EFFECT OF STATE GOVERNMENT EXPENDITURE ON CROP PRODUCTION IN KOGI STATE (2000-2018)

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A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc) IN PUBLIC ADMINISTRATION

DEPARTMENT OF PUBLIC ADMINISTRATION,

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DECLARATION

I declared that this dissertation entitled **"Effect of State Government Expenditure on Crop Production in Kogi State (2000-2018)"** has been carried out by me in the department of Public Administration. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma either at this University or any other institution.

Tijani Amoto ABDULMALIK

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CERTIFICATION

This dissertation entitled **"EFFECT OF STATE GOVERNMENT EXPENDITURE ON CROP PRODUCTION IN KOGI STATE (2000-2018)"** by Tijani Amoto ABDULMALIK meets the regulations governing the award of the degree of Masters of Science (M.Sc) Public Administration of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to the glory of the Almighty Allah who in His infinite mercy made it possible for me to complete this study in good health and peace of mind.

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ABSTRACT

The study assessed the effect of state government expenditure on agricultural growth in Kogi State (2000-2018). The increasing incidence of shortage of agricultural output which is evidenced in the high cost of food items and increase in food poverty has been an issue of concern to the governments at all levels. The Kogi State Agricultural Development Programme (KOSADP) was established and in spite of the effort of the government on yearly spending on the agricultural sector, farmers still do not have access to modern farm equipment. Therefore, the main objective of the study is to find out the effect of government expenditure on crop production in Kogi State. The Keynesian theory of public expenditure was adopted as theoretical framework. To achieve the objective, the study adopted concurrent embedded design. The study used both primary and secondary sources of data. The primary data were collected directly from the respondents (farmers association and staff Ministry of Agriculture and KOSADP) using interview schedule while the secondary data were obtained from Kogi State Ministry of Budget and Planning and KOSADP head office for the period 2000-2018. The secondary data were analysed using Vector Autoregressive (VAR) model and Granger causality test while the primary data were analysed using content analysis to support the findings of the secondary data. The findings of the study revealed that there is positive but insignificant relationship between government capital expenditure and agricultural growth in Kogi State because the P value is greater than 5% level of probability. However, base on the findings, the study recommended among other things that there is need for the government of Kogi State to take agricultural funding very important by ensuring timely and adequate release of funds to at least the 10% Maputo declaration of 2003.

TABLE OF CONTENTS

CHAPTER TWO

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

CHAPTER FOUR

4.0 AN OVERVIEW OF AGRICULTURAL DEVELOPMENT IN KOGI STATE

LIST OF TABLES

LIST OF APPENDICES

ABBREVIATIONS

ABP	-	Anchor Borrowers Programme
ADB	-	Agricultural Development Bank
ADF	-	Augmented Dickey Fuller
ADP	-	Agricultural Development Project
ADPs	-	Agricultural Development Programmes
AE	-	Aggregate Expenditure
AFAN	-	All Farmers Association of Nigeria
AGO	-	Agricultural Output
ARDL	-	Autoregressive Distributed Lag
AU	-	African Union
CAADP	-	Comprehensive Africa Agriculture Development Programme
CBN	-	Central Bank of Nigeria
CE	-	Capital Expenditure
CP	-	Crop Production
DFRRI	-	Directorate of Food, Roads and Rural Infrastructures
ERGP	-	Economic Recovery and Growth Plan

GDP	-	Gross Domestic Product
GR	-	Green Revolution
IBRD	-	International Bank for Reconstruction and Development.
IFAD	-	International Fund for Agricultural Development
KOSADP	-	Kogi State Agricultural Development Project
KOSADP	-	Kogi State Agricultural Development Programme
LG	-	Local Government
LN	-	Natural Log
MOA	-	Ministry of Agriculture
MTRM	-	Monthly Technology Review Meeting
NAFPP	-	National Accelerated Food Production Programme
NALDA	-	National Agriculture Land Development Authority
NBS	-	National Bureau of Statistics
NGO	-	Non- Governmental Organization
NPP	-	Nigeria Poverty Profile
OFN	-	Operation Feed Nation
OLS	-	Ordinary Least Square

PE	-	Public Expenditure
RBDA	-	River Basin Development Authority
RE	-	Recurrent Expenditure
RIFAN	-	Rice Farmers Association of Nigeria
TGE	-	Total Government Expenditure
VAR	-	Vector Autoregressive
VECM	-	Vector Error Correction Model

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Agriculture plays a prominent role in improving the lives of the people and also ensuring food sufficiency in a country. Agriculture serves as source of revenue to the country and also creates employment opportunities especially for people in the rural areas. This is more prominent in African continent where some of the countries depend on agriculture for survival. Chauvin, Porto and Mulangu (2017) noted that, in Africa, international market conditions combine with domestic market configurations in shaping agriculture growth and poverty reduction. Prior to the discovery of oil in commercial quantities in 1970s, agricultural sector has been the mainstay of Nigerian economy. This sector has the potential of creating employment opportunities and reducing poverty level in the country.

The role of agriculture in economic growth and development in any nation is crucial and it is a sign of prosperity and development. These roles include but not limited to ensuring food security to the ever growing population, sources of raw materials for the industries, earner of foreign exchange, source of income, savings and investment for the farmers, improvement in their living standards, provide market for their produce (Mohammed, 2018).

According to International Fund for Agricultural Development, (IFAD, 2017) report, Nigeria is predominantly a rural economy with over 60 percent of the population living in rural areas, 90 percent of whom are engaged in subsistence farming and in addition, rural poverty was estimated at 44.9 percent in 2013 against an urban poverty incidence of 12.6 percent. It is in this light that Madu and Yusof (2015) stated that, in most of the underdeveloped and developing countries

(Nigeria inclusive) development remain one of the major challenges and have been described as the major bottleneck to their socio-economic growth, and sustainable development; most especially at the rural level. It is important to state that funding remains a crucial factor in ensuring food sufficiency in the country. The importance of funding was stretched by African leaders in 2003 when they met in Maputo, Mozambique to declare that African leaders should spend at least 10% of their budget on agriculture to boost food production and generate employment opportunities (Daily Trust, 2018).

Public expenditure is a veritable instrument used by government at federal, state and local levels in order to achieve macro-economic policy objectives. This instrument has become a prominent tool of fiscal policy especially in developing countries where taxable income is very low. It is not out of place to say that fiscal policy helps to achieve full employment and also maintain high rate of economic growth (Bhatia, 2012). This explains why government sees fiscal policy such as spending and taxation as effective instruments of correcting market failure.

Prior to economic depression of 1929, classical economists like Smith, Ricardo, Malthus and Mill argued for a smaller role of government. Smith (1776) noted that government function should be reduced to that of protecting the society from violence and invasion; duty of establishing administration of justice; and erection of the public works which facilitate the commerce of any country, such as good roads and bridges.

This argument of the classical economists was threatened by the economic depression of 1930s that hit the industrialized nations of the World; the economic crisis was resolved through the Keynesian solution. Keynes (1936) advocated for increased government expenditures and lower taxes to stimulate demand and pull the global economy out of the depression. Since then, public expenditure has become an indispensable tool especially in developing countries like Nigeria.

Public expenditure either recurrent or capital expenditure can influence economic growth and agricultural growth (Jumare and Yero, 2017; Olukayode, 2009; Thompson and Rita, 2016). In addition to this position, empirical studies have shown that both capital and recurrent expenditure has impact on agricultural growth (Mbanya, Onwumere, Eze, Nwokenekwu & Igwe, 2018; Tobechi, 2018; Uremadu, Ariwa, & Uremadu, 2018).

Yusuf and Mohammed (2017) noted that the pattern of spending in Nigeria has always tilted more towards recurrent expenditure than capital expenditure as 2016 budget showed that social sector, economic sector, security sector and administrative sector take over 70 percent of the budget while meagre percentage of less than 30 percent goes for capital expenditure. In acknowledging the relationship between public expenditure and growth, (Bhatia, 2012) stated that:

> In a developed country, through economic stabilization, stimulation of investment activity and so on, public expenditure can be expected to sustain a long term growth rate. In an underdeveloped country, public expenditure has an additional task of helping in reducing regional disparities, developing social overheads, and creation of infrastructure of economic growth in the form of transport and communication facilities, education and training, growth of capital goods industries, basic and key industries, research and development and so on (p. 216).

Nigeria economy greatly depends on crude oil production and the price of crude oil in the international market over the years has dropped and the production capacity has not also been spared (Abdulmalik, 2018). There have been gradual decline in the contribution of agriculture to the country's economy in spite its rich agricultural resource endowment. It is worthy to note that Nigeria is Africa's largest economy with an estimated Gross Domestic Product (GDP) of $400 billion in 2017 and South Africa, the continent's next largest economy, has a GDP of $317 billion; in addition, Nigeria constitutes 71 per cent of West Africa's GDP and 27 per cent of the continent's GDP (Iweala, 2018). With these huge resources, Nigeria is expected to have developed her agricultural sector and make it more viable.

On the contrary, the report by the Brookings Institution, data from the World poverty clock show that Nigeria now has over 87 million people living in poverty. This can be compared to India's 73 million (The Punch, 2018). By implication, only 5.6% Indians are poor compared to the population while 45.7% of Nigerians are poor meaning that Nigeria has the highest number of poor people in the whole world. It is important to know that with adequate funding of agricultural sector which is the major occupation of the people at the rural areas, there is high tendency of reducing the incidence of poverty by providing sufficient food for consumption and source of income to the people. Inadequate funding of the agricultural sector has been reechoed by several experts as an obstacle to increase agricultural output in Nigeria (Bernard, 2009 as cited in Rufus & Oyewole, 2018).

Agriculture is the mainstay of the economy in Kogi State with fertile and arable land. There are many farm produce from the state notably palm oil, cassava, yam, melon, groundnut and cashews. Jimoh (2006) also observed that farming is the predominant occupation of the people of Kogi State and mixed cropping is the predominant type of farming in the state.

Therefore, assessing the impact of government expenditure on the agricultural growth in Kogi State is important. Mohammed (2018) noted that assessing the impact of government expenditure is important given the reality on ground of high level of poverty, unemployment, high cost of food, lack of industry in the state, low internally generated revenue and low tax base thereby resulting in high cost of food, high cost of living and low standard of living.

It is believed that if the farmers are given the necessary financial resources needed through government expenditure in area of procurement of needed agricultural inputs, provision of infrastructural facilities such as motorable roads, irrigation facilities, storage facilities and so on, the agricultural sector in Kogi State has the potential to create employment opportunities for the youths, reduce high rate of poverty and provide sufficient food for the state and nation at large.

1.2 Statement of the Research Problem

The total expenditure for agricultural sector for central and state governments in 2016 for the two tiers was N196.3 billion, representing 1.6 percent of their N12.5 trillion while in 2017, N254 billion was budgeted representing 1.8 percent of their total budget of N13.5 trillion. From 1992-2016 the budget to the agricultural sector is less than 4% except for 2001 with 5.69%, 2005 4.44% and 2009 7.33% of the total budget (CBN Statistical Bulletin, 2017). The figure fall below the 2003 African Union (AU)-Maputo Declaration's Comprehensive Africa Agriculture Development Programme (CAADP) that requires African countries to allocate at least 10 percent of their annual budgets to agriculture. The Daily Trust (2018) reported that some of the signatories to the Maputo declaration have since started the implementation of the agreement such as Burkina Faso (18 percent), Niger and Mali (15 percent), Malawi (13.8 percent), Ethiopia (11.9 percent), Senegal (10.8 percent) and Zambia (11.5 percent).

In realization of the crucial roles agriculture has in Nigerian economy, the governments at federal level over the years have almost been the sole provider of financial and other capital resources to support agriculture. The federal government has embarked on various policies and programmes aimed at strengthening the sector in order to continue performing its roles, as well as measures for combating food insufficiency. Notable among these policies are the Operation Feed the Nation (OFN), the National Accelerated Food Production Programme (NAFPP), the Directorate of Food, Roads and Rural Infrastructures (DFRRI), the Green Revolution (GR), Land Use Decree, Fertilizer Company of Nigeria (NAFCON), the National Agriculture Land Development Authority (NALDA) among others.

In addition to the efforts made by the federal government, at the state level, the Kogi State Agricultural Development Project was established on December 19,1991 to implement the state agricultural development programmes. In spite this effort, according to Nigeria Poverty Profile (NPP), 2014 released by the National Bureau of Statistics (NBS), (2016), food poverty in Kogi State was 50.1%, absolute poverty 67.1%, dollar per day 67.3% and per capita expenditure was 73.5%. While based on derived subjective poverty measure, 58.7% were core poor, 38.0 moderate poor, and 3.3% non-poor.

In Kogi State, the pattern of public expenditure in area of agriculture has not been impressive as 2017 expenditure in agriculture showed that out of N185 billion naira expended, agriculture generally received a total of approximately N3 billion naira representing 1.6% of the total expenditure of the budget (Kogi State Ministry of Budget and Planning, 2018).

Idoko and Jatto (2018) noted that:

> The state of agriculture in Nigeria remains poor and largely underdeveloped which is constrained by the lack of synergy between public and private expenditure in boosting agricultural production, the sector rely on primitive methods to sustain a growing population without efforts to add value (p. 25).

It is worrisome to know that there is shortage of agricultural produce and this is evidenced considering the high cost of agricultural commodities in the market.

In addition to the aforementioned practical problem, there is also literature problem as a result of inconsistency in findings from previous works that prompt this research where some studies found that government expenditure has negative and insignificant effect on the economic growth/agricultural growth (Desmond, Titus & Timothy, 2012 and Jumare, Yusuf & Mohammed, 2017). Other studies revealed positive but insignificant relationship between the public expenditure and agricultural growth (Desmond *et al*., 2012; Mohammed, 2018; Yusuf and Mohammed, 2017).

Lastly, some studies found positive and significant relationship between the variables (Brown & Ajayi, 2015; Chidinma & Kemisola, 2012; Esan, 2015; Idoko & Jatto, 2018; Ifarajimi & Ola, 2017; Mohammed, 2015; Oyakhilomen & Zibah, 2014; Rufus & Oyewole, 2018; Tobechi, 2018; Uremadu, Ariwa, & Uremadu, 2018). The gaps identified were improved upon by using both dimensions of public expenditure (capital and recurrent) as some of the studies fail to use both capital and recurrent expenditure.

It is against this background that this study examined the impact of government expenditure on agricultural growth in Kogi State. Public expenditure is proxy of capital expenditure and recurrent expenditure on agriculture such as agricultural infrastructural facilities, support for farmers in terms of seedling and pesticides, maintenance of existing infrastructure, provision of irrigation facilities while agricultural growth is proxy by metric tons of crop production as statistics has shown that crop production accounted for over 80% of the contribution of agriculture to the country's GDP (CBN statistical bulletin, 2018). In order to achieve the main objective of the study, the following research questions were raised.

1.3 Research Questions

From the research problem above, the following research questions were raised in order to achieve the objectives of the study. The questions are:

i. What is the effect of state government capital expenditure on crop production in Kogi State?

ii. What is the effect of state government recurrent expenditure on crop production in Kogi State?

iii. How does state government aggregate expenditure has causal relationship with crop production in Kogi State?

1.4 Objectives of the Study

The main objective of the study is to assess the effect of public expenditure on crop production in Kogi State. However, the specific objectives are to:

i. Examine the effect of state government capital expenditure on crop production in Kogi State.
ii. Assess the effect of state government recurrent expenditure on crop production in Kogi State.
iii. To examine the causality between state government aggregate expenditure and agricultural growth in Kogi State.

1.5 Research Hypotheses

In order to achieve the aforementioned objectives of the study, the following hypotheses were stated in null form to be tested through empirical investigation:

$H0_1$: State government capital expenditure has no significant relationship on agricultural growth in Kogi State.

$H0_2$: State government recurrent expenditure has no significant relationship on agricultural growth in Kogi State.

$H0_3$: State government aggregate expenditure does not have causal relationship with agricultural growth in Kogi State.

1.6 Significance of the Study

The relationship between public expenditure and agricultural growth has received serious academic discourse and the call for concern has been the approaches of the investigation. Some authors investigated on macro level using secondary data from CBN statistical bulletin for analysis (Idoko & Jatto, 2018; Uremadu, *et al.,* 2018; Rufus and Oyewole, 2018; Idisi, *et al*., 2019; Oyakhilomen & Zibah, 2014; Tobechi, 2018) while others were at micro level and use primary data through administration of questionnaire and interview for the basis of analysis (Muhammed, 2015; Esan 2016; Yusuf & Mohammed, 2017; Ogunniyi, *et al*, 2018).

Idoko and Jatto (2018) used time series data from 1985-2015 to test the impact of public expenditure on agricultural growth in Nigeria. The test of the hypotheses was done using multiple regression analysis and Johansen co-integration test and found out that there exists a positive and significant relationship between government expenditure on agriculture and economic growth in Nigeria. Rufus & Oyewole (2018) and *Idisi et al.,* (2019) also examined impact of public expenditure on agricultural growth used Ordinary Least Square Method of analysis by using time series data and also found out that agricultural sector output has positively impact on the economic growth in Nigeria over the period under study. Uremadu, *et al.,* (2018) also used time series data from 1981 to 2014. Augmented Dickey-Fuller test, co-integration test and Vector Error Correction Model (VECM) were used to find out if government expenditure impact agricultural growth and found out that public expenditure had a positive and significant effect on agricultural output (AGO) in Nigeria during the period studied. Jumare *et al.,* (2017) used Ordinary Least Square Method of analysis by using time series data and also granger causality test to examined the impact of public expenditure on economic growth. Oyakhilomen & Zibah (2014) also used time series data and the data were done using unit root tests and the bounds (ARDL) testing approach to Co-integration. Yusuf and Mohammed (2017) used primary data to assess the effect of public expenditure on crop production in Yobe State through the administration of questionnaire to the registered farmers. Mohammed (2015) used A multi-stage sampling technique to select respondents for the study to examined the impact of Kogi State survival farming intervention programme on cassava production in three (3) Local Government Areas. Lastly, Esan (2016) also used primary data to assess the contributions of agriculture to economic development in Soba Local Government Area of Kaduna State.

This study is significant in filling the gap left by Idoko and Jatto (2018), Uremadu, *et al.,* (2018), Rufus and Oyewole (2018), Idisi, *et al.,* (2019), Jumare, *et al*., (2017), Oyakhilomen and Zibah (2014), Tobechi (2018), Muhammed (2015), Esan (2016), Yusuf and Mohammed (2017), Ogunniyi *et al.*, (2018) by utilizing both primary (interview) and secondary data. In addition, other studies focus on public expenditure on agricultural growth at macro level covering the whole of Nigeria. The current study focuses on micro level by concentrating on Kogi State. All these will make the work add value to the existing body of knowledge and also intend to use secondary sources of data.

Secondly, the policy significance of this study will help government to unearth some of the challenges that farmers are facing in the rural areas as it is usually said that a problem identified is half solved. This research will be a guiding tool for policy makers to make policy that will transform the agricultural sector from subsistence to more commercial based and mechanised farming thereby increasing the standard of living of the farmers and ensuring food security in the State and Nigeria at large.

Lastly, this study will also serve as a source of material for students alike that will want to carry out further research in this area. Research is said to be an unending and never exhausted undertaking, therefore, the area that this study could not cover will be recommended for further study by subsequent researcher(s) which will help in improving the existing knowledge and also help in adding value to the existing knowledge.

1.7 Scope and Limitation of the Study

The scope of this study covers three areas; the contextual scope, the time scope and geographical scope. The contextual scope of this study covers the area of interest which is public expenditure. The study assessed the impact of public expenditure (capital and recurrent) on agricultural growth in Kogi State using crop production as a proxy of agricultural growth and both capital and recurrent expenditure as proxy for public expenditure. Public expenditure either recurrent or capital expenditure determine economic growth and agricultural growth (Jumare & Yero, 2017; Olukayode, 2009; Thompson & Rita, 2016). The inclusion of the two dimensions of public expenditure – recurrent and capital is justified on the ground that both dimensions of expenditure impact agricultural growth.

This contextual scope is justified on the basis that agriculture contributes over 23 percent of the country's GDP and crop production accounted for 87 percent of this contribution from 1991-2017 (CBN Statistical bulletin, 2017). The time scope of this study covers 2000-2018 and this is justified based on the secondary data available to the researcher.

Lastly, the geographical scope of the study is Kogi State and this is justified on the basis that Kogi State is an agricultural state with fertile land. The state was also chosen on the basis that it benefitted from Fadama II project financed by African Development Bank. The selection of the state to have benefitted from the project must have been informed on the basis of the agricultural potentiality of the state. All these informed the decision of the researcher to have chosen the aforementioned scope for this study.

