiscal policies, (ii) Monetary and (iii) Trade and foreign exchange rate policies.

Before the introduction of SAP in 1986, The Federal Government of Nigeria has implemented several agricultural policies and program. While some of the programme were abandoned or restructured, some are still in place. These policies are (i) Farm Settlement Scheme, (ii) National Accelerated Food Production Program (NAFPP), (iii) Agricultural Development Projects (ADPs), (iv) River Basin Development Authorities (RBDAs) (v) Nigerian Agricultural, cooperation and Rural Development Bank (NACRDB), (vi) Operation Feed the Nation (OFN), (vii) Green Revolution Programme (viii) Directorate of Foods, Roads and Rural Infrastructures (DFRFRI) (ix) Agricultural Credit Guarantee Scheme Fund (ACGSF). Despite all these policies framework and programme, it been noted that the sector performance has not been impressive enough, in terms of its contribution to the country's development. In 2004 the Federal Government launched another economic reform by name National Empowerment and Development Strategies (NEEDS). The programme was aimed at promoting growth as well as reduces poverty through a participatory process involving civil society and development partners. In agricultural sector, NEEDS was aimed at promoting and improving production, distribution and processing of agricultural products.

Generally agricultural policy entails the following:

- (i) Attainment of self-sufficiency in basic food commodities with particular Reference to those which consume considerable shares of Nigeria's Foreign Exchange and for which the country has comparative advantage in local Production;
- (ii) Increase in production of agricultural raw materials to meet the growth of an expanding industrial sector;
- (iii) Increase in production and processing of exportable Commodities with a view to increasing their foreign exchange earning capacity and further diversifying the country's export base and sources of foreign exchange earnings;

- (iv) Modernization of agricultural production, processing, Storage and distribution through the infusion of improved technologies and management so that agriculture can be more responsive to the demands of other sectors of that Nigerian economy;
- (v) Creation of more agricultural and rural employment Opportunities to increase the income of farmers and rural dwellers and to productively absorb an increasing labour force in the nation;
- (vi) Protection and improvement of agricultural land resources and preservation of the environment for sustainable agricultural production;
- (vii) Establishment of appropriate institutions and creation of administrative organs to facilitate the integrated development and realization of the country's agricultural potentials.

2.2.9 Problems/challenges of the agricultural reforms, policies and programmes

Evidence from Olayemi (1995), Olomola (1998), Garba (1998) have indicated minimal positive impact of these reforms/policies. The confirmation stems from the decaying rural infrastructure, declining value of total credit to agriculture, and declining domestic and foreign investment in agriculture. The increasing withdrawal of manufacturing companies from their backward integrated agricultural ventures has reduced investments in the sector considerably. Input supply and distribution have been hap-hazard and inefficient and most agricultural institutions were ineffective prompting it's scrapping in year 2000 of some of the institutions established for agricultural promotion. A critical examination of the reforms/policies and their implementation over the years show that policy instability, policy inconsistency, lack of policy transparency, poor coordination of policies as well as poor implementation and mismanagement of policy instruments constitute major obstacles to the implementation and achievement of the goals and objectives of these policies. Policy instability and lack of policy transparency are not unconnected with political instability and bad governance. For example, between 1979 and 1999 the country had five military/civilian regimes. At the federal and state levels, the then Ministers and Commissioners of Agriculture were changed several times on the average of one per two years. Several policy measures were initiated and changed without sufficiently waiting for policy effects or results. At one time or the other, agricultural production passed through periods of protection and unbridled opening up for competition. Also, it passed through era of "no government" and "less .These could all be attributed to poor coordination and faulty implementation of policies as well as mismanagement of policy instruments. Agriculture contributed 42% of Nigeria's gross domestic product (GDP) in 2008 (National Bureau of Statistics). However, despite having

grown at an annual rate of 6.8% from 2002 to 2006, 2.8% higher than the sectors annual growth between 1997 and 2001, food security remains a major concern due to the subsistence nature of the country's agriculture (Nwafor, 2008) Many of the strategies used to improve agricultural growth in the past have failed because the programmes and policies were not sufficiently based on in-depth studies and realistic pilot surveys (Adebaya, 2009). This could be attributed to lack of public participation in the design, formulation, implementation and evaluation of policies as well as limited implementation capacity within the sectoral ministries and a poor understanding of the details and specifics of policies by implementers (Adebayo et al., 2009). The main factors that influenced the effectiveness of policies on agriculture include high demand for agricultural produce, availability of improved technology, efficient dissemination of information by the ADPs and value added leading to improved income. On the other hand, the common factors responsible for the ineffectiveness of policies and regulations, especially on the downstream segment of agriculture, include instability of the political climate, insecurity of investment, non-standardized product quality, non-competitive nature of agricultural products from the country in the export market due to high cost of production and lack of adequate processing facilities (The New Nigerian Agriculture Policy, 2001).

