**IMPACT OF AGRICULTURAL FINANCING ON THE AGRICULTURAL OUTPUT IN NIGERIA**

**BY**

**UDECHUKWU CHRISTOPHER IKENNA**

**U14/MSS/ECO/082**

**DEPARTMENT OF ECONOMICS**

**JULY, 2018**

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**A RESEARCH PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF MANAGEMENT AND SOCIAL SCIENCES**

**GODFREY OKOYE UNIVERSITY UGWUOMU-NIKE, IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF SCIENCE IN ECONOMICS**

**SUPERVISOR: MR. ODO. A. C**

**JULY, 2018**

**CERTIFICATION PAGE**

I, Udechukwu Christopher, an undergraduate of the department of Economics, Godfrey Okoye University with the registration number U14/MSS/ECO/082 do hereby affirm the work embodied in this research: IMPACT OF AGRICULTURAL FINANCING ON THE AGRICULTURAL OUTPUT IN NIGERIA is original and has been submitted in part or full in any other diploma of degree of this or any other University.

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Udechukwu, Christopher Date

**APPROVAL PAGE**

This project has been approved to have satisfied the requirement for the award of Bachelor of Science Degree in the department of Economics, Godfrey Okoye University, Ugwuomu-Nike, Enugu State.

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External Examiner

**DEDICATION**

This research is been dedicated to Mr and Mrs Clement Udechukwu, Rev. Dr. Prof. Fr Damien Udechukwu, for the support in achieving this stage of my academic pursuit.

**ACKNOWLEDGEMENT**

I am grateful to the almighty God for the gift of life, good health, strength and ability to complete this project. I wish to acknowledge the effort of my indefatigable supervisor; Mr. ODO. A. C for his full assistant and guidance throughout the course of this work.

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UDECHUKWU, CHRISTOPHER.

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**ABSRACT**

***This study examined the effect of agricultural financing on agricultural output in Nigeria.This study is necessitated by the fact that agricultural practices have not been given full attention they deserve in Nigeria knowing truly that the country by nature is gifted in agriculture and its neglect is our bane in terms of food production and revenue yield. The research relied on secondary data that was used, which concentrated on banks credit and Government funding of the agricultural sector within the time frame of 1980 to 2015.In this analysis,annual time series,unit root test, co-integration, CBN statistical bulletin, ordinary least square (OLS) and Augmented Dicker-Fuller(ADF) where part of tests used. Based on the results obtained, the estimated results showed that there was a positive and significant relationship between agricultural credit guarantee scheme fund and agricultural output in Nigeria.This means that an increase in agricultural credit guarantee scheme fund could lead to an increase in agricultural output in Nigeria.Again,there was a positive and significant relationship between government expenditure on agriculture and agricultural output in Nigeria. This is because an increase in the rate of interest charged farmers for funds borrowed discouraged many farmers from borrowing and thus less agricultural investment. At this end, there was the need for the government to continue to guarantee loans lent to farmers as this would encourage the banks to lend more to farmer***

 **CHAPTER ONE**

 **INTRODUCTION**

**1.1 Background of the Study.**

Agricultural financing is a financial service ranging from short, medium and long- term loans, towards production and livestock insurance which covers the entire agricultural chain. Agriculture which can be defined as the activity of man for the production of food, clothing and the optimum use of terrestrial resource.

Agriculture been stated as the back bone of Nigerian economy and the most important human economic activity. However, agriculture is originated from a Latin word 'Ager' means "field”, soil and 'Cultura' means "cultivation" which deals with the science, art or practising the cultivation of the soil, production of crops and raising live stocks and management of its products.

The importance of agriculture in increasing the food supply for Nigeria’s teeming populations, providing adequate raw materials for agro–based industries, employment, capital and foreign exchange for economic development calls for banks and public sector’s partnership in agricultural financing for increased output.

Nigeria’s quest for food security and self sufficiency will remain unrealisable if the country’s agriculture continues to rely on peasant farmers for agricultural financing. This is why successive Governments and banks in Nigeria have adopted various policies, programmes and actions to increase the flow of financial resources to the agricultural sector, in order to increase that sector’s output for self sufficiency. Self sufficiency in food production has engaged the attention of successive governments in Nigeria since the independence in 1960. This is because no country can claim to be either economically or politically sovereign if it cannot feed its people. However, judging by the growth rate of the agricultural products, the sector cannot be said to have performed optimally.

To achieve the objective of this research, the appropriate agricultural finance policy and strategy must be adopted by the country and measures to intensify the role of financial institutions in accelerating the development of Nigeria’s agricultural needs to be given urgent attention especially in this era of global food crisis. Towards this end, the paper in section two discusses the literature review. Section three and four contain the methodology, results and discussion of findings while Section five is the conclusion and recommendations. In order for Nigeria to successfully diversity its economy and avoid the consequence of depending just on petrol, new innovation should be introduced to boost the agricultural sector as following steps;

Agricultural output in Nigeria can be influenced amongst other factors by Government policy framework in such areas as Central Bank of Nigeria, Bank Credits Guild Lines and Budgets Allocations; and it’s financing remains the mainstay of the economy since it is largest sector in term of its share in employment.

As the watchdog of the economy; Nigeria is placing much emphasis on financing other sectors most especially agricultural sector since agriculture has the potentials to stimulate economic growth through provision of raw material, food, jobs and increased financial stability (Obansa and Maduekwe 2012).