The limitation of the study includes data inconsistency as some of the records of annual budget were not available and this influence the choice of the time scope of the study. The other limitation is the use of agricultural production survey by Agricultural Development Programme (ADP) to measure the output of the farmers because not all farmers output are considered by ADP. Though, this cannot invalidate the study because ADP takes account of large scale farmers and production. Therefore, it cannot affect the outcome of the findings.

Secondly, the use of research assistants to interpret to some of the farmers who were illiterate was also time consuming, slow, and tasking in gathering the information but the researcher was proactive and consultative in data gathering which helps the researcher to reach the stage of viable conclusion.

1.8 Operational Definition of Concepts

i. **Public Expenditure:** It means expenses incurred by state government to promote agricultural growth. This includes expenditure on capital expenditure on infrastructural facilities, farm inputs and also recurrent expenditure in area of crop production.

ii. **Capital Expenditure:** This is the component of expenditure that is said to have long term benefits because it comes in form of investment to develop the agricultural sector in area of crop production. It covers expenditure on construction of motorable roads for farmers, irrigation facilities, storage facilities, tractor, sprayer, plough, harvester, corn milling machine and so on that have long term effect on the output of farmers.

iii. **Recurrent Expenditure:** This is another component of public expenditure that can be said to have multiplier effect on aggregate demand as salaries and wages determined the purchasing power of individual that patronize farmers in the state. They include spending on wages and salaries, maintenance of existing capital infrastructure and payment of rent

iv **Total Expenditure:** This means the aggregate fund available to promote agricultural growth in Kogi state as provided by the state government.

iv. **Crop Production:** Is the cultivation of crops for use as food or fibre but in this context, it include crops such as maize, sorghum, millet, rice, yam, cassava, sweet potatoes, cocoa yam, cowpea, ground nut, soya beans, melon. Crop production is used interchangeably with agricultural growth in this study.

v. **Agricultural Growth:** Agricultural growth here means increase in output of crop production in metric tons. It means maximum output through the support of government in the provision of farm input such as agro-equipment, fertilizer, modern techniques and maintenance of existing infrastructure through public expenditure. Therefore, agricultural growth is used interchangeably with crop production in this study.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This section covers conceptual review, review of related empirical literature and review of related theories. This means that the conceptual literature review include the concept of public expenditure and its components, the concept of agricultural growth, relationship between public expenditure and agricultural growth. In addition, theories of public expenditure and agricultural growth were reviewed and empirical studies that have previously been carried out in area of public expenditure and agricultural growth were reviewed in order to identify gap in existing literature. Lastly, Keynesian theory was used to underpin the study.

2.2. Conceptual Review

2.2.1 Public expenditure

Public expenditure is the aggregate spending of government in different sectors of the economy in order to ensure economic growth and also achieve macro-economic policy objectives (Olukayode, 2009). This expenditure can be from federal, state and local government level(s). Public expenditure either recurrent or capital expenditure, notably on social and economic infrastructure can be growth-enhancing (Olukayode, 2009). Public expenditure can be said to influence and enhance agricultural growth in Nigeria. This will increase the income of farmers, help farmers to expand their farms and increase in farm produce. This position was strengthen by Chidinma and Kemisola (2014) when they noted that government expenditure is perhaps the single most important policy instrument available to governments of most developing countries for promoting growth and equitable distribution.

Public expenditure can be said to mean the financial activities of the government especially with expanding state activities; it is becoming increasingly difficult to demarcate the portion of public expenditure meant for the maintenance of the government itself from the total (Bhatia, 2012).

Okoro (2013) noted that public expenditure plays an important role in the functioning of an economy whether developed or underdeveloped. Public expenditure was born out of revenue allocation which refers to the redistribution of fiscal capacity between the various levels of government or the disposition of responsibilities between tiers of the government. The expenditure pattern of government in Nigeria is divided into current and capital. In the Nigerian economy public expenditure can broadly be categorized into capital and recurrent expenditure.

Public expenditure is alluded to as an outpouring of assets from government to different areas of the economy. It is in fact the main instrument for a government to control the economy to bring about economic growth, which in turn promotes the living standard of people by providing better infrastructure, good health, education, an improvement in agricultural output and food security (De and Dkhar, 2018).

Government expenditures were usually broadly categorized into recurrent and capital expenditures. They went further to say that while recurrent corresponded to government's purchase of current goods and services (labour, consumables, wages and salaries, etc.), capital expenditure would ideally include not merely investments in infrastructure (roads, schools, hospitals, etc) but also all other expenditures that might contribute to development. In other words, the recurrent expenditure refers to day-to-day running of government activities, the capital expenditure refers to investment that have the potential of increasing the assets of the government.

These categorization, however, were not mutually exclusive but were indeed inter-linked. For instance, while capital expenditure gave rise to recurrent expenditure in most cases through the operational and maintenance costs of completed capital projects, the amount available for investment was a function of not only the size of revenue but also the amount that goes annually into the running of government (Oni and Ozemhoka, 2014).

According to Jumare and Yero (2017), government recurrent and capital expenditure is regarded as one of the major determinants of economic growth and development. The development process of a country depends on size, spending capacity, and the effective use of recurrent and capital expenditure.

Anyanwu (1977) contended that public expenditure simply means government spending out of public revenues derived from taxes and other sources. It involves all the expenses for its own maintenance, for the benefit of external bodies and other countries and for settling Nigeria's foreign and international obligations. Government spending reflects the thrust of the regime in power. Once the government has decided the type and amount of goods and services to be purchased, government spending represents the cost of carrying out these policies (Agwu, Ofasia and Blessing, 2019).

However, the positions of different authors have shaped the understanding of the concept. The increasing demand from government for more infrastructural facilities and more wages have become more glaring especially with evidence on the pattern of expenditure on recurrent. This is why there has been argument as to whether government role should be reduced to mere maintenance of law and order in the society. This notion has shaped the pattern of expenditure in different countries that support this argument. In developing countries, public expenditure play prominent role in ensuring economic prosperity and it has become an indispensable instrument of fiscal policy. For the purpose of this study, public expenditure is seen as all expenditure of government in area of infrastructural facilities in agriculture like motorable road, provision of irrigation facilities, provision of storage facilities; provision of farm input like fertilizer, chemical and improved seedlings; and the value of money available to ensure agricultural growth in the state.

2.2.2 Capital expenditure

Capital expenditure has been seen as investment that will yield future benefits. Though, authors have viewed the concept differently especially in the context they used it but there exist a kind of consensus about the expected benefits of capital expenditure. Modebe, (2012) defined capital expenditure in a general context to include even private spending when he observed that capital expenditure is spending on assets; it is the purchase of items that will last and will be used time and time again in the provision of a good or service. This means that the goods and services is the expected benefits capital expenditure is expected to achieve. Though, he further narrow down the definition to capture only government expenditure when he stated that capital expenditure are expenditure on building of a new hospital, the purchase of new computer equipment or networks, building new roads and so on. Though, all these expenses are expected to yield future benefits. It is on this note that Abubakar (2000) sees capital expenditure as investment. This investment has to do with future benefits. Mohammed (2018) expressed similar opinion as she noted that capital expenditure are expenses on goods and services whose services are rendered over a long period of time. These are expenditure on projects like land, building, road construction, housing, development projects and so on. The benefits of capital expenditure are more durable and long lasting for years than those of recurrent expenditure. In the words of Njoku (2009), capital expenditure involves expenditure on construction, land extension, building and plant and machinery acquisition. The capital expenditure includes some of the followings: new infrastructural facilities, major renovations and repairs to existing facilities. It is pertinent to state here that capital expenditure confers benefits for several years (Ojong, Ekpo, and Anthony, 2016). There seems to be a point of interest in the definition provided by different authors as they all look at capital expenditure from the perspective of investment.

2.2.3 Recurrent expenditure

Njoku (2009) sees recurrent expenditure as all expenditures which government incurs in the course of performing its functions. Thus, government expenditure has two components namely recurrent expenditure and capital expenditure. While recurrent expenditure encompasses expenditures recurring over the year such as personnel costs, transportation, utility services, telephone services, stationery, hospitality, maintenance of office furniture and equipment all other day to day, month to month or quarterly running expenses funded by the government, capital expenditure involves expenditure on construction, land extension, building and plant and machinery acquisition. Mgbanya *et al.*, (2018) see recurrent expenditure as expenditure on purchases of goods and services, payment of wages and salaries, consumption of fixed capital which does not result in the creation of fixed assets. A recurrent expenditure or budget tracks ongoing revenues and expenses that occur on a regular basis, be they monthly, quarterly, semiannually, or annually. Also known as an operational budget, a recurrent expenditure includes line items such as wages, utilities, rent or lease payments, and maintenance of existing infrastructure. Modebe, Okafor, Onwumere and Ibe (2012) prefer to use the word current expenditure instead of recurrent and their reason that current expenditure is recurring spending or, in other words, spending on items that are consumed and only last a limited period of time.

They stated that in the case of the government, current expenditure would include wages and salaries and expenditure on consumables - stationery, drugs for health service, bandages and so on.

2.2.4 Agricultural growth

The economic transformation is the overriding feature of economic growth in low- and middle-income countries. The transformation is from a predominantly rural and agricultural nation to one that is predominantly urban with urban industry and services dominating the economy. It is accompanied by a demographic transition. The population growth rate first accelerates then slows and eventually declines. Health and life expectancy improve greatly (Mellor, 2017).

Agricultural growth may be conceptualized as one dimension of the multi faceted complex process of development that aims at enhancing the productive capacity of the agricultural sector through the transformation of the rural economy from being a peasant or subsistence agricultural economy to a modern commercialized agricultural enterprise (Mohammed, 2018). Agricultural growth may be seen as increase in agricultural production expressed either in physical or monetary terms which is brought about by small changes over larger areas (Mosher in Mohammed, 2018). Agricultural growth is an integral part of national development. It is that aspect of development that is related to agrarian reforms. Considering the contribution of agriculture to the socio-economic development of many countries, several scholars have postulated theories linking agriculture with national development (Daneji, 2011)

Agricultural productivity growth is not the only, or even the most critical, factor in exiting poverty in rural areas – further factors include relative prices (especially of food crops), asset inequality, effective public expenditure, and, importantly, the stability of agricultural growth.

This finding is noteworthy because, historically, so much emphasis has been placed on productivity growth by itself. The determinants of participation in agricultural growth are likely to be highly context-specific, with correlates (such as higher educational level, access to roads, and location) varying widely. When agricultural growth is low, entries into poverty may outweigh exits. Entries are precipitated by shocks and stresses, some of which impact most severely on the chronically poor who have very limited capacity. Sustained agricultural growth requires stable and committed public expenditure, not just in agriculture but also in supportive sectors (infrastructure, health, education).

Governments have grown skeptical of public investment in agriculture. Donors' preference for upstream forms of aid, such as budget support and multi-sector assistance, may contribute less to agricultural growth than more conventional, and less favoured project-based lending. A key message is that starting pro-poor agricultural growth is not the major problem in most low income countries – the problem is to stop it from cutting out (Shepherd & Prowse, n.d). To prevent 'stop-go' growth patterns that have a minimal medium to long term effect on poverty reduction, stable and committed investment is required in infrastructure, education, demand-led extension, and wider information provision mechanisms. Measures to counter the variability of rates of agricultural growth are also critical. This will involve investment in irrigation and other infrastructure; but also mechanisms to stabilise prices at national and international levels, again something governments and the international community is reluctant to engage in. Overall, a much more sympathetic public policy environment has to be created for agriculture (Shepherd and Prowse, n.d).

Pavittar (2016) noted that the determinants which influence agricultural growth can be classified into four (4) factors namely: Institutional factors (Agricultural credit and land holdings);

Infrastructural factors (Irrigated area, farm mechanization, electricity, storage infrastructure, transportation and agriculture market); Technological factors (HYVs/seeds, fertilizers and pesticides); Socio-economic factors (Population, poverty and literacy).

From these definitions, it can be deduced that agricultural growth covers improvement in living condition and increase in their income as well as expansion of their farm land as a result of public expenditure investment in area that is seen to be growth enhancing such as provision of roads, irrigation facilities, storage facilities, fertilizer, improved seedlings and so on.

2.2.5 Relationship between public expenditure and agricultural growth

The relationship between public expenditure and agricultural growth has continued to generate series of controversies among scholars in economic literature. The nature of the impact is in conclusive and while some authors believed that there is positive but insignificant relationship between government capital expenditure and agricultural development during the period under study (Mohammed, 2018) others believed that the impact is positive and significant (Brown and Ajayi, 2015; Chidinma & Kemisola, 2012; Esan, 2015; Idoko & Jatto, 2018; Ifarajimi & Ola, 2017; Mohammed, 2015; Oyakhilomen & Zibah, 2014; Rufus & Oyewole, 2018; Tobechi, 2018; Uremadu, Ariwa, & Uremadu, 2018). Other studies revealed positive but insignificant relationship between the public expenditure and agricultural growth (Desmond *et al.,* 2012; Mohammed, 2018; Yusuf & Mohammed, 2017).

In Nigeria, 54% of people lived relatively below poverty line of two-third of per capita households' expenditure, while 22% lived below the extreme relative poverty line of one-third of per capita household expenditure (Oyelade, 2018). Farming is the predominant occupation of the people of Kogi State and mixed cropping is the predominant type of farming in the state (Jimoh, 2006). Ihugba, Chinedu and Njoku (2013) stated that “public spending is one of the most direct effective instruments used by governments to promote agricultural growth and poverty reduction” (p.178). The contribution of agriculture to some countries economy have been remarkable. Ogbalubi and Wokocha (2013) reported the contribution of agricultural sector to some countries economy as thus:

> United States of America, agriculture contributes about 1.1% of the country’s Gross Domestic Product. It is 13% in China, 2.6% in Australia,9% in South Africa, 2.5% in Isreal, 12% in Australia, 9% in Argentina, 13.5% in Egypt and in Nigeria it contributes 26.8% of the country’s Gross Domestic Product. Similarly, agriculture provides major source of employment in most developing countries, accounting for 25% of the work force in Brazil, 32% in Egypt, 3.7% in Israel, 70% in Nigeria. The above statistics is an indication that the more developed a country is, the lower the contribution of agriculture to Gross Domestic Product. (p. 60).

De and Dkhar (2018) stated that expenditure in agriculture is important for the transformation of agricultural sector that is more important for an agricultural economy. He further stated that low agricultural output has a negative effect on the economy as a whole vide its low production of food and raw materials for industries. Effective and efficient agriculture will provides income from direct agricultural employment and sales of agricultural produce as well as abundance of valuable resources or material possessions.

The rural people purchasing power tends to increase with more income, abundance of valuable resources and materials possessions, when the purchasing power of the rural dwellers improved, it will facilitate the capacity for economic, development to take place. The government will provide the critical rural services such as water, roads, drainages and electricity with the tax payer’s money from rapid economic growth and development. The provision of critical services will expand and attract internal and external investors, there will be creation of more jobs, the economic opportunities of the rural areas will be high and this will improve the standard of living and material well- being of the rural populace. The employment opportunity of the rural areas will expand and diversify.

Jhingan (2011) observed that, as agricultural productivity and income increases, non- farm rural employment expand and diversify: Landless or peasant farmers will principally engage in non-agricultural pursuit which include the manufacture of textile, tools, furniture, leather materials (shoe and bag), handcraft and metal work, marketing, transporting, construction of houses and bridges. With the income from these activities, rural people will be able to pay their children school fees, maintain the family health care services and be able to meet other general demands of family as well as provides services that will promote the welfare of members of the family.

Jhingan (2011) also maintained that increase in rural income as a result of agricultural surplus tends to improve rural people's welfare; peasant and landless farmers will have extra income. If agriculture is developed to improve their consumption of higher nutritional values build better houses, rather than the mud houses, pay electricity bill, have good furniture, radio and television, motor etc. they also receive direct satisfaction or utility from such services such as schools, hospital, irrigation, banking, transport and communication facilities (Esan, 2016).

Active and an efficient agriculture which increases rural economic development will provide a large domestic market for industrial products especially agro-allied products. There will be increasing demand for industrial goods by the farmers and other rural inhabitants. Such products include fertilizer, spraying chemicals, tractors, bulldozer and other farm inputs and materials provided by the industry. Agriculture curtails poverty by providing an affordable platform which poor households can experiment which way to improve their livelihood and help to prevent premature and rampant rural –urban migration and the explosive growth of large cities (East – wood *et al* in Esan, 2016).

Agriculture remains the predominant occupation of the people in the rural areas and with well developed agricultural policy framework, rural areas will not only retain the population of those going to urban areas to search for greener pasture but it will also attract those in the urban area to invest in the sector for earnings. It is also very glaring that the attention this sector needs in terms of public investment has left much to be desired as the sector has the capacity to employ millions of jobless graduates who left the rural areas to urban areas in search of job that never existed.

2.2.6 Government policies toward agricultural development in Nigeria

In realization of the contribution of agriculture to the country economy, the government has introduced different programmes and policies to improve agricultural output in Nigeria and create employment opportunities. The importance of giving greater priority to agriculture has in recent years been recognized by the policy makers in Nigeria as agriculture is and will continue to be the dominant sector of the economy. Agriculture will continue to be the major employer of labour, major source of food for the fast growing population and raw materials for the growing agro-allied industries, and generator of savings and tax revenue to support the development of other sectors of the economy and to earn more foreign exchange and/or save foreign exchange (World Bank, 1996). Successive governments of Nigeria have introduced various agricultural programmes since independence to promote agriculture, in order to generate employment, stimulate industrialization and overall economic development of Nigeria. In recognition of the above, various governments of Nigeria have tried several programmes, approaches and strategies which include among others the following:

2.2.6.1 The National Accelerated Food Production Project (NAFPP)

NAFPP was established in 1973 aimed at accelerating the production of major staple crops like wheat, sorghum, millet, rice, maize and cassava. To ensure that farmers were able to use the packages, a dense network of extension workers and agro-service was set up. The programme provided some facilities like credit, marketing, storage and processing facilities to farmers. The recognition of the role of credit facility to agricultural development prompted government to establish the Nigeria Agricultural Development Bank (NADB) in 1973, with its headquarter in Kaduna State. The bank gives loans directly to individuals' farmers, organizations and established institutions. Other credits are made available for agricultural development by commercial Banks through central bank credit guidance directives and the federal Government agricultural credit guarantee scheme. The crops targeted are major staple foods of Nigerians and if produced in abundance, hunger and related food crisis will reduce drastically.

Mohammed (2018) observed that even though the evaluation of the NAFPP has not reflected a constantly positive effect in all cases, there is evidence that the scheme contained some essential elements of a functional rural community development strategy which has been instrumental for improving the production of some specific crops in Nigeria. However, lack of commitments on both state and federal governments resulting in poor funding led to gradual death of an otherwise, excellent concept.

2.2.6.2 Operation Feed the Nation Programme (OFN)

It was aimed at mobilizing Nigerians to take active part in growing their own food which will lead to increase in food production thereby leading to self- sufficiency in food production. Subsidized supplies of fertilizers, seeds etc. were provided. The 3rd National Development Plan of 1975 – 1980 essentially pursued an agricultural policy which favoured the establishment and consolidation of agro-research institutions to backstop the extension services for dissemination of improved farm practices. Unfortunately double successions of military regimes during this period distorted the thrust of agricultural policy managers in consolidating on the gains of the previous strategies.

The consequences were the drastic shortage of food and the accompanying large scale food importation while the country's volume of export of agricultural produce nose-dived sharply. The Operation Feed the Nation (OFN) was initiated and implemented between 1976 and 1979 to popularize agriculture especially among Nigeria elites and ensure abundant food production through a mass oriented approach (Adebayo & Okuneye, 2005 as cited in Mohammed, 2018, p. 26). The programme stimulated Nigerians to farming through the strategy used. Some of these strategies included subsidized production inputs, increased bank credit to farmers, establishment of commodity boards and fixing of attractive prices for agricultural produce.

2.2.6.3 Green Revolution Programme (GR)

The Green Revolution Programme replaced the Operation Feed the Nation of the Federal Military Government by the civilian government in 1979. This was an attempt to bring about radical changes in Nigerian Agricultural production and eliminate inherited food problems of successive governments. Large, medium and small-scale farmers received a number of incentives to boost their production level during the implementation of the programme. Livestock and crop components were introduced while the research institutes were re-organized to make them more responsive to the need of the programme (Williams, 1981 as cited in Daneji, 2011, p. 103).

The green revolution was launched in 1980 by Shagari administration in an effort to forestall or curb shortage of food in the country and increase food production. Ran by National Council of Green Revolution, it operated on green revolution principles, that is, the use of high yielding varieties of seed, high inputs of fertilizer, irrigation etc, which offered renewed hope for farmers.