2.3 Theoretical framework

The role of agriculture in transforming the economic framework of any economy cannot be over emphasized given that it is the source of food for man and animal and provides raw materials for the industrial sector. Nigeria has been an agricultural economy and has targeted the agricultural sector as the principal source of growth and revenue, the role of agriculture in the economy has since independence seem to be experiencing a downward trend due majorly to lack of finance. Development economists have focused on how agriculture can best contribute to overall economic growth and modernization. With the increasing food demand in Nigeria, the country has available natural resources and potential for increasing the volume of crop production towards meeting the food and nutritional requirement of the rapidly increasing population and guarantee food security in the country. Therefore, the source of national wealth is essentially agriculture. With more than half of Nigeria's population currently employed in the agricultural sector (Manyong 2005), and with the vast majority of these individuals living in rural areas, the agricultural sector is the key to Nigeria's economic development. Real annual GDP growth from 2000 to 2007 in the Nigerian economy averaged

8.8 percent, while the agriculture sector grew at 3.7 percent in 2007 (Phillip 2009). Low agricultural productivity in Nigeria is due to a wide variety of factors including poor soil quality caused by pollution, erosion and leaching, the negative impact of climate change on weather patterns, the scarcity and high cost of inputs, rudimentary implements, and outdated farming practices. 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-labour 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 behaviour 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 focusing 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 growths 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.

Classical theorists led by Arthur Levis' in 1950s viewed economic development as a growth process of relocating factors of production, especially labour from an agricultural sector characterized by low productivity and the use of traditional technology to a modern industrial sector with higher productivity. The continuation of agriculture to development was passive. Agriculture acted more as a source of food and labour than a source of growth (Levis 1954). Although passive, agricultural development was seen as necessary for successful economic transformation for two reasons; to ensure the supply of food and prevent rising food prices and real wages from undermining industrial development and to utilize land as an additional "Free" source of growth that would not compete with resources for industrial growth. Levis (1954)

The nature of relationship between public expenditure and economic growth via agricultural sector performance has stimulated series of theoretical and empirical studies. Major theoretical work was done by Barro (1988), Barro and Salai-martin (1995), Devarajan, (1996). In his seminar work, Barro develops a simple endogenous growth model of government spending. 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.

2.4 Empirical evidence

Using social accounting matrices, Vogel (1994) examined the strength of agriculture as a factor of growth for 27 countries, he discovered that agriculture through its linkages leads to positive integration of the sector with the broader economy and in all 27 countries, agriculture served as a great source of economic growth in the early stages of development and its significance begins to diminish as the countries started advancing industrially. Work by Collin (2002) showed the importance of agriculture in the early stages of development. Analyzing data for 62 countries for the period of 1960 to 1990, the author found that growth in agricultural productivity was quantitatively important in understanding growth in GDP per worker. Both the Gross- section and panel data analysis showed that countries experiencing increase in agricultural productivity were able to release labour from agriculture into other sectors of the economy.

Muhammad-Lawal and Atte (2006) using descriptive statistics and Duncan multiple range test showed that the overall agricultural production average growth rate was 5.4% and that GDP growth rate, population growth rate, and the Consumer Price Index were the main factors affecting domestic agricultural production. This study recommended the need to increase per-capita productivity through the introduction of improved technology in agricultural production.

According to Prasad (2004) there is series of theoretical advantage of openness to capital flows, the most important being the enhanced pool of savings available for investment. Kose (2008), finds that financially open economies have higher productivity growth. International Food Policy Research Institute (2008) wrote on public spending on agriculture in Nigeria (2001-2005). An empirical analysis was employed. Findings revealed that public spending on agriculture was exceedingly low. Less than 2 percent of total Federal expenditure was allotted to agriculture during 2001 to 2005, far lower than spending in other key sectors such as education, health, and water. This spending 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 agreement.

Nigeria also falls far behind in agricultural expenditure by international standards, even when accounting for the relationship between agricultural expenditures and national income. The spending that is extant is highly concentrated in a few areas. They recommended that there is

an urgent need to improve internal systems for tracking, recording, and disseminating information about public spending in the agriculture sector.