In addition to the policies and programmes, there are other institutional based intervention programmes. According to Daneji (2011) he referred to them as Agency-Based Intervention Programmes and they are:

2.2.6.4 National Agricultural Land Development Authority (NALDA)

This development authority executed a national agricultural land development programme aimed at moderating the problems of low utilization of abundant farm land, thereby increasing food production level of farmers through expansion of farmers' farm lands. A survey conducted by the Central Bank of Nigeria in 1998 indicated that the agency was able to develop 16,000 hectares of land. Out of this, 12,984 (81.1%) was cultivated with various crops. It also provided extension services to farmers at project sites. The overall goal of NALDA was to encourage farmers to plant above what they can consume, so that the surpluses can be sold at the local markets or exported to other countries for foreign exchange earnings.

2.2.6.5 River Basin Development Authority (RBDA)

The existing abundant water resources in the country and its potential for increasing agricultural production prompted the establishment of River Basin Development Authority (RBDA). The scheme became necessary because of persistent short rainy seasons in many parts of the country which has continued to restrict cultivation to single cropping pattern the year round. However, the establishment of various large-scale irrigation facilities the country witnessed unprecedented multiple cropping patterns. In addition, larger areas were put into cultivation, while livestock and fisheries production were intensified. Available statistics from eight River Basin Development Authorities showed that there was an increase in the tempo of activities in 1998 when the total land area developed by the authorities rose from 30.3 thousand ha in 1994 to 47.7 thousand ha in 1998.

2.2.6.6 Directorate of Food, Road and Rural Infrastructure (DFRRI)

Trends in the transformation of the rural sector shows that despite the huge investment in the agricultural sector, which was assumed will automatically bring about eradication of rural poverty and isolation has not been achieved. This is partly due to the deplorable conditions of rural areas, enormous size and dwindling economic resources to address the problem of rural under development in Nigeria. In 1987, the Babangida administration established the Directorate of Foods, Road and Rural Infrastructure (DFRRI).

On establishment, DFRRI attempted to open the rural areas through the construction of access roads, and provision of basic amenities of modern living. This is inevitable because it has long been realized according to Otubanjo (1992) that the economic future of Nigeria depends on the development of rural areas. Therefore, the potentials of rural areas were seen to be both immediate and long term. The idea of opening up of rural areas with feeder roads and integrating it with other parts of the country provide basis for food that could be evacuated to enhance the quantity of food and raw materials consumption.

Consequently, there will be more food at cheaper rate. On the other hand, improved rural condition will stem the rate of rural-urban migration; improve quality of rural life and by implication, its productive capacity that would ensure a greater exploitation of the potentials of rural areas. The problem of DFRRI was hardly one of enthusiasm and relevance but of variation between enormity of rural under development and the quantum of resources available to subdue the problem.

2.2.6.7 Agricultural Development Programmes (ADPs)

The idea of Agricultural Development Programmes is an offshoot of the concept of integrated agricultural and rural development. It started in 1972 in Northern Nigerian towns of Gombe and Gusau with two pilot projects assisted by the World Bank. This became necessary because of the need for the application of knowledge and skills in all the relevant areas of agriculture. This concept involves the provision of Infrastructural facilities such as roads, schools, water supply in the rural areas at the right times in required quantity to farmers. The ADP is the implementation organ of the state ministry of agriculture and natural resources. It is semi autonomous and focuses on the small farmer. It adopts the integrated rural development strategy in its operations (Jibowo, 2005 as cited in Daneji, 2011, p. 104).

The success of the Gombe and Gusau projects encouraged other state governments to embark on more of such projects with the assistance of the World Bank. Since then, Nigeria has continued to witness Agricultural Development Programmes of various dimensions. It is against this background that effective extension services have been established. The closest assistance ever realized by farmers in Nigeria have come from contact with various Agricultural Development Programmes (ADPs) and the extension agents working under the Training and Visit (T and V)) system. The Activities of ADPs in Nigeria spread over three thematic areas; provision of infrastructural rural facilities, conducting worthwhile trainings on improved agricultural technologies and supply of farm inputs. (Daneji, 2011, p. 103-105).

2.2.7 The New Nigerian Agricultural Policy

The previous agricultural policy document was finalized in 1988 and was supposed to remain operative until the year 2000. Hence, in year 2001, a new policy document was launched. The new policy document bears most of the features of the old one, but with more focused direction and better articulation. In a broad sense, the objectives of the new agricultural policy (as stated in the document) are very similar to those of the old one. They include:(i) The achievement of self-sufficiency in basic food supply and the attainment of food security;(ii) Increased production of agricultural raw materials for industries;(iii) Increased production and processing of export crops, using improved production and processing technologies; (iv) Generating gainful employment; (v) Rational utilization of agricultural resources, improved protection of agricultural land resources from drought, desert encroachment, soil erosion and flood, and the general preservation of the environment for the sustainability of agricultural production; (vi) Promotion of the increased application of modern technology to agricultural production; and, (vii) Improvement in the quality of life of rural dwellers.

The key features of the new policy are as follows:

- Evolution of strategies that will ensure self-sufficiency and improvement in the level of technical and economic efficiency in food production. This is to be achieved through (i) the introduction and adoption of improved seeds and seed stock, (ii) adoption of improved husbandry and appropriate machinery and equipment, (iii) efficient utilization of resources, (iv) encouragement of ecological specialization, and (v) recognition of the roles and potentials of small -scale farmers as the major producers of food in the country.
- Reduction of risks and uncertainties in agriculture, to be achieved through the introduction of a more comprehensive agricultural insurance scheme to reduce the natural hazard factor militating against agricultural production and security of investment.
- A nationwide, unified and all-inclusive extension delivery system under the Agricultural Development Programs (ADPs).
- Active promotion of agro-allied industry to strengthen the linkage effect of agriculture on the economy.
- Provision of such facilities and incentives as rural infrastructure, rural banking, primary health care, cottage industries etc., to encourage agricultural and rural development and attract youths (including school leavers) to go back to the land.

2.2.7.1 Major content of the policy framework

The policies cover issues on (i) agricultural resources (land, labour, capital, seeds, fertilizer, etc) whose supply and prices affect the profitability of agricultural business, (ii) crops, livestock, fisheries and agro-forestry production, (iii) pest control, (iv) mechanization, (v) water resources and irrigation,(vi) rural infrastructure, (vii) agricultural extension and technology transfer, (viii) research and development (R&D), (ix) agricultural commodity storage, processing and marketing, (x) credit supply, (xi) insurance, (xii) agricultural cooperatives, (xiii) training and manpower development, and (xiv) agricultural statistics and information management.

The successful implementation of the agricultural policy is, however, contingent upon the existence of appropriate macroeconomic policies that provide the enabling environment for agriculture to grow in equilibrium with other sectors. They affect profitability of agricultural enterprises and the welfare of farmers through their effects on the flow of credit and investment funds, taxes, tariffs, subsidies, budgetary allocation, etc

2.2.7.2 The new policy direction

According to the document, the new agricultural policy will herald in a new policy direction via new policy strategies that will lay the foundation for sustained improvement in agricultural productivity and output. The new strategies involve:(i) Creating a more conducive macro-environment to stimulate greater private sector investment in agriculture;(ii) Rationalizing the roles of the tiers of government and the private sector in their promotional and supportive efforts to stimulate agricultural growth; (iii) Reorganizing the institutional framework for government Intervention in the agricultural sector to facilitate the smooth and integrated development of the sector; (iv) Articulating and implementing integrated rural development programs to raise the quality of life of the rural people; (v) Increasing budgetary allocation and other fiscal incentives to agriculture and promoting the necessary developmental, supportive and service-oriented activities to enhance agricultural productive production and market opportunities; and (vi). Rectifying import tariff anomalies in respect of agricultural products and promoting the increased use of agricultural machinery and inputs through favourable tariff policy.

2.2.7.3 Roles and responsibilities of stakeholders

The new agricultural policy has spelt out definitive roles and responsibilities for the federal, state and local governments as well as the private sector in order to remove role duplication and overlapping functions among them. According to the document, in order to reduce areas of overlap and duplication of efforts between the three tiers of government in the country, the responsibilities of the Federal, State and Local Governments are clearly indicated in this section. The revised roles and responsibilities are outlined as follows:

2.2.7.4 The federal Government

Under the new policy regime, the Federal Government shall be responsible for:

i) the provision of the general policy framework within which agriculture will develop and guidance to state and other public agencies on areas of emphasis for investment, particularly in strategic products;

ii) research into all facets of agriculture, including the provision of breeding stock and foundation seeds of improved varieties, brood stock and improved fast growing hybrid species as well as fish seed;

iii) the control of pests and diseases of national and international significance;

iv) the development of water resources, including the construction and maintenance;

v) of small, medium and large dams for irrigation aquaculture (fish farming), rural water supplies and other uses and the construction of boreholes; maintaining strategic grains and animal product reserves for purpose of food security;

vi) the establishment and maintenance of a national capability for animal and fish diseases control through a virile Federal Veterinary and Public Health Service;

vii) advise on agricultural produce tariff and pricing policy through representations in appropriate policy formulation committees

viii) the promotion of sale of exportable agricultural produce outside the country;

ix) the maintenance of a reasonable flow of resources into agriculture and rural development by way of matching grants, subventions and investments in Federal, joint Federal and State, State and other specialized projects and by creating conditions which facilitate resources flows from other sources.

x) the training of manpower for agricultural development;

xi) the establishment of an Agricultural Insurance Scheme;

xii) the promotion of appropriate technology in agricultural production, preservation, processing and storage through the development of prototypes and pilot projects as a follow-up to research inventions;

xiii) the coordination of the nation's forest development efforts including forest resources development and utilization afforestation, wildlife conservation and management;

xiv) the coordination of data collection; and

xv) the inventorisation of land resources through soil survey and soil fertility mapping and the control of land use and land degradation for effective soil conservation;

2.2.7.5 The State Governments

The state governments will be primarily responsible for the following activities;

i)The promotion of primary production of all items of agricultural produce (including crops, livestock and fisheries) through;

a. The maintenance of a virile and effective extension of service which can deal with problems of production, preservation, storage, processing and marketing; and

b. The promotion of the production of inputs for crops, livestock, fish and forestry using the combined activities of government and private agencies

ii) Ensuring access to land by those who wish to engage in farming;

iii) The training of manpower for agricultural development

iv) The control of plant and animal pests and diseases

v) The establishment of appropriate institutions for administering credit to small scale farmers, pastoralists, fishermen and fish farmers

vi) The maintenance of buffer stocks of agricultural produce for purposes of price stabilization

vii) Investments in rural development, including rural roads and water supply so that the standard of living of rural dwellers is improved;

viii) Ownership, management and control of forest estates held in trust for the local communities;

2.2.7.7 Local Governments

The Local Government authorities will be expected to take over progressively the responsibility of the State Government with respect to;

i) the provision of an effective agricultural extension service;

ii) the provision of rural infrastructure;

iii) the mobilization of farmers for accelerated agricultural and rural development through cooperative organisations and the communities;

iv) the provision of land for new entrants into farming in accordance with the provisions of the Land Use Decree; and

v) the coordination of data collection at the primary levels

2.2.7.8 The roles and responsibilities of the private sector

The philosophy of government is that agriculture is essentially a private-sector activity with the government playing largely support roles and providing facilitating services. In this regard, the private sector will be expected to spear-head the drive for the realization of the objectives of agricultural policies in Nigeria. In particular, the private-sector will be expected to play a leading role with respect to:

i) investment in all aspects of agricultural production; ii) agricultural produce storage, processing and marketing; iii) agricultural input supply and distribution; iv) agricultural mechanization v) provision of certain types of rural infrastructure; and vi) support for research in all aspects of agriculture (Federal Government of Nigeria, Agricultural Policy Document).

In her remark, Mohammed (2018) observed that:

> The approach of the above new policy to develop Nigeria agriculture would have been conceded adequate but is lacking fiscal powers which will impede the success anticipated, because the government has failed to maintain its investment in agriculture through public expenditure at the national level, state and especially the local government level that is conceded the closes to the farmers thereby making government policy measures and programmes with a view of increasing the contribution of agriculture to economic development unattainable (Mohammed, 2018, p.36).

It will not be out of place to say that public expenditure which is one of the instruments of fiscal policy can be growth enhancing if properly managed. The assertion has been validated by empirical studies and theories. The government at various levels have prominent role to play in promoting agricultural growth. Resources are usually allocated to them to perfom these functions in order to fight hunger and attain food surplus. More often than not, the policy and programmes are designed using top-down approach. In many of the programmes, development planners assumed both the problem and solutions and forced them on the target beneficiaries without need assessment of the people in the rural areas who are the target beneficiaries (FGN, Agricultural policy, n.d)

2.3 Review of Empirical and Related Literature

Yusuf and Mohammed (2017) assessed the effect of public expenditure on crop production in Yobe State using primary data obtained from the administration of questionnaire to registered farmers in the state. The study adopted survey research design and collected cross-sectional data. In order to achieve the objective of the study, the study used Chi- square to test the hypothesis and found out that public expenditure does not have effect on the output of crops and in line with the findings, the study recommended that a policy framework needs to be instituted in the diversification of public expenditure in form of capital expenditure for agricultural investment that will increase crop production. However, the study considered only one side of the government expenditure that is capital expenditure (public investment). It did not consider public consumption (recurrent expenditure). The main weakness of the study was the omission of one of the dimensions of public expenditure from the independent variable.

Rufus and Oyewole (2018) empirically evaluated the nexus between public spending on agriculture and Nigerian output growth. The study employed secondary data for time series analysis which spanned from 1981 to 2016. The relationship between growth rate of real GDP and public spending on agriculture was examined using Ordinary Least Square method of analysis. The findings show that agricultural sector output has positively impact on the economic growth in Nigeria over the period under study. Based on the findings, the study recommended among others that government should provide funds to acquire sophisticated farm tools with increase in her budgetary allocation to agricultural sector in a consistent manner with a view to contributing more to the economic growth of Nigeria. The main weakness of the study was failure to test for long-run relationship between the variables using Johansen co-integration analysis.

Chidinma and Kemisola (2012) examined the impact of government expenditure on agriculture on economic growth in Nigeria using time series data of 33 years sourced from the Central Bank of Nigeria. The study used Ordinary Least Square (OLS) technique of data analysis to achieve the objective of the study. The study revealed that significant relationship exists between government expenditure in the agricultural sector and the economic growth in Nigeria. The study recommended that it is imperative for the country to develop its agricultural sector through sufficient government spending in order to set-up its economic growth. However, the main weakness of the study was failure to test for long-run relationship between the variables using Johansen co-integration analysis.

Uremadu *et al.,* (2018) examined effect of government agricultural expenditure on agricultural output in Nigeria using time series data from Central Bank of Nigeria from 1981 to 2014. Having run the unit root test, co-integration test and vector error correction model, findings revealed that total government agricultural expenditure (TGEX) had a positive and significant effect on agricultural output (AGO) in Nigeria during the period studied. recommended that government should not only adequately fund agriculture via maintaining a healthy population but to also encourage a mechanized agricultural system by use of modern technology and inputs to boost yields in local rice production and other farm produce so as to reduce the rate of rice importation in the country. The major weakness of the work was that the independent variable was not disintegrated; the study used total government expenditure as the independent variable.

Idoko and Jatto (2018) examined the impact of government expenditure on agriculture and economic growth in Nigeria. The study made use of secondary data collected from Central Bank of Nigeria using time series data from 1985-2015. In line with the objectives of the study, the test of the hypotheses was done using multiple regression analysis and Johansen co-integration test. The multiple regression results of the study revealed that there exists a positive and significant relationship between government expenditure on agriculture and economic growth in Nigeria. The Johansen co-integration test result shows that the trace test statistics and max-eigen value test indicates five co-integrating equations respectively at 5% level, on the conclusion there exists a long-run relationship among the variables. Based on the result of the findings, recommendations such as government should formulate policies aiming at promoting government expenditure and domestic savings across the country to promote economic growth among others were made. Though, the weakness of this study is the use of OLS estimation technique even when the ADF test shows that all the variables are stationary at 1st difference.

Esan (2016) in his study, the contributions of agriculture to economic development in Soba Local Government Area of Kaduna State with the objective of finding out the contribution of agriculture to economic development adopted survey research design and obtained data from primary sources using the instruments of questionnaire backed by interview This study focuses on the relationship between agriculture and economic development and how agriculture has contributed to economic development of Soba Local Government Area. In order to achieve this, the study adopted survey research method where data were obtained from primary sources using the instruments of questionnaire backed by interviews. The hypotheses of the study were tested using Chi-square. The study found among other things that agriculture has contributed immensely to economic development as it has been the main source of employment to many and that increasing agricultural productivity among farmers has enhanced opportunities for more income generation. The study recommended that mechanization of agriculture that will help improve the sector in rural areas and involve the use of modern machines and technologies such ploughs, tractors, harvesters, among others will make the sector productive and economic development-driven but government must intervene as rural farmers cannot afford these machines. This study was carried out in just one local government out of 23 Local Government Areas in Kaduna State. Study of this nature should use secondary data to cover for the whole state to enhance maximum utility.

Muhammed (2015) assessed the impact of Kogi State survival farming intervention programme on cassava production in three local government areas of Kogi State. A multi-stage sampling technique was used to select respondents for the study. To determine factors influencing participation of respondents, logit regression was used as method of data analysis and to evaluate the intervention programme, chow-test statistical tools was adopted. The findings revealed that there is significant impact of Survival Farming Intervention Programme on cassava production output, yield, income and level of living of the participants in the study area. The study recommended that the programme scaled-up and replicated in other LGAs and States in the country including FCT, Abuja. The weakness of this study is the used of cassava yield only to determine the success of an intervention programme, covering other yields of crop production would have been more appropriate for this kind of research.

Tobechi (2018) examined the effect of agricultural output on economic growth of Nigeria with the objectives of examining the effect of crop production, livestock, fishery and forestry on economic growth in Nigeria. Secondary data on GDP, crop production, livestock, fishery and forestry were obtained from the CBN statistical bulletin covering 1981-2016. The econometrics methods of Ordinary Least Square, Co-integration, Error Correction Model were used for the analysis of time series data. The coefficient of crop production is positively signed and statistically significant at 5 percent level with GDP. Based on these results, the study recommended that Nigerian government should put good structures in place that allows better and higher agricultural output in the country. The weakness of the work is the use of only one dimensions of public expenditure (recurrent expenditure).

Oyakhilomen and Zibah (2014) in their empirical investigation of the relationship between agricultural production and the growth of Nigerian economy with focus on poverty reduction. Time series data were employed in this research and the analyses of the data were done using unit root tests and the bounds (ARDL) testing approach to co-integration. The result of the data analysis indicated that agricultural production was significant in influencing the favourable trend of economic growth in Nigeria. The study recommended that pro poor policies should be designed for alleviating rural poverty through increased investments in agricultural development by the public and private sector. The weakness of this work is the failure to disaggregate the components of agriculture in order to know the components that contribute more on the economic growth to enhance policy input.

Brown and Ajayi (2015) in their study examined the effects of government spending on the agricultural sector in Nigeria. The objectives were to: ascertain the effects of government expenditure (GEA), deposit money banks loan (DBA) and gross capital formation (GCF) on agricultural production output in Nigeria. The quasi-experimental research design was employed. The study employed time series data in its analysis. Data adopted in the study were generated from the Central Bank of Nigeria annual statistical bulletin 2013 and National Bureau of Statistics bulletin 2013. The ordinary least square of multiple regression, the Johanson Co-integration techniques, and the error correction model were used for the analysis. The study revealed that total government expenditure have positive and significant impact on agricultural output in Nigeria during the period of study. Based on the above findings, the study recommended for an increase funding of the agricultural sector in Nigeria. However, the study fails to disaggregate the components of public expenditure.

Mgbanya, Onwumere, Eze, Nwokenekwu & Igwe (2018) assessed the impact of the national recurrent expenditure on Nigeria's agricultural growth from 1990 to 2017.The study adopted ex-post-factor research design. Time series data were obtained from the Central Bank of Nigeria publications, journals, bulletins and proceedings were used for the study. The Wald test result showed that the F-statistics (23.126) was greater than the F-tabulated (4.32) at p-value $< 5\%$, this implies that the recurrent expenditure on agriculture has a significant impact on the agricultural share of GDP from 1990 to 2017. Therefore, the study recommended that greater percentage of the recurrent expenditure should be allocated to agriculture so as to accelerate agricultural development in Nigeria. However, this study overlooked capital expenditure on agricultural growth and also relied on only secondary data for data collection.

Desmond, Titus, Timothy and Odiche (2012) also examined the effect of public expenditure on economic in Nigeria for the period 1970 – 2009. The tool of analysis was the OLS multiple regression model specified on perceived causal relationship between government expenditure and economic growth. Results of the analysis showed that capital and recurrent expenditure on economic services had insignificant negative effect on economic growth during the study period. The weakness of the study is the use of only secondary data for analysis.