Ariyo (1993) carried out an evaluation study on the desirability of Nigerian's fiscal profile between 1970 and 1990. The findings from this study suggest that the structures of government expenditure are inherently unsustainable by the country's resources profile. The major cause attributed to this was the phenomenal increase in government expenditure financed through debt raised from both internal and external sources. This has consequently led to persistent and unsustainable annual deficits. The result also suggested that the structural adjustment programme (SAP) implemented in 1986 has so far not been of much assistance in addressing the problem. The study evaluates the Nigerian fiscal profile and, concluded that it has not been desirable since most expenses are financed through debt. Again, another study by Ariyo (1990) provides a behavioural explanation for the persistence of huge annual fiscal deficits in Nigeria. The study on deficits financing reveals that the excess expenditure over and above the budgeted estimates was not anchored on any macroeconomic target. It also revealed large revenue and expenditure variances which suggest the absence of any positive effects over the years. The study concluded that the intrusion of the political class which probably nullified the degree of professionalism of the technocrats was the major cause for the variance.

Ajab (2003) examined the effect of fiscal policy on growth in Cameroun. The study focuses on the relationship between public spending and growth via private investment. A derivative of the Denison growth accounting model was employed to analyze the relationship between Cameroun's fiscal policy and economic growth. An ordinary least square (OLS) technique was used in estimating the equations that link private investments with growth. The result from the study shows that expenditures particularly on education and health crowded in private investment. The result further revealed some evidence of causality running from infrastructure to private investment to growth.

Oji (2011) investigate the contribution of agricultural sector on the Nigerian economic development and reveal that foreign direct investment on agriculture contribute the most, this means that for every unit of change in FDI on agriculture, there is a corresponding change of unit in GDP in Nigeria. Barro (1988), he develops a simple endogenous growth model of government spending. 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 1980-2014 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.

Akpan (1999) uses time series data of 33 years, and the OLS method of regression to analyse the contribution of government expenditures to the growth process in Nigeria. He concluded that capital expenditure on agriculture though not statistically significant but influence positively on investment. Shanggenset'al (1998) in their empirical analysis of government spending, growth and poverty supported the view that government spending enhances the growth in the agricultural productivity. His managerial analysis also shows that additional government expenditures on agricultural research and extension have the largest impact on agricultural productivity growth.

Ekpo and Egwaikhide (1994) observed that Nigeria agricultural export has enlarged to include cocoa beans and palm kernel. Statistics indicate that in 1960 agricultural export commodities contributed well over 75% of total annual merchandise exports. In 1940s and 50s Nigeria was ranked very high in the production and exportation of major crops in the world. For instance, Nigeria was the largest exporter of palm oil and palm kernel, second to Ghana in cocoa and third position in the exportation of groundnut.

Nkamleu (2007) investigated the sources and determinants of agricultural growth over the last three decades. The analysis employs the broader framework of empirical growth literature and recent developments in Total Factor Productivity (TFP) measurement to search for fundamental determinants of growth in African agriculture. One main contribution is the quantification of the contribution of the productivity growth and the contribution of different inputs such as land, labour, tractor, and fertilizer in agricultural growth.

Ehinomen and Charles (2012) used Ordinary Least Square method (OLS) using E-view showed that although CBN's monetary policies play crucial role in influencing the level of agricultural productivity in the country, it has not recorded significant progress in terms of providing enabling environment for better performance in the agricultural sector. It is consequently recommended that the Central Bank of Nigeria should introduce more monetary instruments that are flexible enough to meet the ever-growing financial sector in order to

attract both domestic and foreign investors; while more stringent punishment should be made for non-compliance to the monetary policies by financial institutions.

Olayide and Essang (1976) report that Nigeria export earnings from major agricultural crops contributed significantly to the Gross Domestic Product (GDP).

CHAPTER THREE

RESEARCH METHODOLOGY

The methodology adopted in this study is the co-integration estimating technique. These desirable properties of co-integration estimating technique can be obtained from any techniques but minimum variance property distinguishes estimators as the best when compared with other linear neutral estimators from econometric techniques. This particular property of smallest variance is the reason for the popularity of the co-integration estimating technique method. (koutsoyannis 1997)

3.1 Sources and methods of data collection

This study employed a secondary data and a time series data for the period 1980– 2013. In a bid to explain the relationship between agricultural expenditure on economic growth, secondary data in its quantitative nature was adopted. This data includes the Gross Domestic Product (GDP) at constant purchaser prices being the dependent variable and agricultural output and government expenditure on agriculture being the independent variables, The data were second from the data base of the Central Bank of Nigeria (CBN) Statistical bulletin (2013), and text books, journals, internet materials was also used.

3.2 Model specification

Specification of econometric model is based on economic theory and on any valuable information relating to the phenomenon being studied. The relationship between agricultural expenditure and economic growth is as follows:

$$GDP = f(AGOUT, EAG)$$

Where:

GDP= Gross Domestic Product

AGOUT = Agricultural sector output

EAG = Government Expenditure on Agriculture

The model in its stochastic form is presented as;

$$Gdp = \alpha_0 + \alpha_1 Agout + \alpha_2 Eag + \mu$$

Where:

GDP = Gross Domestic Product

α_0 = Intercept

α_1 = coefficient of agricultural sector output.

α_2 = coefficient of government expenditure on agriculture.

μ = the stochastic error term.

3.2.1 A Priori Expectation

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 government expenditure on agriculture should be positive. Thus the following is the a priori expectation of the model is:

$$\alpha_1 > 0, \alpha_2 > 0$$

3.2.2 Measurement of variables

The model is a three-variable model and covers the Gross Domestic Product (GDP) at constant prices as the dependent variable to capture economic growth while agricultural sector output and government expenditure on agriculture 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 labour force in conjunction with an "exogenous" factor, technological progress, that makes physical capital and labour more productive (Udah, 2010). For the purpose of this research work the above will be adopted and build upon, prosing economic development with Gross Domestic Products (GDP); industrialization (proxy by agricultural sector output); and government expenditure on agriculture 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 $Y = F(K, L)$

3.3 Estimation techniques

In this section, the data were analysed using appropriate statistical technique. The evaluation was based on three criteria; economic criteria, statistical criteria and econometrics criteria.

Economic Criteria: This evaluation consist of deciding whether the estimates of the parameters are theoretically meaningfully, and statistically satisfactory.

The signs and magnitude of the parameters estimates was examined to know whether they are in conformity with their criteria expectation. Economic criteria helped the researcher to know when they are deviating from what is actually required. Statistical criteria; covered the following tests

- (i) t-test
- (ii) R^2
- (iii) F-test

The t- test

This was used to test the statistical significance of individual estimated parameter. In this research, t-statistics was chosen because the population variance is known and the sample size is less than 30 ($n < 30$).

Decision Rule

Reject the null hypothesis if the calculated value of t is (i.e $t > t_{tab}$) with $N-K$ degree of freedom at the chosen level of significance, otherwise accept the alternative hypothesis, meaning that the parameter is significant. In this study the chosen level of significance will be 5 percent (5%).

The R²

This is also known as co-efficient of multiple determinations. It means the percentage of the total variation of the dependent variable (GDP) explained by the regression plan, that is, by changes in explanatory variable. (AGOUT, EAG). The value of R-2 lies between 0 and 1, the higher the R-2, the better the goodness of fit of the regression plan to the sample observation and the closer the R-2 to zero, the worse the fit (Gujarati, 2004).

The F- test

This is used to test for the overall significance of regression plan (model). The test aims at finding out whether the joint influence of the explanatory variable on the dependent variable is statistically significant.

Decision Rule:

If F calculated (F) is greater than f-tabulated (i.e. F) is greater than f-tabulated (i.e. $F > F_{tab}$). With the chosen level of significance with k-1 and N-K degree of freedom we reject the null hypothesis, that is, we accept that the regression model is significant. But if $F < F_{tab}$, we accept null hypothesis, that is, we accept that the regression model is not significant with K-1 and N-K degree of freedom. The chosen level of significance in this test is 5 percent (5%).

Economic Criteria: We tested for auto-correlation using the Durbin-Watson test for multi co-linearity, normality and Heteroskedaticity. Durbin-Watson test is determined by the theory of econometrics. It is used to test for the percentage of first auto-correlation. The level of significance used is 5 percent.

Decision Rule:

Accept the null hypothesis if $du < d < (4-du)$ that is, there is no auto-correlation of first order. These are the guiding principles throughout this study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data presentation and Data analysis

In econometric analysis an attempt is usually made in discovering and establishing existing relationship among the variables involved in the analysis. To this effect, this chapter will attempt to examine the impact of agricultural expenditure on economic growth in Nigeria. This can be achieved by establishing the relationship that exists between gross domestic product and agricultural output and government expenditure on agriculture. This shall be carried out using unit root and co-integration. The computational device that was used is econometric view (E-VIEW) software programme.

Table 4.1: Unit Root Test

Variables	ADF test statistic	Critical value5%	order of integration	Rename
GDP	4.59337	-1.9521	1(0)	Stationary
AGO	3.43034	-1.9521	1(0)	Stationary
EAG	-2.15641	-1.9521	1(0)	Stationary

Source: Author's Computation

The stationary of the unit root in table 1 above show that all the variables were stationary. The gross domestic product, agricultural output and government expenditure on agriculture were all stationary at level. The reason for this is that the Augmented Dickey Fuller (ADF) test statistics of each of the variable was greater than 5% critical value of each of the variables in the absolute terms. Thus, the result revealed a short run equilibrium relationship or stability among the economic variables that can determine the impact of agricultural output and government expenditure on agriculture on economic growth in Nigeria.