Mohammed (2018) assessed the impact of government capital expenditure on the agricultural development of Yobe State using data from both secondary source and primary source. The primary source was collected from the administration of questionnaire to registered farmers in the state from selected local government area while the secondary data were collected from Yobe State Ministry of Budget and Economic Planning and Agricultural Development Programme for the period 1992 to 2016. Data collected through primary sources were analysed to determine the relationship between the provision of agro-equipment and provision of other farm input through government capital expenditure on crop production for Agricultural development in Yobe State. Chi-square method of data analysis was used and the findings revealed that there is no relationship between the provisions of farm inputs (fertilizer) and agro-equipment on crop production for agricultural development. Data from secondary data were tested using Co-integration test and VAR model and found out that there is positive but insignificant relationship between government capital expenditure and agricultural development in Yobe State during the period under study. The study recommended that agricultural financial policies that are targeted at providing assistance to crop producers with the help of various agricultural resources such as agro-equipment should be promoted. The weakness of the study is the use of two different populations in one study. While the secondary data covers for the whole state, the primary covers only three local governments out of seventeen and also the study only take one of the dimensions of public expenditure which is capital expenditure.

2.3.1 Summary of Gap Identified in Empirical Review

The empirical review revealed that there are divergent findings, where some studies found that government expenditure has negative and insignificant effect on agricultural growth (Desmond *et al.*, 2012). Other studies revealed positive but insignificant relationship between the explanatory variable and dependent variable (Desmond *et al*., 2012; Mohammed, 2018; Yusuf & Mohammed, 2017).

Lastly, some studies found positive and significant relationship between the variables (Brown and Ajayi, 2015; Chidinma & Kemisola, 2012; Esan, 2015; Idoko & Jatto, 2018; Ifarajimi & Ola, 2017; Mohammed, 2015; Oyakhilomen & Zibah, 2014; Rufus & Oyewole, 2018; Tobechi, 2018; Uremadu *et al.,* 2018).

The reason for these diverse findings are not unconnected to the difference in methodology employed by the researchers, variables covered under study, time period covered. Therefore, this study is an improvement on the previous studies on agricultural growth and government expenditure in Nigeria having identified the gap in the existing literature.

This study covered government spending on agricultural growth (crop production) in Kogi State (this was recommended by Mohammed 2018 as area for further study in her work as she recommended that similar study should be carried out in a different state as hers was in Yobe State). Secondly, it intends to take the two dimensions of public expenditure as some of the studies only capture one of the dimensions of the independent variable (capital or recurrent).

The study also intends to use the time series data to test for the stationarity of the data using Augmented Dickey Fuller (ADF) test to determine the suitability for time series analysis (this was recommended by Jumare et al. 2017 as area for further study in their work).

The study also intends to employ Johansen Co-integration test to check for long run relationship between the variables under study using econometric techniques. This is because some studies reviewed fail to check for long run relationship even when the stationary test showed that all the variables are co-integrated at 1st difference.

Some of the studies reviewed assessed total public expenditure on GDP or agricultural growth; some only assessed the capital expenditure and some of the study concentrate only on recurrent expenditure, this study will disintegrate the two dimensions of public expenditure (recurrent and capital) and assess their impact on crop production in Kogi State. The study will use time series data from ministry of budget and economic planning Kogi State and Kogi State Agricultural Development Project (KOSADP). All the weaknesses identified in the empirical review will be improved on in order to add value to the existing body of knowledge and contribute to knowledge.

However, none of these studies employed Granger Causality to analyze the relationship between government expenditure and agricultural output that is if government expenditure granger causes agricultural output or agric output granger cause government expenditure. This study is an improvement on other studies on the relationship between government expenditure on agriculture and its contribution to economic growth.

2.4 Review of Related Theory of Agriculture and Public Expenditure

2.4.1 The modernization theory of agriculture growth

The theory looks at the internal factors of a country while assuming that with assistance, "traditional" countries can be brought to development in the same manner more developed countries have been. The theory of modernization states that all human societies are undergoing a parallel series of transformation from pre-industrial to industrial societies. The concept of modernization denotes a total transformation of a traditional or pre-modern society into the types of technology and associated social organization that characterizes the advanced, economically prosperous, and relatively politically stable nations of the western world (Moore 1963 as cited in Mohammed 2018). Such a view is predicated on the assumption that one can describe the general features of both traditional and advanced or modern societies and thus treat development as the transformation of the one type into the other. According to Long (1977) in Mohammed (2018), he explained that economic development takes place through;

(i) The modernization of technology, leading to a change from simple traditionalized techniques to the application of scientific knowledge;

(ii) The move from subsistence to commercial farming, leading to a wage labour;

(iii) The industrialization process, which depicts the transition from the use of human and animal power to machine power and

(iv) Urbanization, which consists of changes in the ecological dimension and is the movement from farm and village towards the growth of large urban centres.

Though, in African continent this process of modernization has been adjudged to be very slow. Todaro and Smith (2015) observed that the ability of a country to exploit its natural resources and to initiate and sustain long-term economic growth is dependent on, among other things, the ingenuity and the managerial and technical skills of its people and its access to critical market and product information at minimal cost. This means that the modernization process dependes on the technical and the managerial skills of the citizens.

2.4.2 Wagner law of increasing state activities

The German economist Adolf Wagner (1835-1917) advanced a law of rising public expenditure by analyzing trends in the growth of public expenditure and in the size of public sector in many countries of the world. This theory, popularly known as Wagner's law, states that as per capita income grows, the relative size of the public sector will grow also. Abubakar (2000) stated that Wagner gave three reasons to support his thesis and he summarized the reasons as thus: The first is that an expansion (of State activity) would emerge with respect to the administrative and protective function; secondly, Wagner explicitly predicted a considerable expansion of "cultural and welfare expenditures" especially with respect to education and the redistribution of income; Thirdly, Wagner believed that the inevitable changes in technology and the increase scale of investment in many of the activities that are bound to be, or the monopolies taken over by the State in the interest of economic efficiency. This is because the state would need to expand administration and law and order services; increased concern for distributional issues; and a greater need to control private monopolies and other forms of market failures. According to Wagner, there are inherent tendencies for the activities of different layers of a government (such as central, state and local governments) to increase both intensively and extensively. There is a functional relationship between the growth of an economy (agricultural sector) and government activities (expenditure) with the result that the governmental sector grows faster than the economy (Bhatia, 2012). Bird (1971) noted that:

> As per capita income rises in industrializing nations, their public sectors will grow in relative importance. Thus, the causality according to Wagner's Law runs from economic growth to government spending. On the other hand, Keynesian hypothesis supports causality running in the opposite direction from government spending to economic growth, which is in contrast with Wagner's law (as cited in (Salwindi, & Seshamani, 2016, p. 809).

Wagner's hypothesis emphasizes that, in the process of economic development, government economic activity increases relative to private economic, activity. This is because government has to perform more functions to cater for the demand of the citizens in area of security, improvement in infrastructural facilities in areas such as agriculture, health and education.

2.4.3 Peacock and Wiseman's theory of expenditure

The second thesis dealing with the growth of public expenditure was put forth by Wiseman and Peacock in their study of public expenditure in United Kingdom for the period 1890-1955. The main thesis of the authors is that public expenditure does not increase in a smooth and continuous manner, but in jerks or step like fashion. At times, some social or other disturbance takes place creating a need for increased public expenditure which the existing public revenue cannot meet. To corroborate the assertion, Gupta (1967) stated that "although British government expenditure declines after the wars, it does not return to pre-war level and the share of government expenditure in national products remains much greater after the wars than it was immediately before then" (as cited in Abubakar, 2000, p. 40). The public expenditure increases and makes the inadequacy of the present revenue quite clear to everyone. The movement from the older level of expenditure and taxation to a new and higher level is the displacement effect. The inadequacy of the revenue as compared with the required public expenditure creates an inspection effect. The government and the people review the revenue position and the need to find a solution of the important problems that have come up and agree to the required adjustments to finance the increased expenditure. They attain a new level of tax tolerance. They are now ready to tolerate a greater burden of taxation and as a result the general level of expenditure and revenue goes up. In this way, the public expenditure and revenue get stabilized at a new level till another disturbance occurs to cause a displacement effect. Thus each major disturbance leads to the government assuming a larger proportion of the total national activity. In other words, there is a concentration effect. The concentration effect also refers to the apparent tendency for government economic activity to grow faster (Bhatia, 2012, p. 200). Maingi (2017) also noted that "during period of social upheaval such as war, famine or some large scale social disaster, the gradual upward trend in government expenditure would be distorted" (p. 642).

2.4.5 Musgrave theory of public expenditure growth

This theory was propounded by Musgrave and Musgrave. They posit that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs and that when per capita income starts to rise above these levels of low income, the demand for services supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. They observe that at the high levels of per capita income, typical of developed economics, the rate of public sector growth tends to fall as the more basic wants are being satisfied. The rise in per capita income, seen in the historical context, records the development of the economy from an agricultural and low-income state to an industrial and high-income state. It would be surprising if in the course of this development, the output of social goods (assuming it to be determined efficiently) should remain constant. This shows that the factor responsible for the growth of public expenditure deals with increase in the per capita income of individuals (Musgrave & Musgrave, 1989).

This theory is relevant to the present study because it is a theory of public expenditure and explain the factors responsible for the growth of public expenditure. In the earlier stages of agricultural development, a particular need exists for the development of agricultural sector such as provision of fertilizer, irrigation facilities, transportation, storage facilities, and pesticides through government expenditure. This leads to increase in the per capita income of the people, increase in the demand for public goods (education, health and security) and these put pressure on government thereby increasing public expenditure.

2.5 Theoretical Framework

2.5.1 The Keynesian theory of government expenditure

This was first presented by Keynes in his book, “The General Theory of Employment, Interest and Money”, published in 1936. The Keynes theory states that expansion of government expenditure accelerates economic growth and development. In acknowledging the relationship, Thompson and Rita (2016) stated that:

> Of all economists who discussed the relation between public expenditures and economic growth, Keynes was among the most noted with his apparently contrasting viewpoint on this relation. Keynes regards public expenditures as an exogenous factor which can be utilized as a policy instrument to promote economic growth. From the Keynesian thought, public expenditure contributes positively to economic growth. Hence, an increase in government consumption is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government expenditure augments the aggregate demand, which provokes an increased output depending on expenditure multipliers (Thompson & Rita, 2016, p. 97).

Keynes assumes the aggregate supply function to be stable, he concentrates his entire attention upon the aggregate demand function to fight economic depression (low agricultural output). Keynes submitted that the lingering economic depression (low agricultural output) was a result of failure on the part of the government to control the economy through appropriate economic policies (Kogi state government spending). Keynesian holds that public expenditure could be manipulated to affect the level of national income an increase in public expenditure leading to an increase in national output (Emerenini and Ihugba, 2014; Ifarajimi and Ola, 2017; Patricia and Izuchukwu, 2013; Udoka and Anyingang, 2015).

Consequently, Keynes proposed the concept of government intervention (Public expenditure). Keynes economics, when the economy is knocked off balance by serious economic shocks, the government can help restore normalcy by increasing demand through government spending.

2.5.2 Application of Keynesian theory of government expenditure to the study

In Kogi State, this theory holds that increase in state government expenditure leads to increase in economic activities and higher agricultural output. The Keynesian theory asserts that government expenditure especially deficit financing could provide short-term stimulus to help halt a recession or depression. (Okoro, 2013) noted that economic theory has shown how government spending may either be beneficial or detrimental to economic growth. In traditional Keynesian macroeconomics, many kinds of public expenditures, can contribute positively to economic growth through multiplier effects on aggregate demand.

For the sake of simplicity, this analysis holds that public spending measures have a direct impact on aggregate demand, which will stimulate the economy and by extension this model can be applied to the agricultural sector to stimulate agricultural output in Kogi State.

The traditional economist like Smith propounded that market force can regulate itself freely without any control mechanism from government. He stated that market can operate to achieve desirable objectives in the economy like full employment, optimum allocation of resources, economic growth and so on. The laissez-faire they so much preach is absence of interference by government. This school opined that the government should perform functions of protecting life and property, establishing justice system and providing conducive environment for private enterprises. Hence, government should spend little as they cannot be seen as the best users of common wealth. This notion was supported by (McGee and Yoon, 2008) when they stated that:

> There are ample real world examples to prove this point. The collapse of the Soviet Union in the late 1980s is partly attributable to the massive misallocation of resources that necessarily results when there is no price system to make allocations efficient. Ludwig von Mises (1881–1973), an Austrian economist, predicted as far back as the 1920s that the Soviet Union would collapse because of this inefficiency (McGee and Yoon, 2008, p.41).

This is not to say that government role in an economy should be ruled out. Keynes (1936) noted that classical theory of economics has not provided so much in finding logical flaws in its analysis as in pointing out that its tacit assumptions are seldom or never satisfied. In fact, it cannot solve the economic problems of the actual world. The claim that an economy can regulate itself by the so called invisible hands was threatened by the economic depression of

1930s. If it can regulate itself, how then do we explain terrible recessions such as the Great Depression of 1930, where unemployment figures were seen as high as 25%. Shouldn't the system has corrected itself before such dire circumstances? Economists reply simply: workers are unwilling to accept lower wages during this period and would rather quit thus jeopardizing fragile, classical theory of economics (Guess cited in Keynes, 1936). On January 20, 2009, Obama led administration in USA faced an economic crisis that was the worst that the United States had seen in at least a quarter century. The unemployment figure, which had been at 4.8% less than one year earlier, had risen to 7.6%—over 3.6 million jobs were estimated to have been been lost since the start of the recession in December 2007 (Gruber, 2011, p.1). The great depression of 1930s was resolved through government intervention through increase in expenditure, deficit financing etc. This explain Kogi State government expenditure on agricultural sector better because state government plays a dominant role in the agricultural output of the state in area of crop production and this explain why this study is anchored on this theory .

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the whole procedures undertook in the current study. The chapter looked at the variables evaluated, the process of evaluation, and the tools or models used for analysis. The chapter covers the research design, population and sample of study, validity of instrument, the source of study data, the model specification, data analysis and techniques.

3.2 Research Design

This study employed concurrent embedded design. Therefore, the study adopted mixed method approach (Creswell, 2009). This approach was used because both quantitative and qualitative data were used in data collection and analysis. This design is chosen over other designs in mixed method approach because a concurrent embedded design has main method (quantitative) that guides the project and a second method (qualitative) that provides a supporting role in the procedures. Therefore, priority was given to the quantitative method while the supporting method which is qualitative was embedded or nested within the predominant method (quantitative).

3.3 Population of the Study

The population of the study consists of the population of staff of the Ministry of Agriculture, the population of the staff of Kogi State Agricultural Development Programme (KOSADP) and lastly the population of registered farmers in Kogi State. Therefore, the above served as the population since the sample was drawn from these categories of people for the qualitative data (interview).

3.4 Sample Size and Sampling Technique

The sample size for the qualitative data was eleven (11). This is because the researcher interviewed eleven (11) respondents and since no new information was gotten after interviewing these eleven (11) respondents, the researcher has to stop.

Two (2) respondents from Kogi State Agricultural Development Progamme (KOSADP), one respondent (1) from Ministry of Budget and Planning and eight (8) from registered farmers association.

However, purposive sampling technique was adopted for this study. This is because the study targeted 'information-rich' respondents who will provide the needed information. Meanwhile, in quantitative research, this is considered a biased sample. The primary consideration in purposive sampling is the researcher's judgment as to who can provide the best information to achieve the objectives of your study. It is on this justification that the study used purposive sampling technique.

3.5 Sources of Data Collection

The researcher used two sources of data collection - primary and secondary sources. The first set of data for crop production (CP) used as a proxy for agricultural growth measured in metric tonne were collected from Kogi State Agricultural Development Programme (KOSADP) and Government Capital Expenditure (GCE) measure in million naira and Government Recurrent Expenditure (GRE) also measure in million naira and Total Government Expenditure (TGE) were obtained from Kogi State Ministry of Budget and Planning. In addition, primary data were sourced using the instrument of interview in generating the data.

3.6 Method of Data Collection

The secondary data was collected from the annual existing report from ministry of budget and planning and KOSADP crop survey report. A structured interview was used and administered to the interviewees by the researcher through face to face interview contact. The interview schedule was adapted from Mohammed (2018) and Babatunde (2018). The sampled respondents provided their perception on government support through public expenditure in form of procurement of fertilizer, seedlings, reagents, agrochemicals, agro-equipments and maintenance of existing agricultural infrastructure for the development of agriculture in Kogi State (See Appendix I & II).

3.7 Validity of the Instrument

In order to ensure that the instrument measures what it intended to measure, the instrument was subjected to content validity. It is equally important that the items and questions cover the full range of the issue or attitude being measured. Assessment of the items of an instrument in this respect is called content validity. In order to ensure content validity of the instrument, the interview schedule was given to experts to validate the content of the instruments to ensure that the instrument measures what it suppose to measure.

3.8 Variables and their Measurement

The variables of the study consist of the dependent and independent variables. The selection of variables and measurement was based on the existing theoretical literature and empirical evidence from prior studies such as the works of: Mbanya et al., (2018); Modebe et al., (2012); Yusuf and Mohammed (2017); Keynes (1936); Jumare and Yero (2017); Oguso (2017); Mohammed (2018); Ihugba, Chinedu and Njoku (2013); Idoko and Jatto, (2018); Ifarajimi and Ola (2017); and Oyakhilomen & Zibah (2014).

Table 3.1 Variables Measurement

S/N	Variable	Description	Type	Works adapted from:	Apriori Expectation
1.	CP	Crop production	Dependent	Mohammed (2018)	1
2.	CE	Capital Expenditure	Independent	(Idoko & Jatto, 2018; Babatunde, 2018)	+
3.	RE	Recurrent Expenditure	Independent	Mbanya et al., 2018; Tobechi, 2018	+
4.	TGE	Total Government Expenditure	Independent	(Uremadu et al., 2018; Rufus & Oyewole 2018)	+

Source: Generated by the Researcher Based on previous study (2019)

3.9 Models Specification of the Variables

In order to examine the impact of government capital and recurrent expenditure on agricultural growth in Kogi State, the following regression model can be specified:

$CP_t = \beta_0 + \beta_1 CE_t + \beta_2 RE_t + u_t$ ....(1)

Where CP is crop production measure in metric tonne used as a proxy for agricultural growth, CE is government capital expenditure measured in million naira and RE is government recurrent expenditure also measured in million. Subscript t is used to represent the time series dimension. Meanwhile, the linear relationship between the variables can be shown thus:

$$CP = f(CE\ and\ RE) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.2$$

The model used to test the hypothesis formulated for this study is presented below

$$LNCP_t = \beta_0 + \beta_1 LNCE_t + \beta_2 LNRE_t + u_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..3$$

CP = Crop production

CE= Capital expenditure

RE= Recurrent expenditure

β_O= Constant

β_1-β_2= coefficients

μ= error term (signifying other variables not captured in the model)

t = Time dimension.

LN= Natural Logarithm

In order to examine the causal relationship between total government expenditure and crop production, the study intends to employ Granger-causality test as follows to achieve the third objective of the current study:

$TGE_t = \sum_{j=1}^{p} A11j\, TGE1(t-j)_{t-j} + \sum_{j=1}^{p} A12_j\, CP2(t-j) + u_{1t}$...................4

$CP2_t = \sum_{j=1}^{p} A21jCP1(t-j) + \sum_{j=1}^{p} A22j\, TGE2(t-j) + u_{2t}$……………..5

Where :

TGE= Total Government Expenditure

CP= Crop production

P= maximum number of lagged

A1 and A2 = parameters

u_1 and u_2 = Residuals

Note: All variables are in their natural logarithm form

3.10 Analytical Techniques

Descriptive statistics was adopted to examine the general characteristics of the variables used in the study before further in-depth analysis. The study then employed econometrics approaches to analyse the data and to determine the existence and the degree of relationship and impact arising from the public expenditure to agricultural growth and also evaluated the causality between total government expenditure and agricultural growth. Regression analysis using VAR Model estimation technique was adopted. EViews 10 package was used as the analytical soft ware.

3.10.1. Unit root test

All variables are expected to be integrated of the same order i.e. I (0) at level and I (1) at first difference. The determination of the stationarity of each series is a necessary condition for co-integration test, and indeed for the estimation of the VAR model, simply because each series involved in the estimation of a model must be integration of the same order (Engle and Granger 1987). The stationarity or unit root test for this study was conducted using Augmented-Dickey Fuller (ADF) test. Gujarati (2004) noted that empirical work based on time series data assumes that the underlying time series is stationary. He further stated that time series is stationary if its mean and variance do not vary systematically over time.

The model to check the unit root is given as:

$$\Delta \boldsymbol{yt} = \mathbf{a_0} + \mathbf{a_1}t + \emptyset y_{t-1} + \sum_{t=1}^{p} \beta_I \Delta y_{t-I} + \mu_t \text{.................................. (6)}$$

Where Δ is first difference operator, α_0 is intercept or constant, α_1 is a trend term, ρ is a lag order of the autoregressive process, and μ_t is the error term.