Following from the above, the test for co-integration was carried out using the Johansen maximum likelihood estimation method. Under this technique, the likelihood ratio test statistic was used in testing whether a long run equilibrium relationship exist among the economic variables. If this test established that at least one co-integration vector exist among

the variables under investigation, then a long run equilibrium relationship exist among the variables. The co-integration test result is therefore presented below:

Table 4.2: Co-integration Test Result

Eigen value	Likelihood Ratio	5% critical value	Hypothesized No of CE (s)
0.832412	69.56491	29.68	None
0.393468	15.97764	15.41	At most 1
0.032065	0.97712	3.76	At most 2

Source: Author's Computation

The maximum likelihood ratio test statistic indicates two co-integration equations at 5% significant level. The result presented in the table 2 showed that there are two co-integrating vector in the model. This implies that a long run equilibrium relationship exist among the economic variables used. The result showed that the stability of the agricultural production output and government expenditure will be a long time determinant of economic growth in Nigeria.

Table 4.3: Regression Result

Variables	Coefficient	Std Error	t-statistic	Probability
C	-10162713	1148841	-8.84606	0.0000
AGO	2995.089	246.8701	12.13225	0.0000
EAG	-19.48446	21.81254	0.893269	0.3791

R-Square=0.9223, Adjusted R-Square = 0.9169, F-Statistic = 172.1834, Prob (F-Statistic) = 0.0000, DW Statistic = 0.356685

Source: Author's Computation

The test for the significant or the test for the coefficient of determination of the model was carried out using R-Square statistic and Adjusted R-Square. However, the value 0.92 implies that 92 percent variations or changes in economic growth can be explained by the impact of agricultural production output and government expenditure on agriculture. The

result shows the need by agricultural research institute to come up with more research that will lead to the growth of the economy. Government spending in this regard must also increase for a more viable agricultural production output that can guarantee economic growth.

The test for the overall significant of the model which is also known as the test for the goodness of fit of the model was conducted using the probability of F-statistic. Thus, it was discovered that probability of F-statistic 0.0000 is less than the probability of the error margin 0.05 allowed in the estimation of model parameters. It was based on this evidence that will conclude that the model is appropriate, reliable, and acceptable for determining the impact of agricultural production output and government expenditure on agriculture on economic growth in Nigeria.

The fitted regression model further revealed that a positive linear relationship between agricultural production output and economic growth in Nigeria. It was also discovered from the fitted model that a negative linear relationship exists between the government expenditure on agriculture and the economic growth in Nigeria. The result showed that a unit increase in agricultural production will cause the economy to grow by 2995.089 while, the level state of government expenditure on agriculture cause the Nigeria economy a decline of 19.48446. This revealed the obsolete nature of the agricultural system in Nigeria and the need for urgent improvement. The significant of the estimated parameters was examined using the standard error test and the probability value. The analysis revealed that the standard error value for agricultural production output is less than half of the coefficient of the variables and it therefore implies the statistical significant of the variable. Also the test conducted on the estimated parameter of agricultural production output showed that the probabilities of the estimated parameters is less than the probability value of the error margin allowed in the estimation for the parameter. However, the test for the significant of the parameter conducted on government expenditure on agriculture using both the standard error test and probability value revealed the statistical insignificant of the parameter because half of the estimated coefficient of the government expenditure on agriculture is less than the standard error value. In the same vein the probability value of the estimated parameter is greater than the probability of error margin (0.05) allowed in the estimation of the parameter.

The test for the economic or theoretical significant of the parameters was considered on the basis of the sign of the estimated parameters. Thus, a discovery from the result shows that

agricultural production output is positively signed while government expenditure on agriculture is negatively signed. Thus, it implies that agricultural production output has a positive impact on the economic growth in Nigeria while government expenditure on agriculture has a negative impact on the economic growth.

Econometrics significant of the model was carried out using Durbin Watson statistic. The result shows that the estimated parameters are free from autocorrelation problem which shows that the parameters are not underestimated or overestimated. The standard error values and the probability values are unbiased, sufficient, consistent and efficient. Thus, every decisions and conclusions made are valid, reliable and acceptable for examining the impact of agricultural production output and government expenditure on agriculture on Nigeria economic growth.

The implication of this result is that the ministry of agriculture, research institutes, agricultural financing institution and agricultural researcher body must be challenged to come up with viable research solution that can help in enhancing more agricultural produce. The long-time negative influence of government expenditure through poor and insufficient funding must be urgently addressed in order to ensure the stability and increase of agricultural production that can result into steady growth of the Nigeria economy.