3.10.2. Co-Integration test

Once the variables have been established to be integrated of the same order, then the Johansen and Juselius (1990) maximum likelihood method of co-integration that shows existence of long run association-ship among the variables and the number of Co-integrating vectors can be applied. Johansen co-integration test procedure consists of estimating a vector autoregressive (VAR) models which includes difference as well as the specifics of the non-stationary variables (Johansen & Julius, 1990). The equation for Johansen co-integration test is given by:

$$\text{Log}(yt) = \mu + \alpha 1 \text{Log}(yt-1) + \text{----------------} + \alpha pyt-p + \mu_t \text{ ……………..(7)}$$

Where yt is nx1 vector of variables that are integrated of the same order I(1), μ is nx1 vector of innovation. It can also be written as:

$$\Delta Log(yt) = \mu + \alpha 1 Log(yt-1) + \beta i\ p-1\ i=1\ \Delta Log(yt-i) + \mu t \text{ ....(8)}$$

Where Δyt and Δyt-1 are I(1) variables. Therefore, the long –run equilibrium relationship among the variables is determine by the rank of α1, often denoted by r under the null hypothesis that there are at most r Cointegration vectors against the alternative that the number of vectors is less than or equal to r. The test of the null hypothesis of co-integrating vector will be conducted on the basis of the trace and maximum eigen value statistics as specify as:

$$\lambda trace = -\left(\frac{T}{2}\right)\sum_{t=r-1}^{n} Log(1-\lambda_i),\ \ \lambda max\ eig = -TLog\ (1-\lambda\ r+1) \text{ ....(9)}$$

3.10.3 Vector Autoregressive (VAR) model estimation

A Vector Autoregressive (VAR) model was estimated upon the discovery of no long run co-integration among the variables. Engle and Granger (1987) argues that if cointegration does not exist among variables in the long run, then there is need to test for short run relationship. VAR model is a theoretically-driven approach useful for estimating short-term relationship of one-time series on another. Thus, VARs directly estimate the speed at which a dependent variable returns to equilibrium after a change in other variables. The study investigated the short run relationship between state government expenditure and agricultural growth in Kogi state. The VAR Model representation for the study models therefore assumes the following form:

$$y_t = \beta_{yo} + \beta_{yy1} y_{t-1} + \cdots + \beta_{yyp} y_{t-p} + \beta_{yx1} x_{t-1} + \cdots + \beta_{yxp} y_{t-p} + \beta_{yz1} y_{t-1} + \cdots + \beta_{yzp} y_{t-p} + \varepsilon_t{}^y$$
$$x_t = \beta_{xo} + \beta_{xy1} y_{t-1} + \cdots + \beta_{xyp} y_{t-p} + \beta_{xx1} x_{t-1} + \cdots + \beta_{xxp} y_{t-p} + \beta_{xz1} y_{t-1} + \cdots + \beta_{xzp} y_{t-p} + \varepsilon_t{}^x$$
$$z_t = \beta_{zo} + \beta_{zy1} y_{t-1} + \cdots + \beta_{zyp} y_{t-p} + \beta_{zx1} x_{t-1} + \cdots + \beta_{zxp} y_{t-p} + \beta_{zz1} y_{t-1} + \cdots + \beta_{zzp} y_{t-p} + \varepsilon_t{}^z \text{....(10)}$$

$\boldsymbol{\beta}_{xyp}$ represent the coefficient of *y* in the equation for *x* at lag *p*. and $\boldsymbol{\beta}_{zxp}$for *z* involving p lagged value of *z* and $\boldsymbol{\beta}_{pzx}$. $\boldsymbol{\varepsilon}_{t^y}$, $\boldsymbol{\varepsilon}_{t^x}and\boldsymbol{\varepsilon}_{t^z}$are the error terms respectively that are not related to the past values of the variables. Y is capital expenditure, x is recurrent and z is crop production.

3.10.4. Residual diagnostic test

Finally, to ensure the fitness of the model, the diagnostic and stability tests are also conducted; the diagnostic tests examine the serial correlation, normality, and heteroscedasticity associated with the selected model.

- Serial correlation: to check whether the residual from different time periods are correlated
- Normality: to check whether the residual is normally distributed,
- Heteroskedasticity: to check whether the variance of the residuals is constant

CHAPTER FOUR

AN OVERVIEW OF AGRICULTURAL DEVELOPMENT AND ITS EXPENDITURE PATTERN IN KOGI STATE

4.1 Introduction

This chapter provides an overview of agricultural development and its expenditure pattern in Kogi State. This is necessary in order to put the discussions, analysis and conclusion of this study in the proper perspective.

4.2 Brief History of Agricultural Development in Nigeria

The agricultural sector in Nigeria before the colonial era was predominantly peasant. Communities produce variety of commodities mostly to satisfy their needs with little surpluses for exchange. Trading among the various communities was broadly based on barter and agriculture than involved the production of crop for subsistence. The coming of the colonialist introduced a money economy among the peasant farmers to produce more crops for sale and eventually export to Western Europe. The various Nigerian communities produced a diversity of crops and this was a reflection of their diverse physical environment (Anyanwu, et al, in Mohammed, 2018). Until the early 1970s, agriculture dominated Nigeria's economy accounting for about 57% of the country gross domestic product (GDP) but since the emergence of oil as an important commodity, political decision taken since independence have relegated agriculture to a secondary economic position, as a result agriculture has suffered increasingly and has occupied a back seat in economic terms (Anyanwu in Mohammed, 2018).

As oil exploration and production in Nigeria's southern Niger Delta region accelerated in the mid 1960s, however, successive governments turned away from the long-term potential of the agricultural sector, lured by the instant rewards and opportunities for rent seeking 70 offered by crude oil production. The resulting lack of political will had a doubly negative effect on the agricultural sector, as it redirected policy attention and public investment to the energy sector and likewise discouraged greater private-sector engagement. Today, Nigeria faces an impending food security crisis as its rapidly growing population becomes increasingly dependent on imported foods. This situation has been compounded by the Boko Haram insurgency in the North East, which has stifled domestic production, displaced farmers and their families, and blocked access to regional markets (Mohammed, 2018). Nigeria's imports of everyday goods, which could otherwise be locally produced such as rice, sugar, and oil totalled some $11 billion in 2013. Although net importation of food is not in itself a bad thing, it is an unfortunate position for a nation with such vast agricultural potential and where 70 percent of the labour force is still engaged in the agricultural sector. Food imports also drain foreign currency reserves at a time when falling oil prices have put the Nigerian economy on the brink of recession (Jonathan & Jennifer as cited in Mohammed, 2018).

4.3 Brief History of Agricultural Development in Kogi State

Kogi State is located in the North Central also known as Middle belt of Nigeria with a population of 4,473,500. It covers 29,833km^2 and density of 149.9/km^2 (National Population Commission, 2016). The state came into being on the 27 August 1991; It was carved out of the old Kwara and Benue States by the Babangida administration and it currently has 21 Local Government Areas. The state is mainly an agricultural state; it has rich fishing grounds and mineral deposits such as limestone, iron ore, marble and Gemstone. The state's agricultural products include: Cassava, Rice, Cashew, Coffee, Cocoa, Palm Oil, Groundnuts, Maize, Yam and Melon. The state is also said to have one of the largest market in West Africa located in its Capital known as Kogi State International Market. The capital of Kogi State is Lokoja. Kogi is bordered by the states of

Nassarawa to the Northeast; Benue to the East; Enugu, Anambra and Delta to the South; Ondo, Ekiti and Kwara to the West and Niger to the North (KOSADP report, 2016)

4.4 Kogi State Ministry of Agriculture

The ministry was created on the 27 August 1991, following the creation of the state. The ministry of agriculture has the following departments: Administration and Finance, Planning, Research and Statistics, Agric Services, Agric Engineering, Veterinary and Livestock and fishery department

Also there are parastatals under the ministry such as Kogi State Agricultural Development Project (KOSADP), Kogi Agro-allied Company and Kogi Land Development Board (Ministry of Agriculture Kogi State, 2019).

4.5 Functions of Departments under the Ministry of Agriculture

According to the handover note of the ministry of agriculture, the ministry has the following department and parastatals:

i. Agric Service Department: the role of this unit is the development of tree crop and vegetable, procurement of seeds and seedlings to be distributed to farmer, maintenance of farm centers, soil conservation, weather reports, and youth empowerment farm project.

ii. Veterinary and Livestock Department: this unit deals with iving medical care and treatment of animals and also inspection of livestock to ensure they are in good condition at all time. The unit also controls pest and disease both in the field and during storage.

iii. Agricultural Engineering Department: this department is charge with the responsibility of handling all Engineering Services of the Ministry, which includes maintenance of workshop, vehicles, repairs of broken vehicles and animal traction.

iv. Planning Research and Statistics: this department is responsible for planning, execution and coordinating of all project of the Ministry. This department is also in charge of budget of the ministry as well as other parastatals under the ministry. The department keeps record of the ministry especially financial disbursement.

v. Administration and Finance Department: the directorate is responsible for all staff matters ranging from recruitment, welfare, discipline. The directorate is also responsible for promotion of staff through two committees, the senior staff advisory and disciplinary committee and the junior staff advisory and disciplinary committee. The finance department is one of the services department in the Ministry that takes care of staff salaries and emoluments as well as other benefits.

vi. Parastatals: the Ministry has three parastatals and operates as autonomous organization. They are:

a) Kogi State Agricultural Development Project (KOSADP); is one of the outfit of Ministry of Agriculture established by Kogi State Government on 19 December 1991. KOSADP function as an implementation arm of the State Ministry of Agriculture in carrying out all Agricultural Extension activities. it is semi autonomous in order to foster fast decision making and effective implementation of Agricultural programme.

(b) Kogi Land Development Board: is mandated to make land available to farmers. This is done in prder to encourage small scale farming and also increase food sufficiency in the state. The land development board does not only make sure land is available but they also make sure the land is cultivatable for farmers' use.

(c) Kogi Agro-allied Company: machineries services at subsidized rate, make available tractors and other farm equipment to farmers on hire bases, develop and encourage development of simple farm machineries through research and development, encourage the ownership of small or medium farm machineries through loans and direct sales of such machineries to farmers (Ministry of Agriculture Kogi State, 2019).

From the above, it is obvious that all department and parastatals have roles and functions that form the holistic function and programme of the ministry of Agriculture in the development of agriculture in Kogi State.

4.6 Objectives of the Ministry of Agriculture

The following are the objectives of the ministry of agriculture:

i. Provision of Agricultural inputs to farmers of the State

ii. Employment generation through encouraging youth to participate in farming

iii. Provision of raw materials for the State Agro-based industries

iv. Provision of modern Agricultural implements in production, processing, storage and marketing through the use of modern technology (Ministry of Agriculture Kogi State, 2019).

4.7 Achievements of Kogi State Government in the Development of Agriculture Through Public Expenditure

Table 4.1: Percentage Budget Allocation to the Ministry of Agriculture from Total Budget of Kogi State

Year	Budget of Kogi State (₦)	Budget Allocation to the Ministry of Agriculture (₦)	Percentage of Ministry of Agriculture's Budget to Total Budget
2000	16,435,453,615	290,968,779	290,988,779/16,435,453,615 X100 = 1.77%
2001	24,740,965,860	624,506,363	624,506,363/24,740,965.860 X100 = 2.53%
2002	25,047,835,109	480,744,142	480,744,142/25,047,835,109 X 100 = 1.92%
2003	20,662,566,629	582,169,497	582,169,497/20,662,566,629 X 100 = 2.82%
2004	27,181,696,942	695,562,264	695,562,264/27,181,696,942 X 100 = 2.56%
2005	31,314,403,414	925,992,170	925,992,170/31,314,403,414 X100 = 2.96%
2006	33,915,253,950	650,467,197	650,467,197/33,915,253,950 X100 = 1.92%
2007	43,611,022,975	1,014,383,615	1,014,383,615/43,611,022,975 X100 = 2.33%
2008	69,675,732,665	1,392,234,769	1,392,234,769/69,675,732,665 X100 = 2.09%
2009	78,699,082,681	1,316,254,864	1,316,254,864/78,699,082,681 X100 = 1.67%
2010	78,455,332,453	1,812,266,745	1,812,266,745/78,455,332,453 X100 = 2.31%
2011	85,457,638,390	2,836,230,845	2,836,230,845/85,457,638,390 X100 = 3.32%
2012	126,280,369,523	3,459,383,898	3,459,383,898/126,280,369,523 X100 = 2.74%
2013	132,676,844,415	3,616,887,118	3,616,887,118/132,676,844,415 X100 = 2.73%
2014	128,955,397,305	2,663,591,291	2,663,591,291/128,955,397,305 X100 = 2.07%
2015	88,617,070,854	960,362,862	960,362,862/88,617,070,854 X 100 = 1.08%
2016	99,998,674,261	1,112,058,537	1,112,058,537/99,998,674,261 X 100 = 1.11%
2017	185,057,744,523	2,729,889,493	2,729,889,493/185,057,744,523 X 100 = 1.46%
2018	151,677,854,494	2,775,077,227	2,775,077,227/151,677,854,494 X 100 = 1.83%

Source: Kogi State Ministry of Budget and Planning, (2019).

From the Table 4.1, the percentage share of Agriculture's budget from the total budget ranges from 1.08% to 3.32% that is less than 5% of the total budget goes to a critical sector like the Agricultural sector of Kogi State with comparative advantage in farming is considered very low for a State that is blessed with large expanse of agricultural land suitable for crop production like millet, sorghum, cowpea, groundnuts, maize, sweet potatoes, tomatoes, pepper, onions,. The State is also predominantly engaged in Agriculture, making the sector the major source of livelihoods of the people.

It is important to acknowledge that this allocation is a far cry below the Maputo declaration of 2003 that state that African leaders should spend at least 10% of her total budget on agriculture. The reason for this is not unconnected to enhancing food security, creation of employment, increase in income of farmers and invariably reducing the high rate of poverty in the continent.

Table 4.2 Funding situation of Kogi State agricultural development programme Sources of Fund (N).

Year	IBRD	IFAD	Total IBRD & IFAD	Federal government	State government	Total budget	Actual receipt
1991	417,556,874	29,825,491	447,382,365	110,378,718	79,914,929	637,676,012	454,054,011
1992	417,556,874	29,825,491	447,382,365	110,378,718	79,914,929	637,676,012	454,054,011
1993	417,556,006	29,825,358	447,380,364	64,076,726	79,914,929	591,372,019	431,778,635
1994	417,556,006	29,825,358	447,380,364	47,690,310	79,914,929	574,985,603	425,465,133
1995	417,556,006	29,825,358	447,380,364	110,378,718	79,914,929	637,674,011	485,928,881
2009	26,538,337	371,536,714	398,075,051	17,003,400	85,385,110	500,463,561	204,019,681
2010	26,538,337	371,536,714	398,075,051	46,301,410	60,560,000	504,936,461	201,990,318
2011	26,534,870	371,488,178	398,023,048	16,386,410	65,560,000	479,969,458	190,580,044
2012	19,805,071	277,270,990	297,076,061	10,560,510	28,796,400	336,432,971	172,253,178
2013	19,849,709	277,895,921	297,745,638	11,680,610	18,060,000	327,486,248	160,100,589

IBRD = International Bank for Reconstruction and Development. IFAD = International Fund for Agricultural Development. Source: KOSADP (1995; 2013).

The World Bank, Federal Government of Nigeria and Kogi State Government funded KOSADP through the contribution of 67.8%, 14.4% and 13% of the budgeted funds respectively, while the International Fund for Agricultural Development (IFAD) contributed 4.8% of the budgeted funds from 1991 to 1995. During this period of World Bank's assistance, N3.08 billion was budgeted for KOSADP but it received N2.25 billion representing 73.1% of the budgeted funds. On the other hand, after the cessation of World Bank's assistance to Nigeria from 2009 to 2013, the total budgeted funds for KOSADP fell to N1.85 billion.

During this period in which the World Bank only funded irrigation, root and tuber crop project, KOSADP actually received 50.2% of the budgeted funds which is N928.9 million. The study finds that from 1991 to 1995, the fund available for KOSADP to run its activities, was larger compared to the period between 2009 and 2013. From 1991 to 1995, 72.6% of the budgeted funds by KOSADP came from international organizations, and from 2009 to 2013, 83.1% of the budgeted funds by KOSADP also came from international organizations (76.7% from IFAD, and 6.4% from the World Bank). Poor financing of agricultural extension programmes has been a long-standing problem facing the service in developing countries as echoed by Agbamu (2005) and Dayie and Bemile (2013) as cited in Agbamu (2015).

The current funding situation of KOSADP is precarious because of limited and unreliable provision of operating resources by Kogi State Government. Due to the unreliable flow of funds from 2009 to 2013, the gap between budgeted funds and actual allocations, and the high degree of dependency on temporary international assistance which is usually unsustainable, agricultural extension performance could dwindle.

4.8 Gaps that are yet to be filled in the Development of Agriculture in Kogi State

Despite the numerous achievements recorded by the ministry of Agriculture, the all farmers association of Nigeria Kogi State Chapter reported that; the problems of crop farmers in Kogi State begins with acute shortage of tractors, lack of timely supply of inputs such as fertilizer, seedling, pesticides and so on, lack of extension services, problems of post harvest and value addition, and also, problem of market challenges (AFAN, 2019). The Problems of farmers is glaring as most of them are subsistence or small scale farmers, which inherently result to low productivity and limits the farmers' capacity to apply and improved farming practices. Periodic pest and disease outbreak including high post-harvest losses due to poor storage facilities, absence of cost-effective small and medium scale processing equipment, and inadequate or ineffective distribution and marketing systems with heavy reliance on traditional farm implements and methods of production, low level of private sector investment in large scale agricultural production including low capacity for processing products that would add value prior to selling, which is worsened by low prices and limited access to credit facility (Mohammed, 2018). Inadequate and high cost of inputs, limited research and extension as well as poor linkages between research institutes, government agencies and farmers, challenges of coping with flood especially in Lokoja area where rice farmers used to be affected every year. These are the major problems of farmer and it affects their productivity level. (AFAN, 2019).

CHAPTER FIVE

DATA PRESENTATION, ANALYSIS AND DISCUSSION

5.1. Introduction

This chapter discusses the results of analysis of the study data by presenting them in tables, graphs, and in any other acceptable and comprehensible format. It further discusses the result of relevant findings based on the analysis.

5.2. Descriptive Statistics

Summary of descriptive statistics of the variables under study are presented in Table 5.1. below. Econometrics analysis, ordinarily, is preceded by an exploration of the characteristics of the data and their compliance with basic assumptions. The regression analysis could only be useful when individual data series meets all the assumptions set a priori. For instance, the normality assumption is very critical in regression analysis, and individual data series must meet its requirement to be useful in the analysis. A number of techniques can be used to establish the normality of a variable. The most common is the Jarque-Bera test statistic. The decision criterion is to either accept or reject the null hypothesis that: the distribution of the variables follows normal distribution.

However, the null hypothesis is accepted when the probability (p-value) of Jarque-Bera test statistics for a variable is greater than the 5% critical value. For variables to also meet up with normal distribution, the skewness is expected to be zero. In addition, an Indifference in the comparative analysis of the mean and median value is another important criterion to validate the normality assumption.

Table 5.1 DESCRIPTIVE STATISTICS

	CE	CP	RE	TGE
Mean	20.40720	15.65838	19.89037	20.93408
Median	20.22404	15.59621	19.71420	20.82948
Maximum	21.71169	16.24649	20.81802	22.00888
Minimum	18.84333	15.24391	18.74543	19.48873
Std. Dev.	0.955862	0.350313	0.503326	0.741423
Skewness	0.003547	0.319274	0.012744	0.090543
Kurtosis	1.759889	1.701851	2.858834	1.963544
Jarque-Bera	1.217524	1.656906	0.016290	0.876402
Probability	0.544024	0.436724	0.991888	0.645196
Sum	387.7368	297.5092	377.9170	397.7474
Sum Sq. Dev.	16.44610	2.208949	4.560061	9.894742
Observations	19	19	19	19

CE= Capital expenditure; CP = Crop production; RE= Recurrent expenditure; and TGE = Total government expenditure

Source: Author's Computation Using Eviews version 10 (2019)

Results in Table 5.1 indicates that the probability of Jarque-Bera test statistic for each of the variables shows a value higher than the conventional critical value of 5%. This indicates that there is a high probability that the null hypothesis was true. It therefore implies that the four variables were normally distributed and significant at 5% level of probability.

The insignificant variations between the mean and the median values of each variable, in Table 5.1, lend additional credence to compliance of the variables with the normal distribution assumption. In addition, the skewness of zero from the four variables also shows that the data are normally distributed.

Finally, Standard deviation is the most widely used measures of variability. Standard deviation measures the degree of dispersion of data from the mean. The lower the standard deviation, the closer the scores are to each other, and the wider the standard deviation, the more spread out the scores are. Looking at all the variables across board, the deviations are between 0.3 and 0.9.

The narrow range in the deviation also strengthens the normality assumption of the study variables (see appendix iii)

5.3 Test of Hypotheses One and Two

In order to test hypotheses one and two of this study, the Stationarity test, lag selection criteria, long-run and short dynamics of the variable was conducted as well as post model test at 5% level of probability. The hypotheses in question are stated in a null form as:

H_{01}: State government capital expenditure has no significant relationship on agricultural growth in Kogi State.

H_{02}: State government recurrent expenditure has no significant relationship on agricultural growth in Kogi State.

5.3.1 Stationarity Test

In a multiple regression, testing for stationarity of data series is very essential an initial step. This is because non-stationary variable inputs in a multiple regression analysis are known to yield spurious or false regression results leading to wrong conclusions about hypothesis, and economic forecasts (Engle & Granger, 1987). Knowing the stationarity status of the variables in question also determines the appropriateness of the model adopted for the study.

Even though, the study proposed Ordinary Least Square (OLS) earlier, the result from stationarity test determines the estimation techniques to be adopted. The conventional rules is that ordinary least square can be adopted if all the variables are significant at level otherwise, other technique will have to be adopted.

Co-integration test was adopted for this study and it demands that all variables of study should be integrated of order I(1), that is, be non-stationary at levels but must all become stationary at first difference.

The Augmented Dickey-Fuller (ADF) Test (Dickey & Fuller, 1979) was employed to ascertain the stationarity or otherwise of the variables (see Appendix IV). It is based on the simple logic that non-stationary process has infinite memory as it does not show decay in a shock that takes place in the process. Decision rule is based on the null hypothesis that: "the variable has a unit root (non-stationary)" as against alternative hypothesis that "the variable has no unit root (stationary)". Decision is reached by comparing the ADF test probability values (p-value) (at both Level and First Difference for each variable) with the 5% level of probability. The null hypothesis is accepted where p-value is greater than 5%, but rejected where p-value is less than or equal to 5%.

Table 5.3.1 Summarises the Result of the Unit Root Test.

Variable	Order of Stationary	ADF Calculated	ADF Critical	Order of Integration	Decision
LNCP	At level	0.235014	-3.052169	I(0)	Not stationary
	1st Difference	-6.454489	-3.052169	I(1)	Stationary
LNCE	At level	-1.612874	-3.040391	I(0)	Not Stationary
	1st Difference	-4.458176	-3.052169	I(1)	Stationary
LNRE	At level	-2.698591	-3.040391	I(0)	Not Stationary
	1st Difference	-4.166396	-3.052169	I(1)	Stationary
LNTGE	At level	-1.935106	-3.040391	I(0)	Not Stationary
	1st Difference	-3.572185	-3.065585	I(1)	Stationary

Source: Author's Computation Using Eviews 10

From the result in Table 5.3.1, all the study variables are non-stationary at level - they all have P-values greater than the 5% level of probability and the ADF calculated is less than ADF critical for all the variables at level. However, an attempt was made to test the stationarity at first difference since none of the variable was stationary at level. The result at first difference showed that all the variables were significant at level because they all have P value of less than 5% level of level of probability and the ADF calculated for all the variables were greater than ADF critical all at 5% level of probability. This indicates that the variables are all integrated of order I(1); a necessary and compulsory precondition for the use of Co-integration test in order to test the long run relationship of the variables. For unit root result of the variable (See appendix iv).

5.3.2 Lag Selection Criteria

In order to select the optimum lag, the study estimated various lag selection criteria from VAR model. The result presented in Table 5.3.2 shows that LR, FPE, AIC, SC and HQ suggested choosing lag one. Therefore, we estimated our model using lag one.

Table 5.3.2 Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-25.44733	NA	0.007032	3.555917	3.700777	3.563335
1	1.931738	41.06861*	0.000730*	1.258533*	1.837974*	1.288205*
2	7.781476	6.580956	0.001266	1.652315	2.666338	1.704242
3	16.16778	6.289724	0.002164	1.729028	3.177632	1.803208

Source: Researcher's Computation Using Eviews 10 (2019)

Note: * indicates lag order selected by the criterion
R: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

5.3.3 Long-run Analysis: Co-integration Test

In order to determine the long-run relationship between the variables, the study conducted Johansen Co-integration test under the null hypothesis that the variable are not cointegrated using Johansen approach.

This is an important analysis that helps to test for a long run stable relationship among the variables of interest in a study. When a linear combination of variables that are integrated of the same order i.e.I(0) and I(1), produces a stationary series, then the variables may need to be cointegrated (Olokoyo, 2011). This means that a long-run relationship may exist among them, implying that they may wander from one another in the short-run but in the long-run they will move together. The Trace statistics and Maximum Eigen value were utilized to determine the number of co-integration vectors (see Appendix v). When the Trace statistics and Max Eigen statistics is greater than the critical value at 5% level of probability or the p-value is less than or equal 5%, we reject the null hypothesis (*) stating that "there is no co-integrating equation (or none)", but if otherwise, we accept the null hypothesis. The result of the cointegration test between the dependent variable and the independent variables individually - is summarised below in Table 5.3.3

Table 5.3.3 **Co-integration Test**

Hypothesize No of CE(s)	Trace Statistics	5% Critical Value	Max-Eigen Statistics	5% Critical Value
None	16.46795	29.79707	11.36304	21.13162
At most 1	5.104908	15.49471	3.854395	14.26460
At most 2	1.250512	3.841466	1.250512	3.841466

Source: Author's Computation from Eviews 10 (2019)

The table 5.3.3 above showed that both Trace statistics and Max.Eigen Statistics are not co-integrated. The result presented in table 5.3.3 shows that both trace statistics and maximum Eigen statistics indicated the variables are not co-integrated, meaning that the variables do not have long-run relationship at 5% level of probability. Since there is no long-run relationship between the variables, the study estimated short-run VAR model using lag one.

5.3.4 Short-run analysis: Vector Autoregressive (VAR) Model

Since there is no long-run relationship between the variables, the study estimated short-run VAR model using lag one as suggested by AIC lag selection criteria. The result out the output is presented in Table 5.3.4 below:

Table 5.3.4 Parsimonious Vector Autoregressive (VAR) Model

Dependent Variable: LOG(CP)				
	Coefficient	Standard Error	t- statistics	P Value
LN(CP(-1))	0.883064	0.14399	6.13292	0.0000
LN(CE(-1))	0.034790	0.06482	0.53673	0.5943
LN(RE(-1))	0.034897	0.09051	0.38557	0.7018
C	0.480631	2.16907	0.22158	0.8257

Source: Author's Computation Using Eviews 10 (2019)

The VAR estimates do not present the p-values for testing the corresponding parameters. However, based on each value of the t-statistics, it is easy to conclude whether or not a lagged variable has a significant adjusted effect on the corresponding dependent variable, by using a critical point of $t_0 = 2$ or 1.96. That is, if $/t_0/ > 2$, or 1.96, then it can be concluded that the corresponding independent variable has a significant effect on the dependent variable (Agung, 2009).

The result in the Table 5.3.4 above shows that the t-statistics of capital expenditure on crop production is 0.53 which is less than 2 or 1.96. This means that capital expenditure has insignificant impact on crop production but the coefficient is positive. The coefficient of capital expenditure on crop production in the short-run at 5% level of probability is 0.03%, this means that a percentage increase in capital expenditure in the previous year will cause crop production in the current year to increase by about 0.03%. This implies that a percentage increase in capital expenditure in the current period will have a positive but insignificant impact on crop production in the next year. The p value of 59.43% is also greater than 5% level of probability, this is an indication that the null hypothesis is accepted. This result is contrary to previous studies' findings where capital expenditure had been found to have exerted significantly positive impact on agricultural growth (Rufus & Oyewole, 2018; Chidinma & Kemisola, 2012; Uremadu *et al.*,2018; Idoko & Jatto, 2018; Brown & Ajayi, 2015). The finding of this study supports earlier study findings indicating that capital expenditure exerts positive but insignificantly effect on agricultural growth (Iganiga and Unenhilin 2011; Mohammed, 2018 and Yusuf and Mohammed 2017; Desmond *et al.,* 2012).

Secondly, the result of the recurrent expenditure on crop production also shows that the t-statistics of recurrent expenditure on crop production is 0.38 which is less than 2 or 1.96. This means that recurrent expenditure also has insignificant impact on crop production but the coefficient is positive. The coefficient of recurrent expenditure on crop production in the short-run at 5% level of probability is 0.03%, this means that a percentage increase in recurrent expenditure in the previous year will cause crop production in the current year to increase by about 0.03%. Also, the p value of 70.18% from the parsimonious VAR Model shows that the value is also greater than 5% level of probability, this is an indication that the null hypothesis is also accepted. This implies that a percentage increase in both capital and recurrent expenditure in the current period will have a positive but insignificant impact on crop production in the next year (See Appendix vi & vii).

This result is contrary to previous studies' findings where recurrent expenditure had been found to have exerted significantly positive impact on agricultural growth (Tobechi, 2018; Mbanya *et al.*, 2018 Uremadu *et al.*, 2018; Oyakhilomen & Zibah, 2014; Chidinma & Kemisola, 2012; Rufus & Oyewole, 2018;). This is not to say that the findings of this study is uncommon, as finding of this study supports earlier study findings indicating that recurrent expenditure exerts insignificantly effect on agricultural growth (Oguso, 2017; Mbanya *et al.*, 2018; Okoro; 2013; Udoka & Anyingang, 2015).

5.3.5 Variance Decomposition

In this section, we analyse the contribution of variation of each variable to itself and other variables. Table 5.3.6 below shows that the LNCP contributed 100% variation on itself while the contribution of both LNCE and LNRE to LNCP is 0.0% in the first period. In the subsequent periods, the contribution of LNCP to itself decreases and the contribution of both LNCE and LNRE to LNCP increases. For example, in the 10th period, LNCP contributed 85.38% variation on itself while LNCE contributed 13.92% of the variation on LNCP and LNRE contributed 0.69% of the variation on LNCP.

Similarly, the table 5.3.6 below also shows the variance decomposition of LNCE. In the first period, LNCE contributed 98.72% variation on itself while both LNCP and LNRE contributed only 1.27% and 0.00% respective of the variation of the LNCE. In the tenth period, LNCE contributed 59.06% of variation on itself while the LNCP contributed 40.66% of the variation on the LNCE and LNRE contributed just 0.28 of the variation on the LNCE.

Lastly, the table still shows the variance decomposition of LNRE. In the first period, LNRE contributed 74.44% variation on itself while both LNCP and LNCE contributed 14.89% and 46.64% respectively of the variation on LNRE.

Based on the results from the VAR model, the R-square value of 87% shows that the independent variables accounted for about 87% variation in the dependent variables while the remaining were captured by the residuals which are factors not included in the model. In addition, the Durbin-Watson statistics of 1.9 which is around 2 is also an indication of absence of serial correlation (See appendix viii)

Table 5.3.5 Variance Decomposition

Variance Decomposition of LNCP: Period	S.E.	LNCP	LNCE	LNRE
1	0.134997	100.0000	0.000000	0.000000
2	0.179241	98.04189	1.726529	0.231583
3	0.209617	95.12692	4.443711	0.429372
4	0.233655	92.42393	7.029965	0.546106
5	0.253823	90.29338	9.097223	0.609396
6	0.271244	88.70350	10.65193	0.644575
7	0.286551	87.52235	11.81180	0.665844
8	0.300153	86.62819	12.69168	0.680132
9	0.312334	85.93286	13.37647	0.690664
10	0.323310	85.37761	13.92345	0.698943

Variance Decomposition of LNCE: Period	S.E.	LNCP	LNCE	LNRE
1	0.545356	1.274322	98.72568	0.000000
2	0.620559	4.378742	95.57361	0.047650
3	0.666672	11.74769	88.20840	0.043912
4	0.707845	19.20471	80.74425	0.051038
5	0.745125	25.25980	74.65470	0.085504
6	0.778520	29.91997	69.94786	0.132168
7	0.808449	33.52769	66.29409	0.178219
8	0.835401	36.38996	63.39147	0.218570
9	0.859796	38.72105	61.02642	0.252524
10	0.881973	40.66144	59.05763	0.280926

Variance Decomposition of LNRE: Period	S.E.	LNCP	LNCE	LNRE
1	0.286474	3.449115	22.10581	74.44507
2	0.385286	11.79664	40.10045	48.10290
3	0.422006	14.27314	45.02873	40.69813
4	0.431878	14.82016	46.30181	38.87803
5	0.433818	14.87756	46.58965	38.53279
6	0.434093	14.86754	46.64483	38.48764
7	0.434137	14.86734	46.65125	38.48141
8	0.434166	14.87570	46.64779	38.47650
9	0.434195	14.88589	46.64281	38.47130
10	0.434223	14.89525	46.63830	38.46644

Cholesky Ordering: LNCP LNCE LNRE

Source: Author's Computation Using Eviews 10 (2019)

5.4 Test of Hypothesis Three

In order to test hypothesis three that states that total government expenditure does not have causal relationship on crop production. The variables were subjected to Granger-causality test in order to test if total government expenditure on agriculture granger cause crop production. The test result is presented below:

Table 5.4.1 Granger Causality Test

Pairwise Granger Causality Tests

Date: 10/24/19 Time: 01:37

Sample: 2000 2018

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LNTGE does not Granger Cause LNCP	18	1.20705	0.2892
LNCP does not Granger Cause LNTGE		2.36441	0.1450

Source: Author's Computation Using Eviews 10 (2019)

From Table 5.4.1 above, the p-value of 28% is greater than 5% level of probability and therefore, the null hypothesis that states that total government expenditure does not Granger-cause crop production is accepted. In the same vein, the null hypothesis that states that crop production does not Granger-cause total government expenditure is also accepted considering the p-value of 14% which is also greater than 5% level of probability. This implies that total government expenditure on agriculture in the previous year will not Granger cause crop production in the previous year.

5.5. Post Model Estimation Tests

These are subsequent tests carried out on the model to ensure the model is reliable enough for economic forecast or hypothesis testing. These tests are classified into two categories, namely: Residual diagnostic tests and stability test. For the purpose of this research work, only residual diagnostic tests was conducted. Tests conducted to ensure the residuals of the model are free from the effect of Serial (auto) correlation, problem of heteroscedasticity, and are normally distributed.

5.5.1. Serial Correlation Test

Also, known as auto correlation, serial correlation occurs when an important variable is omitted or a wrong variable has been included in a model (Sarah as cited in Raphael, 2017). This development causes the residual or error term to become correlated thereby invalidating the model result (Sayed as cited in Raphael, 2017). Serial correlation analysis is carried out to determine autocorrelation of errors in a regression model. The null hypothesis that: "residuals of the Vector Autoregressive Model are not serially correlated" is to be accepted or rejected base on the p-value outcome of the LM test. Where the p-value is greater than the 5% level of probability, the null hypothesis is accepted but where the p-value is less, the null hypothesis is rejected. The result of the test is presented in Table 5.5.1. below

Table 5.5.1 VAR Residual Serial Correlation LM Tests

Date: 10/26/19 Time: 11:00
Sample: 2000 2018
Included observations: 18

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	7.150987	9	0.6214	0.791287	(9, 22.1)	0.6275

Source: Author's Computation Using Eviews 10 (2019)

Table 5.5.1, Chi- Square p-value of 62%, which is more than 5% - signifying a zero effect of autocorrelation. The null hypothesis is therefore accepted and the study concludes that the model is serially uncorrelated. This means that with more than 5% level of probability, the residual of the model are free from the effect of serial correlation.

5.5.2. Test for Heteroskedasticity

One fundamental assumption with regression is that the variance of the error term or residual should be homoscedastic across all the observations. Absence of homoscedasticity, resulting in heteroscedasticity is detrimental to OLS regression in that they render the standard error inefficient and inconsistent thereby invalidating statistical test by the model. Test of heteroscedasticity using White heteroscedasticity seeks to validate or invalidate the null hypothesis that: "there is no heteroscedasticity in the variance of the residuals of the VAR is homoscedastic". We accept null hypothesis when p-value is greater than 5% level of probability and reject the null hypothesis when p-value is less. Table 5.5.2 presents the result.

Table 5.5.2 VAR Residual Heteroskedasticity Tests (Levels and Squares)

Date: 10/26/19 Time: 11:31
Sample: 2000 2018
Included observations: 18

Joint test:

Chi-sq	df	Prob.
31.55546	36	0.6799

Source: Author's Computation Using Eviews 10 (2019)

The result of the heteroskedasticity test in Table 5.5.2., shows that the general model has a p-value of 0.6799 (i.e. 67.99%) which is non-significant at 5% level of probability. This is an indication that the residual errors are homoskedastic and independent of the regressors. All the specific models also had all their p-values greater than 5% level of probability, hence failing to reject the null hypothesis for the test. Therefore, it is concluded that all models are free from heteroskedasticity effect (see appendix ix)

5.5.3. Normal Distribution Test.

Test for normality is done to check whether the error term in the VAR is normally distributed. The basic idea behind the Jarque-Bera test is that the normal distribution (with any mean or variance) has a skewness coefficient of zero, and a kurtosis coefficient of three-zero excess kurtosis. The null hypothesis to be tested states that: "the residuals of the model are normally distributed". As usual, null hypothesis is accepted with a p-value of greater than 5% level of probability but rejected when p-value is less than 5% level of probability (see appendix ix).

Table 5.5.3 VAR Residual Normality Test Result

Component	Jarque-Bera	Df	Prob.
1	1.23525	2	0.5235
2	0.956984	2	0.6197
3	1.483592	2	0.4763
Joint	2.115745	6	0.3473

Source: Author's Computation Using Eviews 10 (2019)

From table 5.5.3, the result indicates a Jarque-Bera statistics of 2.115745, with a p value of 34.73%, for the general VAR model; implying that the general model is normally distributed. All the specific models were also normally distributed. The normality null hypothesis is therefore accepted for all the specific models (see appendix ix)

5.6 Analysis of Qualitative Data from Interview Using Content Analysis

In-depth Interviews were conducted with information–rich respondents - staff of Kogi State Agricultural Development Programme (KOSADP), Ministry of Agriculture and Members of AFAN in Kogi State.

The interviewees were purposively selected because they are considered to be information-rich respondents. The interviewees were:

i. The Director, Department of Planning, Research and Statistics (PRS) Kogi State Ministry of Agriculture.

ii. The Director of crop, Kogi State Agricultural Development Programme (KOSADP)

iii. The Director Agric Service, Kogi State Agricultural Development Programme (KOSADP)

iv. Eight (8) Members of AFAN Kogi State chapters

The key themes which all interview questions sought to generate responses under from the management staff include:

1. What is your assessment with regards to public spending on crop production for agricultural development in Kogi State?

2. Looking at the budgetary allocation of the ministry of agriculture/ADP, do you think the allocation is enough to develop agriculture in the area of crop production in Kogi State?

3. How would you describe the timeliness of release of fund for utilization and spending execution of the Ministry of Agriculture, towards promoting Agricultural Development especially in the area of crop production in Kogi State?

4. As a member of management staff, what is your assessment of public expenditure on the provision of agro-equipments (Tractor, Harvester, Corn milling machine, Sprayer, Plough and Chemical equipment machine) to crop farmers in Kogi State?

5. What is your assessment of public expenditure on the maintenance of infrastructure for crop production for agricultural growth in Kogi State?

6. What are the challenges/problems faced in the procurement of agro-equipments in Kogi State and maintenance of infrastructure in Kogi State?

7. What general solution can you give concerning effective public spending to improve the procurement of agro-equipments and also in terms of maintenance of the existing infrastructure in Kogi State?

5.6.1 Summarized interview responses from management staff

The responses generated from three (3) targeted interviewed respondents representing the relevant informant and key management staff of the Ministry of Agriculture (MOA) and KOSADP.

The themes seek to gauge the perception of the respondents on their assessment with regards to state government spending on agricultural growth. All interviewed respondents recorded the state government fair in area of crop production but in actually releases they recorded the state government very low and not encouraging considering the importance of agriculture to the economy of the state. One respondent says the performance is fair on crop production but when it comes to actually release, we often get around less than 1% (one percent) of the actual budget. The three respondents (respondent A, respondent B and respondents C) stated that considering the budgetary allocation to agriculture, it is not enough to develop the agricultural sector in Kogi state. Respondent B further stated that because of lack of fund to the ADP, the Monthly Technology Review Meeting (MTRM) that used to be held every month where research institute are usually invited to solve farmers problem using technology have not been held since 2015 because of lack of fund to the parastatal.