4.2 Discussion of findings

This study investigates the impact of agricultural expenditure on economic growth in Nigeria, the discussions of findings will be explained below, based on the objectives that have been outlined in the study;

4.2.1 Objective 1

It was discovered that there is a negative linear relationship exists between the government expenditure on agriculture and the economic growth in Nigeria. The level state of government expenditure on agriculture causes the Nigeria economy a decline of 19.48446. This result does not apply to a priori expectation because a positive relationship is expected between government expenditure on agriculture and economic growth but government has not expended more on agriculture and this resulted in the negative relationship between government expenditure on agricultural and economic growth in Nigeria.

4.2.2 Objective 2

From the findings there is a positive linear relationship between agricultural production output and economic growth in Nigeria. The result showed that a unit increase in agricultural production will cause the economy to grow by 2995.089 and this result applies to a priori expectation.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of findings

The study examined the impact of agricultural expenditure on economic growth in Nigeria over the period of 1980 to 2013. The study employs co-integration estimating technique. The findings indicate that agricultural expenditure has negative impact on the economic growth in Nigeria.

This relationship, although does not apply to the economic theory, some factors such as structural rigidities and distortions of the government can lead to the negative relationship of agricultural expenditure and economic growth because government does not finance on agriculture or the money allocated to agricultural sector is being embezzled. Another reason that can cause a negative relationship between agricultural expenditure and economic growth is the existence of weak financing institutions that cannot effectively contribute to the economic growth.

5.2 Conclusions

The result shows that there is a significant relationship between the exogenous and endogenous variables. There exist a negative relationship between agricultural expenditure and economic growth, it is also seen that even though the impact of agricultural expenditure is negative, it is stronger than the other factor considered in the study. Thus, it is recommended that government should improve and encourage its expenditure in the agricultural sector in order to bring about economic growth.

This study support the work of Oyakhilome, Abdulsalam, and Grace (2013) "Agricultural Budgetary Allocation and Growth in Nigeria: Implication for Agricultural Transportation in Nigeria. It was found that there exist a negative relationship between agricultural budgetary allocation and economic growth in the short run but positive and significant in the long run.

5.3 Recommendations

From the careful investigation of agricultural expenditure on economic growth, it is therefore important to recommend the following recommendations to the government in order for agricultural expenditure to foster economic growth.

Budgetary allocation to the agricultural sector should be increased significantly so that adequate funds can be available for driving the activities of the sector.

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. This will create better avenues for job creation, growth and higher GDP levels.

The government needs to develop a modernized policy to help the sector to keep growing steadily as time moves on. Government should assist the farmers to use mechanised tools in order to boost their production.

Government should help the agricultural sector as far as it is concerned by encouraging commercial production of non-staple cash crops, particularly those that result in robust links to the non-farm sector, as this will be the major means to increase and improve employment for the rural poor.

The rural poor farmers will be best assisted by improving their access to health and education services to improve their human skills and through measures that increase their mobility so that they can move to take up opportunities in growth areas as they occur.

References

- Alkali R.A. (1997) *the World Bank and Nigeria: cornucopias or pandora box?* Kaduna: Baraka press, 10 -21
- Sekumade A. B. *The effects of petroleum dependency on agricultural trade in Nigeria: An error correlation modeling (ECM) approach*, Scientific Research and Essay Vol. 4 (11), pp. 1385-1391, November, 2009
- Al-yousif Y. (2000). *Does government expenditure inhibits or promotes economic growth; some empirical evidence from Saudi Arabia*, Indian economic journal.
- Malton P (1981). *The structure of production and rural incomes in northern Nigeria*. H and V.P., Diejomaoh (Ed). Holmes and Meier Publishers Inc, New York.
- Anyanwu. M.C. (2004) *microfinance institutions in Nigeria: policy, practice and potentials*, Paper presented at the G24 workshop on "Constraints to growth in sub Saharan Africa," Pretoria, South Africa, November 29-30, 2004
- Barro .R. (1988). *Economic growth in a cross section of countries*. Quarterly Journals of Economics 106(2), 407-43
- Devarajan, Shantayanan, vinaya swaroop, heng-fu Zou (April 1996). *The composition of public Expenditures and Economics Growth*. Journal of Monetary Economics 37,313344
- Bernard O.A. (2009). *The effect of Agricultural Government Expenditure, Government and Economic growth* Bhatia, H.L. (2008). *Public finance; 25th Edition*, Vikas Publishing House, PVT Ltd ,Indian CBN (2004)" *Changing the structure of the Nigerian Economy and implication for development* "Realm communication Ltd Lagos. Central Bank Annual Report and statement of account, 2005
- CBN Statistical bulletin, (2008). *Annual Report and statement of account* " PP 97-99
- Anyanwu, J.C. et al (1977). *The Structure of Nigeria Economy*. Onitsha Joannee Educational Publisher Ltd. Onitsha
- Ekundare, R. O. (1973). *An Economic History of Nigeria: 18601960*. Africana Publications.
- Koutsoyiannis, A. (1997). *Theory of Econometric (2nd Ed.)* Hampshire: Macmillan Ed. Publications Ltd.