On the timeliness of release of fund towards promoting agricultural growth in Kogi state. Respondent A and respondent B stated release of fund usually go to farmers when they do not longer need them as agricultural is seasonal and once the season passed, nothing can be done. Respondent C observed that funds are not usually made available when they are needed by farmers.

On the assessment of public expenditure on the provision of agro-equipments (tractor, corn milling, sprayer, plough and harvester). Respondent A stated that between 2017-2018, the state government procured 40 tractors at the cost of 800million naira which was given to private managers at 50% discount and made available to farmer in the three senatorial districts at subsidized rate. Respondent B and C also noted that the state government has made efforts in this aspect especially with the intervention of CBN Anchor Borrowers Programme (ABP) which the AFAN farmers have also benefitted from.

On the assessment of state government support through public expenditure on the provision of other farm inputs like fertilizer, seeds, chemical and maintenance of existing infrastructure. Respondent B and C stated that the farmers have been getting some of the input through Anchor Borrowers Programme (ABP) and an one Non-governmental organization (NGO) known as Rice Farmers Association of Nigeria (RIFAN). Respondent A averred that in 2018 100million was released by the state government for procurement of seedlings and chemical which were distributed to farmers at subsidized rate but in area of fertilizers distribution, nothing has brrn provided by the state government except the one from federal government through the Anchor Borrowers Programme (ABP) the state was able to accessed 1billion naira for agricultural input.

Lastly on the challenges faced in procurement of agro-equipment in Kogi state. The three respondents stated in agreement that the major challenge is that most of the times, the equipments do come to farmers when they do not longer need them since farming is seasonal.

5.6.2 Summarized interview responses from AFAN members

The responses generated from seven (8) targeted interviewed respondents representing the relevant informant and members AFAN Kogi state chapters.

The themes seek to gauge the perception of the respondents on their assessment with regards to state government spending on agricultural growth. All interviewed respondents recorded the state government very low in terms of public expenditure on agricultural growth in Kogi state. The seven respondents (Respondent D, E, F, G, H, I, J and K) clearly voiced out that the state government pattern of spending on agriculture is below average. In fact, respondents D and E stated that agriculture has no future in Kogi state if nothing changed.

On the assessment of the contribution of state government through public expenditure on provision of agro-equipments (tractor, harvester, corn milling, sprayer and storage facilities). The respondents averred that the support they have got are from Anchored Borrowers Programme (ABP) and not from the state government. In fact, respondents D, E, F and G further noted that they benefited from the Anchor Borrowers Programme (ABP) and not the state government. Respondents H, I and J stated that they are also beneficiaries of Rice Farmers Association of Nigeria (RIFAN) as rice farmers where they got some of these equipments to be used as those of the state governments usually come when they are not longer needed.

On the assessment of state government support through public expenditure on the provision of other farm inputs like fertilizer, seeds, chemical and maintenance of existing infrastructure. The respondents declared that in early 2018 some of them received fertilizer and chemical from the state government at subsidized rate (Respondent D, I and J). Respondents E, G, H and F stated that as rice farmers, they received fertilizers from RIFAN, a Non-governmental organization from Abuja.

As to whether income of farmers have improved as a result of the support from the state government. The respondents shared common respondents on the question as they stated that their income have increased to some extent not as a result of support from farmers but through personal efforts. In fact, Respondent D and E stated that even when flood flooded their rice farm, no relief material or palliative measure was received from the state government. Respondent G, F, I and J stated that they cannot say that their income have increased because they do not see tangible things the state government has done to influence their income as farmers. In fact, Respondents D, E and I stated that the kind of support they do get from Anchored Borrowers Programme (ABP) and RIFAN their output and income will increase even of the state government relax in the provision of the agro equipments and other farm input in the state.

Lastly, on the challenges AFAN crop farmers are facing. The farmers interviewed identified lack of improved varities, shortage of agricultural extension workers lack of loan to support the farmer, lack of timely release of funds for the procurement of agro-equipments to be made available when they are needed. For details of the respondents (see appendix xii)

5.7 Major Findings of the Study

i. The study from the Parsimonious VAR Model found out that there is positive but insignificant relationship between government capital expenditure and crop production for agricultural growth in Kogi State, as a percentage increase in government capital expenditure will cause crop production to increase by 0.034%. In addition, the p value of 59.43% from the Parsimonious

VAR Model indicated that the value was insignificant. This level of impact cannot bring about agricultural growth in Kogi State. The responses from the interview conducted supported this findings as sampled farmers indicates that the major challenges of farmers are the agro-equipment which are not forth coming from the government and where they come at all, they do not come when they are needed and farming is seasonal.

The farmers interviewed stated in agreement that the increase in their income and output is not as a result state government expenditure on agricultural growth. In fact, a respondent observed that the support the AFAN members have gotten from the Rice Farmers Association of Nigeria (RIFAN) which is a Non- Governmental Organization (NGO) and the support from CBN through anchored borrowers have been helpful. While, the responses from the interview conducted with the management staff of the ministry of agriculture also reflect this fact due to the delay in the release of fund for utilization because farming activities are seasonal. In fact, one of the management staff stated that most of the times, what the ministry gets is usually less than one percent of the total budget. The findings from the VAR model that shows that a percentage increase in public expenditure will lead to just 0.034% can be validated with the result from the primary data.

ii. The study also revealed from the Parsimonious VAR Model that there is positive but insignificant relationship between government recurrent expenditure and crop production for agricultural growth in Kogi State, as a percentage increase in government recurrent expenditure will cause crop production to increase by 0.034%. This level of impact cannot bring about agricultural growth in Kogi State. In addition, the p value of 70.18% from the Parsimonious VAR Model indicated that the value is insignificant because the p value is >5%.

Also, the responses from the interview conducted supported this findings as sampled farmers indicates that another challenges of farmers are shortage of agric extension officers. In fact, one of the extension officers interviewed averred that she is the only extension officer in the whole of Lokoja axis covering different places and there is usually challenges of mobilisation to reach out with farmers. While, the responses from the interview conducted with the management staff of the ministry of agriculture also reflect this fact due to the delay in the release of fund fund for recurrent expenses. In fact, one of the management staff stated that they do have what he referred to as Monthly Technology Review Meeting (MTRM) where research institute are usually invited to solve farmers problem using modern technology but since 2015, such meeting has not been taking place because of challenges of fund. The findings from the VAR model that shows that a percentage increase in recurrent expenditure will lead to just 0.034% can be validated with the result from the primary data.

iii. The study from the Granger causality test found out that there is no causality between total government expenditure and agricultural growth in Kogi State. The findings of this may not be unconnected with the pattern of spending on agricultural growth in Kogi State. This finding also conform with findings from Rufai and Celine (2013) and Okoro (2013).

The findings of the study justify the assumption of Keynesian theory adopted in this study that public expenditure has positive relationship on agricultural growth. The findings from the study shows that an increase in state government expenditure both in capital and recurrent also increase the output of farmers in metric tonnes. The commitment from the government have been shown to affect outcomes of agricultural output (Tobechi, 2018; Mbanya *et al*,. 2018 Uremadu *et al.*, 2018; Oyakhilomen and Zibah, 2014; Chidinma and Kemisola, 2012; Rufus and Oyewole, 2018;

Chidinma and Kemisola, 2012; Uremadu *et al.*,2018; Idoko and Jatto, 2018; Brown and Ajayi, 2015).

RESEARCH DATA I
AGRICULTURAL PRODUCTION SURVEY (APS)

PRODUCTION IN '000' TONNE										
YEAR	**Maize**	**Millet**	**Rice**	**Sorgh.**	**Cassava**	**S/pot.**	**G/Nut**	**C/pea**	**Yam**	**Total**
2000	*245.80*	*23.70*	*102.50*	*45.00*	*2506*	*29.79*	*13.5*	*32.00*	*1174*	*4172.29*
2001	*234.00*	*22.6*	*86.0*	*43.00*	*2704*	*31.00*	*11.3*	*33.00*	*1089.7*	*4254.06*
2002	*240.85*	*20.00*	*80.00*	*50.00*	*2785.12*	*31.00*	*10.50*	*30.00*	*1015.4*	*4262.88*
2003	*250.00*	*16.45*	*77.73*	*51.00*	*2854.83*	*35.00*	*10.06*	*33.00*	*1003.5*	*4331.58*
2004	*255.0*	*16.46*	*80.06*	*51.00*	*2961.63*	*36.40*	*10.58*	*31.36*	*1042.8*	*4485.29*
2005	*213.95*	*13.24*	*93.26*	*51.52*	*2666.41*	*32.75*	*21.84*	*35.52*	*1153.5*	*4282.03*
2006	*261.80*	*14.22*	*113.59*	*87.37*	*3394.34*	*39.46*	*25.03*	*46.71*	*1264.3*	*5246.80*
2007	*289.29*	*14.5*	*119.27*	*89.99*	*3631.94*	*44.02*	*26.78*	*45.10*	*1226.3*	*5487.15*
2008	*300.01*	*14.94*	*125.18*	*94.49*	*3741.85*	*46.82*	*29.03*	*47.31*	*1286.1*	*5657.56*
2009	*336.66*	*15.43*	*130.81*	*100.44*	*4011.26*	*51.51*	*30.16*	*50.57*	*1361.6*	*6088.44*
2010	*371.34*	*16.00*	*136.57*	*105.56*	*4396.34*	*52.90*	*73.63*	*52.57*	*1480.1*	*6685.02*
2011	*476.81*	*16.94*	*153.92*	*124.98*	*5462.79*	*56.97*	*81.21*	*67.86*	*1887.1*	*8328.62*
2012	*235.79*	*17.94*	*164.66*	*141.00*	*4094.36*	*11.297*	*22.11*	*67.90*	*1320.2*	*5934.30*
2013	*417.09*	*19.01*	*166.67*	*131.12*	*5032.93*	*22.26*	*81.169*	*59.61*	*1647.4*	*7577.22*
2014	*533.85*	*20.15*	*178.34*	*159.02*	*5334.90*	*87.29*	*90.09*	*66.76*	*2059.2*	*8529.6*
2015	*688.13*	*21.37*	*189.04*	*177.02*	*5708.34*	*96.02*	*99.09*	*74.77*	*2580.2*	*9633.96*
2016	*880.81*	*22.65*	*202.27*	*191.02*	*6222.09*	*105.62*	*107.51*	*83.74*	*2838.2*	*10653.9*
2017	*986.51*	*24.00*	*220.27*	*205.35*	*5662.10*	*116.18*	*116.65*	*93.79*	*2923.3*	*10348.2*
2018	*1124.6*	*25.68*	*253.31*	*223.36*	*6284.93*	*127.80*	*126.57*	*105.04*	*3098.7*	*11370.1*

Source: Kogi State Agricultural Development Project Report on Agricultural Production Survey (KOSADP-APS).

RESEARCH DATA II

Kogi State Agricultural Expenditure (2000-2018).

Year	Capital Expenditure (N)	Recurrent Expenditure (N)	Total Expenditure (N)
2000	*152,600,000*	*138,368,779*	*290,968,779*
2001	*309,400,000*	*315,106,363*	*624,506,363*
2002	*166,011,960*	*314,732,182*	*480,744,142*
2003	*259,782,508*	*322,386,989*	*582,169,497*
2004	*376,000,000*	*319,562,264*	*695,562,264*
2005	*567,896,922*	*358,095,248*	*925,992,170*
2006	*303,000,000*	*347,467,197*	*650,467,197*
2007	*607,000,000*	*407,383,615*	*1,014,383,615*
2008	*717,340,000*	*674,894,769*	*1,392,234,769*
2009	*484,371,119*	*831,883,745*	*1,316,254,864*
2010	*1,265,600,000*	*546,666,745*	*1,812,266,745*
2011	*2,222,839,600*	*613,391,245*	*2,836,230,845*
2012	*2,687,000,000*	*772,383,898*	*3,459,383,898*
2013	*2,517,500,000*	*1,099,387,118*	*3,616,887,118*
2014	*1,777,500,000*	*886,091,291*	*2,663,591,291*
2015	*595,804,656*	*364,558,206*	*960,362,862*
2016	*739,487,516*	*372,571,021*	*1,112,058,537*
2017	*2,434,619,746*	*295,269,747*	*2,729,889,493*
2018	*2,445,795,178*	*329,282,049*	*2,775,077,227*

Source: Kogi State Approved Expenditure on Agriculture (2000-2018). Ministry of Budget and Planning, State Secretariat Complex, Lokoja.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Introduction

This chapter presents the summary of the study, conclusion drawn on the basis of the findings and recommendation given for improvement and further action by policy makers, government and researchers who are interested in carrying out research in the same field.

6.2 Summary

This study examined the effect of state government expenditure on agricultural growth in Kogi State, Nigeria. Specifically, the study assessed the effect of capital expenditure and recurrent expenditure on agricultural growth in Kogi State and lastly, the study also test for causality between total government expenditure and agricultural growth in Kogi state.

To enhance the understanding of the subject matter, the concept of agricultural growth and public expenditure (capital expenditure, recurrent expenditure, total government expenditure) were conceptualized. Also relevant empirical literatures were reviewed to identify gaps and establish a theoretical backing. In addition, theory of modernization was reviewed on dependent variable while Wagner law of increasing state activities; Peacock and Wiseman Theory of expenditure; Musgrave Theory of public expenditure growth were reviewed in the course of the research work. Though, Keynesian theory was used to underpin the study as a theoretical framework.

Concurrent embedded design was adopted as research design for the study. Where quantitative data (secondary) was used as a major method and primary data (interview) was used to support the secondary data. To examine the impact of public expenditure on agricultural growth in Kogi State Parsimonious VAR model was estimated and Granger causality test was also done to test the relation. Purposive sampling technique was used to select the respondents. In total, 11 respondents were interviewed before the research got to data saturation point and this was used as sample size for the secondary source.

From the tests conducted on the data collected and the analyses of the results this study found that public expenditure has no significant impact on agricultural growth in Kogi State. Specifically, from the Parsimonious VAR Model results conducted the study found a positive and insignificant relationship between agricultural growth and public expenditure (capital and recurrent). The Parsimonious VAR results indicated that the variables of public expenditure explained about 87% of the total variation in the agricultural growth in Kogi state. Specifically, the study found that capital expenditure and recurrent expenditure have positive but insignificant relationship with agricultural growth in Kogi state. In addition, the test from Granger causality test between total government expenditure and agricultural growth found out that total government expenditure does not Granger cause agricultural growth and agricultural growth does not Granger cause public expenditure in Kogi state

However, based on the research findings the conclusion, recommendations and suggestion for future study were drawn.

6.3 Conclusion

Based on the tests conducted on the data and analyses of the results, this study found that public expenditure have positive but insignificant impact on agricultural growth in Kogi state during the period covered by the study. The study therefore concludes that:

i. Capital expenditure has positive but insignificant impact on agricultural growth in Kogi state. This means that increase in the capital expenditure will lead to increase in agricultural output and income of famers. More capital expenditure will bring about more increase in agricultural output in the state.

ii. Secondly, recurrent expenditure also has positive and insignificant impact on agricultural growth in Kogi state for the period covered. This makes us to come to a conclusion that an increase in recurrent expenditure will lead to increase agricultural output as well as the income of farmers in Kogi state.

iii. The last conclusion drawn from the study base on the Granger causality test was that total government expenditure does not cause agricultural growth and agricultural growth does not cause total government expenditure. This means that not only total government expenditure that causes increase in output of farmers and their income in Kogi state.

6.4 Recommendations

In line with the findings and above conclusion, the study recommends that;

i. Firstly, there is need for the government of Kogi State to take agricultural funding very serious by ensuring timely release of fund to the ministry and their respective parastatals to ensure that assistance and support are provided to crop producers with the help of various agricultural resources such as agro-equipments, which includes tractors, harvesters, corn milling machine, sprayers, plough, water pumps, and chemical equipment machines used on the farm to enhance large scale crop production with latest techniques and facilitating diversity within the purview of agricultural growth through capital expenditure. This can also be done by ensuring that there is sufficient and timely release of funds to fund capital expenses because agricultural activities are time bound.

Also, bearing in mind that the data from the field work have found that the role that Rice Farmers Association of Nigeria (RIFAN) and Anchor Borrowers Programme (ABP) played to farmers are very paramount and as such, the state government should strengthen the collaboration to improve access to finance for every farmer in the state.

ii. Since the findings from the study indicated positive relationship with agricultural growth. There is need for state government to increase recurrent expenditure in areas of cop production especially in area of recruiting more extension workers who are suppose to be the intermediary between the farmers and the government. In fact, one of the extension officers stated during the interview that there was shortage of extension workers as she stated that she was the only one covering the whole of Lokoja axis.

iii. Lastly, the causality test conducted found no causality between total government expenditure and agricultural growth in Kogi State. Government should design policy framework of agricultural finance that should reflect the need, demand and intended use of public spending analysis that will improve the efficiency of spending through building capacity of farmers to undertake future public expenditure research with data base development and work with counterpart teams like Agricultural research institute and the farmers so that public expenditure can cause agricultural growth.

6.5 Suggestion for Further Study

However, like most if not all studies this study has some limitations. It covers only 19 annual observations and used VAR Model and Granger causality test, covering more annual years and more states may be more appropriate for further investigation. It also recommended that the study needs to be replicated in other States with agricultural potentials. Base on the responses from the field, the study also recommend that subsequent researcher in this field of study should also examine the support the farmers got from CBN Anchor Borrowers Programme (ABP) and Rice Farmers Association of Nigeria (RIFAN) on agricultural output of farmers and income of farmers since the farmers acknowledged the prominent role played by the aforementioned support and as such subsequent researcher(s) should add more independent variables not included in this study.

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APPENDIX I

Interview Schedule for All Farmers Association of Nigeria (AFAN) Officials

(Kogi State Chapter)

Section A:

1. Date of the interview...
2. Name of the interviewee..
3. Office of the interviewee..
4. Phone number(s)………………………………………………………………..
5. Educational qualification……………………………………………….

Section B:

6. What system of farming do most farmers under AFAN practice in Kogi State?

7. What is your assessment of public expenditure on crop production for agricultural growth in Kogi State?

8. What is the contribution/support of state government through public expenditure on the provision of agro-equipments (tractor, harvester, corn milling machine, sprayer, storage facilities plough and chemical equipment machine) to crop farmers under AFAN in Kogi State.

9. Also, how would you describe state government support through public expenditure on the provision of other farm inputs like fertilizer, seeds, chemical and maintenance of the existing infrastructure to crop farmers under AFAN in Kogi State?

10. What are the major sources of crop farmer agricultural inputs in Kogi State?

11. As A farmer, has your income improved as a result of the support from the Kogi State government?

12. Has your output or quantity of produce increased over time?

11. What are the major challenges/problems of AFAN crop farmers in Kogi State?

Thank you.

Source : Adapted from Mohammed (2018) and Babatunde (2018).

APPENDIX II

Interview Schedule for the Management Staff of the Ministry of Agriculture, Kogi State and Staff of Agricultural Development Programme (ADP)

Section A:

1. Date of interview...
2. Place of interview..
3. Name of the interviewee...
4. Office of the interviewee...

Section B:

5. What is your assessment with regards to public spending on crop production for agricultural development in Kogi State?

6. Looking at the budgetary allocation of the ministry of agriculture/ADP, do you think the allocation is enough to develop agriculture in the area of crop production in Kogi State?

7. How would you describe the timeliness of release of fund for utilization and spending execution of the Ministry of Agriculture, towards promoting Agricultural Development especially in the area of crop production in Kogi State?

8. As a member of management staff, what is your assessment of public expenditure on the provision of agro-equipments (Tractor, Harvester, Corn milling machine, Sprayer, Plough and Chemical equipment machine) to crop farmers in Kogi State?

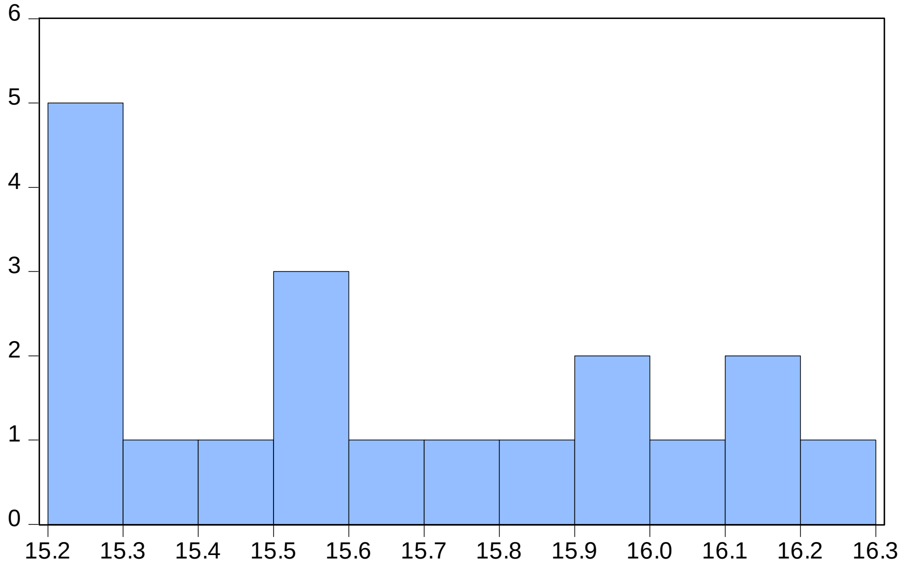
9. What is your assessment of public expenditure on the maintenance of infrastructure for crop production for agricultural growth in Kogi State?

10. What are the challenges/problems faced in the procurement of agro-equipments in Kogi State and maintenance of infrastructure in Kogi State?

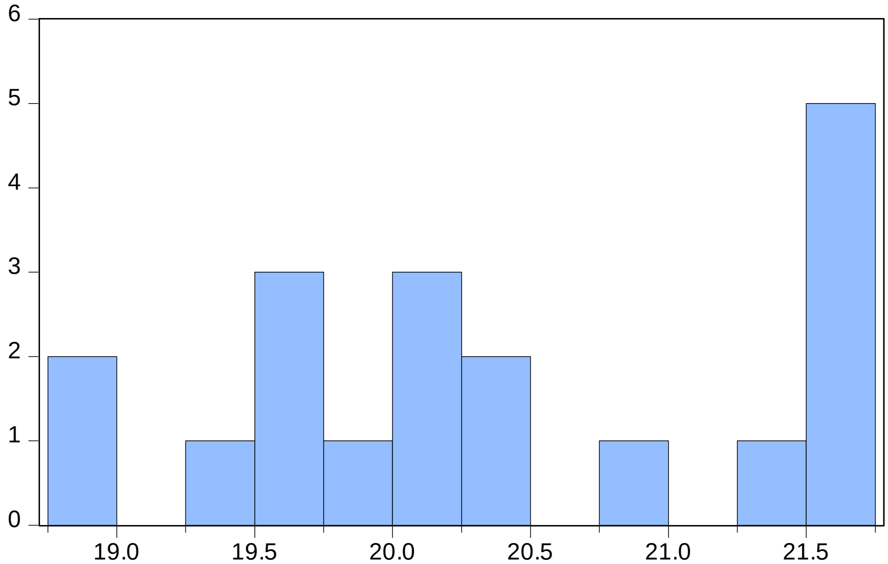
11. What general solution can you give concerning effective public spending to improve the procurement of agro-equipments and also in terms of maintenance of the existing infrastructure in Kogi State? Thanks.

Source : Adapted from Mohammed (2018) and Babatunde (2018).

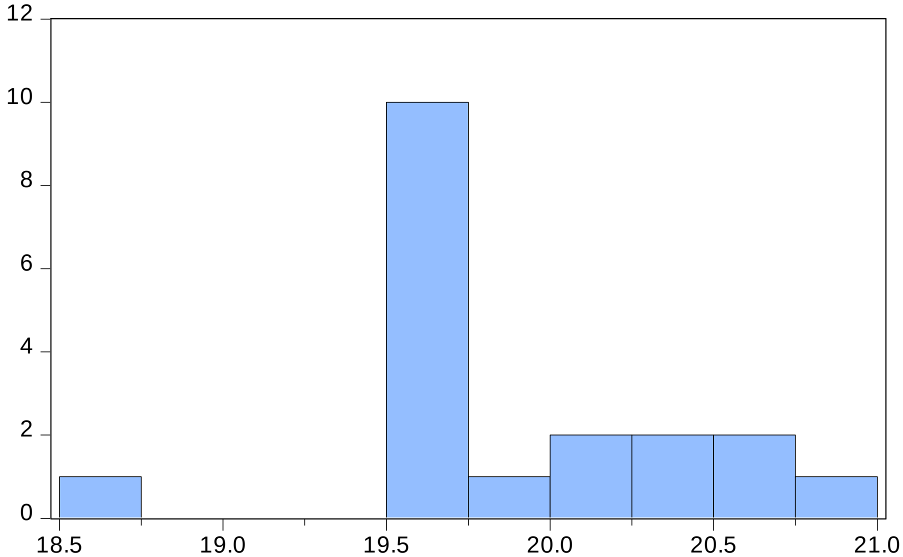
APPENDIX III



Series: CP	
Sample 2000 2018	
Observations 19	
Mean	15.65838
Median	15.59621
Maximum	16.24649
Minimum	15.24391
Std. Dev.	0.350313
Skewness	0.319274
Kurtosis	1.701851
Jarque-Bera	1.656906
Probability	0.436724

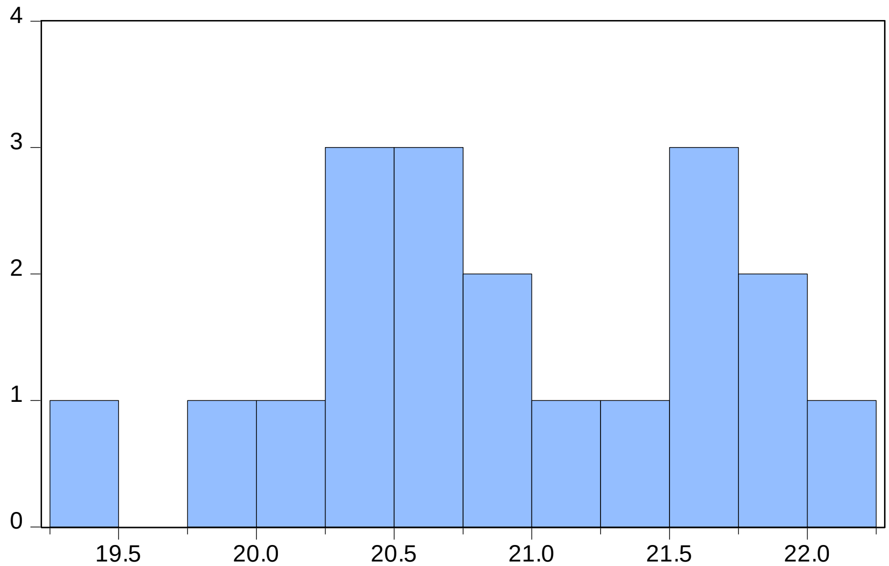


Series: CE	
Sample 2000 2018	
Observations 19	
Mean	20.40720
Median	20.22404
Maximum	21.71169
Minimum	18.84333
Std. Dev.	0.955862
Skewness	0.003547
Kurtosis	1.759889
Jarque-Bera	1.217524
Probability	0.544024



Series: RE
Sample 2000 2018
Observations 19

Mean	19.89037
Median	19.71420
Maximum	20.81802
Minimum	18.74543
Std. Dev.	0.503326
Skewness	0.012744
Kurtosis	2.858834
Jarque-Bera	0.016290
Probability	0.991888



Series: TGE
Sample 2000 2018
Observations 19

Mean	20.93408
Median	20.82948
Maximum	22.00888
Minimum	19.48873
Std. Dev.	0.741423
Skewness	-0.090543
Kurtosis	1.963544
Jarque-Bera	0.876402
Probability	0.645196

APPENDIX IV

UNIT ROOT RESULTS AT LEVEL

Null Hypothesis: LNCP has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.235014	0.9665
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

Null Hypothesis: LNCE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.612874	0.4559
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

Null Hypothesis: LNRE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.698591	0.0935
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

Null Hypothesis: LNTGE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.935106	0.3101
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

UNIT ROOT RESULTS AT 1st DIFFERENCE

Null Hypothesis: D(LNCP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.454489	0.0001
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNCE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.458176	0.0032
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNRE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.166396	0.0058
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNTGE) has a unit root

Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.572185	0.0195
Test critical values:	1% level	-3.920350	
	5% level	-3.065585	
	10% level	-2.673459	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 16

Null Hypothesis: LNRE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic	
Test critical values:	1% level
	5% level
	10% level

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated f
and may not be accurate for a sample size of 18

UNIT ROOT RESULTS AT 1st DIFFERENCE

Null Hypothesis: D(LNCP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic	
Test critical values:	1% level
	5% level
	10% level

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated f
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNCE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic		-4.458176	0.0032
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNRE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic	
Test critical values:	1% level
	5% level
	10% level

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated f
and may not be accurate for a sample size of 17

Null Hypothesis: D(LNTGE) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic	
Test critical values:	1% level
	5% level
	10% level

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated f
and may not be accurate for a sample size of 16

Null Hypothesis: LNTGE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

Augmented Dickey-Fuller test statistic	
Test critical values:	1% level
	5% level
	10% level

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

APPENDIX V

LONG RUN RESULT

Date: 10/22/19 Time: 10:31
Sample (adjusted): 2002 2018
Included observations: 17 after adjustments
Trend assumption: Linear deterministic trend
Series: LNCP LNCE LNRE
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.487479	16.46795	29.79707	0.6790
At most 1	0.202863	5.104908	15.49471	0.7976
At most 2	0.070919	1.250512	3.841466	0.2635

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.487479	11.36304	21.13162	0.6111
At most 1	0.202863	3.854395	14.26460	0.8744
At most 2	0.070919	1.250512	3.841466	0.2635

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

APPENDIX VI

Vector Autoregression Estimates

Date: 10/26/19 Time: 11:18
Sample (adjusted): 2001 2018
Included observations: 18 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LNCP	LNCE	LNRE

LNCP(-1)	0.883064	1.061144	-0.610990
	(0.14399)	(0.58168)	(0.30555)
	[6.13292]	[1.82429]	[-1.99962]
LNCE(-1)	0.034790	0.517082	0.273313
	(0.06482)	(0.26185)	(0.13755)
	[0.53673]	[1.97474]	[1.98703]
LNRE(-1)	0.034897	-0.054804	0.410829
	(0.09051)	(0.36562)	(0.19206)
	[0.38557]	[-0.14989]	[2.13905]
C	0.480631	-5.513548	15.76406
	(2.16907)	(8.76252)	(4.60292)
	[0.22158]	[-0.62922]	[3.42479]
R-squared	0.874168	0.699681	0.638284
Adj. R-squared	0.847204	0.635327	0.560773
Sum sq. resids	0.255139	4.163780	1.148940
S.E. equation	0.134997	0.545356	0.286474
F-statistic	32.41986	10.87238	8.234790
Log likelihood	12.76599	-12.36536	-0.777106
Akaike AIC	-0.973999	1.818373	0.530790
Schwarz SC	-0.776138	2.016233	0.728650
Mean dependent	15.68141	20.49408	19.95398
S.D. dependent	0.345357	0.903084	0.432255

Determinant resid covariance (dof adj.)	0.000327
Determinant resid covariance	0.000154
Log likelihood	2.394928
Akaike information criterion	1.067230
Schwarz criterion	1.660811
Number of coefficients	12

APPENDIX VII

LEAST SQUARE OF THE VAR MODEL

System: UNTITLED
Estimation Method: Least Squares
Date: 10/28/19 Time: 17:03
Sample: 2001 2018
Included observations: 18
Total system (balanced) observations 54

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.883064	0.143988	6.132916	0.0000
C(2)	0.034790	0.064818	0.536730	0.5943
C(3)	0.034897	0.090507	0.385574	0.7018
C(4)	0.480631	2.169067	0.221584	0.8257
C(5)	1.061144	0.581676	1.824288	0.0752
C(6)	0.517082	0.261849	1.974736	0.0549
C(7)	-0.054804	0.365625	-0.149891	0.8816
C(8)	-5.513548	8.762515	-0.629220	0.5326

C(9)	-0.610990	0.305552	-1.999622	0.0520
C(10)	0.273313	0.137548	1.987032	0.0535
C(11)	0.410829	0.192062	2.139051	0.0383
C(12)	15.76406	4.602922	3.424795	0.0014

Determinant residual covariance 0.000154

Equation: LNCP = C(1)*LNCP(-1) + C(2)*LNCE(-1) + C(3)*LNRE(-1) + C(4)
Observations: 18

R-squared	0.874168	Mean dependent var	15.68141
Adjusted R-squared	0.847204	S.D. dependent var	0.345357
S.E. of regression	0.134997	Sum squared resid	0.255139
Durbin-Watson stat	1.941659		

Equation: LNCE = C(5)*LNCP(-1) + C(6)*LNCE(-1) + C(7)*LNRE(-1) + C(8)
Observations: 18

R-squared	0.699681	Mean dependent var	20.49408
Adjusted R-squared	0.635327	S.D. dependent var	0.903084
S.E. of regression	0.545356	Sum squared resid	4.163780
Durbin-Watson stat	1.813499		

Equation: LNRE = C(9)*LNCP(-1) + C(10)*LNCE(-1) + C(11)*LNRE(-1) + C(12)
Observations: 18

R-squared	0.638284	Mean dependent var	19.95398
Adjusted R-squared	0.560773	S.D. dependent var	0.432255
S.E. of regression	0.286474	Sum squared resid	1.148940
Durbin-Watson stat	1.671478		

APPENDIX VIII

Variance Decomposition of LNCP: Period	S.E.	LNCP	LNCE	LNRE
1	0.134997	100.0000	0.000000	0.000000
2	0.179241	98.04189	1.726529	0.231583
3	0.209617	95.12692	4.443711	0.429372
4	0.233655	92.42393	7.029965	0.546106
5	0.253823	90.29338	9.097223	0.609396
6	0.271244	88.70350	10.65193	0.644575
7	0.286551	87.52235	11.81180	0.665844
8	0.300153	86.62819	12.69168	0.680132
9	0.312334	85.93286	13.37647	0.690664
10	0.323310	85.37761	13.92345	0.698943

Variance Decomposition of LNCE: Period	S.E.	LNCP	LNCE	LNRE
1	0.545356	1.274322	98.72568	0.000000

2	0.620559	4.378742	95.57361	0.047650
3	0.666672	11.74769	88.20840	0.043912
4	0.707845	19.20471	80.74425	0.051038
5	0.745125	25.25980	74.65470	0.085504
6	0.778520	29.91997	69.94786	0.132168
7	0.808449	33.52769	66.29409	0.178219
8	0.835401	36.38996	63.39147	0.218570
9	0.859796	38.72105	61.02642	0.252524
10	0.881973	40.66144	59.05763	0.280926

Variance Decomposition of LNRE: Period	S.E.	LNCP	LNCE	LNRE
1	0.286474	3.449115	22.10581	74.44507
2	0.385286	11.79664	40.10045	48.10290
3	0.422006	14.27314	45.02873	40.69813
4	0.431878	14.82016	46.30181	38.87803
5	0.433818	14.87756	46.58965	38.53279
6	0.434093	14.86754	46.64483	38.48764
7	0.434137	14.86734	46.65125	38.48141
8	0.434166	14.87570	46.64779	38.47650
9	0.434195	14.88589	46.64281	38.47130
10	0.434223	14.89525	46.63830	38.46644

Cholesky Ordering: LNCP LNCE LNRE

APPENDIX IX

POST MODEL TEST 7

VAR Residual Heteroskedasticity Tests (Levels and Squares)
Date: 10/30/19 Time: 00:34
Sample: 2000 2018
Included observations: 18

Joint test:

Chi-sq	Df	Prob.
31.55546	36	0.6799

Individual components:

Dependent	R-squared	F(6,11)	Prob.	Chi-sq(6)	Prob.
res1*res1	0.233840	0.559552	0.7541	4.209120	0.6484
res2*res2	0.283572	0.725657	0.6385	5.104289	0.5305
res3*res3	0.184804	0.415614	0.8539	3.326471	0.7669
res2*res1	0.145000	0.310916	0.9182	2.609999	0.8560
res3*res1	0.113135	0.233872	0.9564	2.036422	0.9163
res3*res2	0.196796	0.449193	0.8313	3.542333	0.7383

VAR Residual Serial Correlation LM Tests
Date: 10/30/19 Time: 00:35
Sample: 2000 2018
Included observations: 18

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	Df	Prob.
1	7.150987	9	0.6214	0.791287	(9, 22.1)	0.6275

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE* stat	df	Prob.	Rao F-stat	Df	Prob.
1	7.150987	9	0.6214	0.791287	(9, 22.1)	0.6275

*Edgeworth expansion corrected likelihood ratio statistic.

VAR Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: Residuals are multivariate normal
Date: 10/30/19 Time: 00:36
Sample: 2000 2018
Included observations: 18

Component	Skewness	Chi-sq	df	Prob.*
1	-2.064173	12.78243	1	0.0003
2	-0.543621	0.886570	1	0.3464
3	0.583538	1.021549	1	0.3122
Joint		14.69055	3	0.0021

Component	Kurtosis	Chi-sq	df	Prob.
1	8.222109	20.45282	1	0.0000
2	2.693594	0.070413	1	0.7907
3	2.215106	0.462044	1	0.4967

Joint	20.98528	3	0.0001

Component	Jarque-Bera	Df	Prob.
1	33.23525	2	0.0000
2	0.956984	2	0.6197
3	1.483592	2	0.4763
Joint	2.115745	6	0.3473

*Approximate p-values do not account for coefficient
Estimation

APPENDIX X

DETAILS OF THE INTERVIEWEE

S/N	NAME	CODE	DATE INTERVIEWED	PLACE INTERVIEWED
1.	**Ahmed Abraham** (Director, Planning Research and Statistics, Min. of Agric)	RESPONDENT A	10/10/2019	Min. of Agric, Lokoja, Kogi
2.	**Musa N. Omika** (Director, Crop ADP, Kogi State)	RESPONDENT B	09/10/2019	ADP Head office, Felele, Kogi.
3.	**Obari Sunday** (Director, Agric Services, Kogi State)	RESPONDENT C	09/10/2019	ADP Head office, Felele, Kogi.
4.	**Isiaka Bilkisu** (Extension worker)	RESPONDENT D	09/10/2019	Adankolo Site Lokoja, Kogi State
5.	**Philips Idachaba** (Member, AFAN Kogi State)	RESPONDENT E	12/10/2019	Felele Site, Lokoja, Kogi State
6.	**Ilyasu Owudah** (Member, AFAN, Kogi State)	RESPONDENT F	11/10/2019	Kabba Bunnu Site, Kogi State
7.	**Yunusa Yahaya** (Member, AFAN, Kogi State)	RESPONDENT G	10/10/2019	Adavi Site, Kogi State
8.	**Aisha Ishaq** (Member, AFAN, Kogi State)	RESPONDENT H	12/10/2019	Okene Site, Kogi State
9.	**Amina Owudah** (Member, AFAN, Kogi State)	RESPONDENT I	11/10/2019	Okehi Site, Kogi State
10.	**Ojoma Maxwell** (Member, AFAN, Kogi State)	RESPONDENT J	09/10/2019	Anyigba Site, Kogi State
11.	**Yahaya Abdul** (Member, AFAN, Kogi State)	RESPONDENT K	12/10/2019	Gegu Site, Kogi State

Source: Researcher’s Survey (2019)

APPENDIX XI

Researcher with the Director, Department of Planning, Research and Statistics, Min.of Agriculture Kogi State during an Interview Session

Director, Department of Crop Services Kogi State Agricultural Development Project during an Interview Session

Secretary, AFAN Kogi State, Lokoja Chapters after an Interview Session with the Researcher

APPENDIX XII

DEPARTMENT OF PUBLIC ADMINISTRATION

FACULTY OF ADMINISTRATION

AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

abupa@abu.edu.ng

Vice Chancellor:
Professor Ibrahim Garba
B.Sc. (Hons) Geology, M.Sc. (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FNMGS

Head of Department:
Dr. Musa Idris
BA, MSc, Ph.D Public Admin (ABU), FCIA

Our Ref: DPA/ADMIN/01 | Your Ref: | Date: 30TH September, 2019

TO WHOM IT MAY CONCERN

Dear Sir,

DATA COLLECTION FOR Msc. THESIS

This is to certify that **Tijani Amoto Abdulmalik (P17ADPA8182)** is a full time Msc. student at the Department of Public Administration, Ahmadu Bello University, Zaria.

He needs to collect Data for his research topic (**"Impact of Public Expenditure on Agricultural Growth in Kagi State")** in order to fulfill the requirement of his Msc. Programme.

We duly hope that your organization will be able to assist him in obtaining the necessary information for his Research Dissertation.

Thank you.

Yours faithfully,

2/10/2019

ABDULMUDASIR USMAN
For: Head of Department.

A

DAS please deal
9/10/19
MD

DAS/PMC
Pls give him necessary assistance.
9/10/19
DF.

DEPARTMENT OF PUBLIC ADMINISTRATION

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Thank you.

Yours faithfully,

2/10/2019

ABDULMUDASIR USMAN
For: Head of Department.

Public Administration

'A'

DGPRS

pls attend bearer on date available

PS WKS