- Oji-Okoro, I. (2011). *Analysis of the Contribution of Agricultural Sector on the Nigerian Economic Development*. world review of business research , 1 (1), 191 – 200.
- Helleiner GK 1960. *Peasant Agriculture; Government Economic Development in Nigeria*. In: I Irwin , P A Edwin (Eds.): *Agricultural Growth in Nigeria*. Calabar, University of Calabar, pp. 34-55.
- Solow RM 1957. *A contribution to the theory of economic growth*. Quarterly Journal of Economics, Lxx: 47-65.
- World Bank 2008. *World Development Report 2008*. Agriculture for Development United States of America, Monthly Report, 2: 7-9
- .Oyakhilome, Abdulsalam, and Grace (2013) “*Agricultural Budgetary Allocation and Growth in Nigeria: Implication for Agricultural Transportation in Nigeria*. A journal of economics.
- Lawal WA (2011). *An Analysis of Government Spending On Agricultural Sector And Its Contribution To GDP In Nigeria*. Int. J. Bus. Soc. Sci. 2(20).
- Ogen O (2007). “*The Agricultural Sector and Nigeria's Development: Comparative Perspective from the Brazilian Agro-Industrial Sector Economy (1960-1995)*”. Nebula March 2007@Noble World Archives.
- Manyong, V. M. (2003), *Agriculture in Nigeria: Identifying Opportunities for Increased Commercialization and Investment*. Being the Main Report of a Research funded by United States Agency for International Development (USAID)\Nigeria.
- Mankiwa, N.G., Romer, D. & Weil,D. N. (1992). *A Contribution to the Empirics of Growth*, *Quarterly Journal of Economics*, 1992, 107(2), 407-437
- Ogen. O. (2003). *Patterns of Economic growth and Development in Nigeria since 1960 in Saudi Arabia*, 231-234
- Ojo, O. & Akanji, A. (1996). *History of Agricultural Production in Nigeria AERC Research paper 67*, African Economic Research Consortium, Nairobi. 14 - 59
- Olagbaju J. & Falola, T., (1996). “*Post Independent Economic Changes and Development in West Africa*. Oguremi G.O., Faluyi. E.K (Eds) an *Economic History of west Africa since 1975* Ibadan Rex Charles pg 263

- Onayemi, T. (2003) *Nigeria Oil: Prices, Politics and the people, Published in Nigeria Today*
- Ranjan, Sharma (2008): *Government expenditure on economic development: evidence from India, The Journal of public finance* (6) (3)
- J Lawal, A. A. (1997). "The Economy and the State from Pre-Colonial Time to the Present" In the Osuntokun, A. and Olukoju, A. (Eds) *Nigerian Peoples and cultures, Ibadan: Davidson*. 195-196
- Kalra, K.B. (2006). *Dictionary of Economics*. New Delhi: Academic Publishers, 1st Edition.
- Olaokun, A. (1979). "The Structure of Nigerian Economy". Macmillan Press Ltd. Lagos.
- Samuelson, P. A and Nordhaus, W.D. (2003). *Economics*. Delhi: TATA McGraw-Hill.
- Bello, A. 2003. *Ministerial Press Briefing*. Abuja, Federal Ministry of Agriculture and Rural Development, December.
- Kose, M. A, Prasad E. S. and M. E. Terrones (2008): "Does Openness to International Financial Flow Raise productivity Growth?" IMF Working Paper WP/08/242.
- Philip D., Nkonya E., Pender J. and O. A. Oni (2009): "Constraints to Increasing Agricultural Productivity in Nigerian: a Review. Nigeria Strategy Support Program (NSSP) background Paper No. 6.
- Prasad E., Rogoff K., Wei S. J. and M.A Kose (2004): "Effects of Financial Globalization on Developing Countries: Some Empirical Evidence, NBER Working Paper 10942, Cambridge Mass.
- Akinboyo OL 2008. *Five decades of agricultural policies: What role has statistics played?* CBN Bullion, 32: 134 – 165.
- Ekundare RO (1973). *An economic history of Nigeria: 1860-1960*. Africana Publishing Co. New.

Appendix One

Years	GDP	AGO	EAG
1980	50848.6		
1981	50749.1	2,385	14700
1982	51709.2	2,445	15700
1983	57142.1	2,427	15300
1984	63608.1	2,300	13200
1985	72355.4	2,704	12700
1986	73061.9	2,967	12600
1987	10885.1	2,863	7200
1988	145243.3	3,157	7600
1989	224796.9	3,326	5400
1990	260636.7	3,469	5000
1991	324010	3,599	4800
1992	549808.8	3,675	6000
1993	701472.9	3,726	6500
1994	914334.3	3,818	17900
1995	1977740	3,957	12100
1996	2823900	4,122	10000
1997	2939500	4,298	13000
1998	2881310	4,475	14000
1999	3352650	4,712	7000
2000	4980943	4,851	83000
2001	5639860	5,039	8200
2002	5728200	7,820	6700
2003	7180140	8,366	5200
2004	8014140	8,892	6700
2005	11114239	9,519	6800
2006	15643210	10,224	6900
2007	16102102	10,959	10200
2008	19332689	11,646	11600
2009	20912546	12,331	13000
2010	22765257	13,049	8700
2011	37409861	13,429	8500
2012	40544100	14,330	8200
2013		14,751	8100

APPENDIX TWO

JOHANSEN COINTEGRATION TEST

Date: 08/06/15 Time: 16:20

Sample: 1980 2013

Included observations: 30

Test assumption:

Linear deterministic

trend in the data

Series: GDP AGO EAG

Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.832412	69.56497	29.68	35.65	None **
0.393468	15.97764	15.41	20.04	At most 1 *
0.032065	0.977712	3.76	6.65	At most 2

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
 L.R. test indicates 2 cointegrating equation(s) at 5% significance level

Unnormalized Cointegrating Coefficients:

GDP	AGO	EAG
-2.14E-08	0.000108	1.65E-05
3.89E-09	7.21E-05	-1.12E-05
-9.55E-08	0.000227	-1.29E-06

Normalized Cointegrating Coefficients:

1		
---	--	--

Cointegrating
Equation(s)

GDP	AGO	EAG	C
1.000000	-5048.243 (1037.15)	-767.5669 (286.671)	31804052
Log likelihood	-986.6911		

Normalized
Cointegrating
Coefficients:

2
Cointegrating
Equation(s)

GDP	AGO	EAG	C
1.000000	0.000000	-1221.116 (1251.11)	7288648.
0.000000	1.000000	-0.089843 (0.24146)	-4856.225
Log likelihood	-979.1912		

AUGMENTED DICKEY FULLER UNIT ROOT TEST ON AGO AT LEVEL

ADF Test Statistic	3.430395	1% Critical Value*	-2.6395
		5% Critical Value	-1.9521
		10% Critical Value	-1.6214

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(AGO)

Method: Least Squares

Date: 08/06/15 Time: 16:17

Sample(adjusted): 1983 2013

Included observations: 31 after adjusting endpoints

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
AGO(-1)	0.061008	0.017784	3.430395	0.0018
D(AGO(-1))	-0.007385	0.201323	-0.036681	0.9710
R-squared	0.139249	Mean dependent var	396.9677	
Adjusted R-squared	0.109568	S.D. dependent var	519.3821	
S.E. of regression	490.1030	Akaike info criterion	15.28945	
Sum squared resid	6965827.	Schwarz criterion	15.38196	

Adjusted R-squared	0.356424	S.D. dependent var	19729.23
S.E. of regression	15827.42	Akaike info criterion	22.23922
Sum squared resid	7.26E+09	Schwarz criterion	22.33173
Log likelihood	-342.7078	Durbin-Watson stat	2.152326

REGRESSION RESULT FOR THE FITTED MODEL

Dependent Variable: GDP

Method: Least Squares

Date: 08/06/15 Time: 16:40

Sample(adjusted): 1981 2012

Included observations: 32 after adjusting endpoints

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficien t	Std. Error	t-Statistic	Prob.
C	-	1148841.	-8.846060	0.0000
	10162713			
AGO	2995.089	246.8701	12.13225	0.0000
EAG	19.48446	21.81254	0.893269	0.3791
R-squared	0.922328	Mean dependent var	8311437.	
Adjusted R-squared	0.916972	S.D. dependent var	1198031	5
S.E. of regression	3452083.	Akaike info criterion	33.03591	
Sum squared resid	3.46E+14	Schwarz criterion	33.17333	
Log likelihood	-525.5746	F-statistic	172.1834	
Durbin-Watson stat	0.356685	Prob(F-statistic)	0.000000	