It follows that financing agriculture is one of the most important instrument of economic policy for Nigerian, In her efforts to stimulate development in all directions, finance is required by agricultural sector to purchase land, construct building, acquire machinery and equipment, hire labor, irrigation etc. In certain cases, such loans are needed to purchase new appropriator technologies. Adegeye and Dittohs (1985) gets it insights as the economic study of acquisition and use of capital in agriculture to help in its output in Nigeria.

In recent years, Nigeria has been a land with agriculture, yet the sector still accounts for a significant proportion of her gross domestic products. Agriculture is the leading sector in accounting about 63 and 54 percent to GDP especially in the 50s and 60s respectively (Aigbokhah, 2001). The sectors share in gross domestic product though fell in the post oil boom period, maintained yet persistent increase. For instance, between 1970 and 1980 the share of agriculture in real gross domestic product (RGDP)in Nigeria arranged 29.2%, it was 33.3% between 2001 and 2009;

World (2007) opines that in Nigeria Agriculture is estimated to be largest contributor to non-oil foreign exchange earnings. This means that it holds the abundant potential enhancing and sustaining the country's foreign exchange. (Food and Agricultural Organization (2006) observed that agriculture contributes immensely to the Nigeria economy in various ways: provision of food for the increasing population, supply of adequate raw material sector, a major source of employment, generation of foreign exchange earnings and provision of a market for the productivity supports. The possible way forward among others, include the provision of finance. Farmers need access to cheap finance and not to be forced to borrow at sky-high interest rate from local money lenders: it can achieve by salting up moral bank - Specializing in the provision of finance to small farmers. Various measures have been adopted in insurance of these objectives in recent years. These include conveyance of credit to agricultural sectors at its interest rate, establishment of agricultural financial institutions and introducing finding schemes.

Also in the recent time in country, following the Central Bank of Nigeria C.B.N (2010) animal growth rate of agriculture dropped from 55.2% in 2002 to 7.4% in 2006, which however, this research will focus on using variable like commercial bank loan to agriculture and loan guarantee to agricultural finance have impacted of agricultural output in Nigeria and its welfare.

**1.2 Statement of the Problems**

It is obvious that no aspect of the economy will do well without proper financial intermediation from the financial system of the agricultural output. However, the problems that give rise to this study are lack of loan to agricultural sector by commercial bank in Nigeria etc. There is high interest rate on agricultural Loan in Nigeria and the problem of low performance of the agricultural credit guarantee scheme fund which has lefty aims especially the need to make agricultural sector lucrative but it has not lift up his bidding, this calls to empirical assessment with a view to understanding the resultant effects from the huge investment from the government into this sectors. The vast employment opportunity and the quest towards diversification of the revenue sources by the federal government and development agencies have shifted attention towards the informal and agricultural sectors. For instance, example to sustain this agricultural production in Nigeria, the World Bank developed a project allied agricultural development project (ADPS) which was designed to enhance the production of agricultural productivity in Nigeria.

**1.3 Research Questions**

1. What is the impact of agricultural credit guarantee scheme funds on agricultural output in Nigeria?

2. What is the impact of government expenditure on agricultural output in Nigeria?

3. What is impact of commercial bank credit to agricultural output in Nigeria?

1**.4 Research Objectives**

The major objectives of this work are to determine the impact of agricultural financing on agricultural output in Nigeria.

1. To evaluate the impact of agricultural credit guarantee scheme funds on agricultural output in Nigeria

2. To ascertain the impact of government expenditure on agricultural output in Nigeria.

3. To determine the impact of commercial bank credit to agricultural output in Nigeria.

1**.5 Research Hypothesis**

The following hypotheses were formulated after the order of the research objectives to include:

H0. Agricultural credit guarantee scheme funds have no significant effect Agricultural output in Nigeria.

1. Government expenditures have no significant effect on agricultural output Nigeria.

2. Commercial bank credit has no significant effect on the agricultural output in Nigeria.

**1.6 Significant of the Study**

This study is significant in the sense that it will reveal how agricultural financing can contribute to the growth of agricultural products. if proper attention is given to agricultural output through the financing system it will guide policy makers such as government and private sectors in making polices that will help the agricultural endeavors. This study will be useful to the student of economics, banking and Farmer etc. As it will aid in them for research.

**1.7 Scopes of the study**

This study is aimed at accessing the impact of agricultural financing to agricultural output in Nigeria, ranking from 1980 to 2015, which captures the extent to which agricultural have improved on agricultural output; through stimulating economic growth. Through our findings it stated that agricultural output will always fluctuate and is not constant, which will always increase at a certain year and also decrease at a certain year.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Introduction**

Finance is a crucial ingredient in all forms of development, yet the access to financial services such as savings and credit has been an issue of segregation among social strata in the society on socio-economic basis. Asabia (1981) noted that the banks have less interest toward providing credit facilities for financing agricultural activities because of the perception of high elements of risk involved. In Nigeria the formal financial system provides services to about 35 percent of the economically active population while the remaining 65 percent are excluded from access to financial services (CBN, 2005). Most farmers do not have adequate collateral to secure formal bank loans that would help their enterprises to grow and diversify. The banks on the other hand are profit making organizations and not charity rendering institutions. Olaitan (2006) reiterated that the lack of access to finance restrains growth amongst farmers in Nigeria, stressing that they are endangered species, and calls for a transformation efforts to address the problem. For instance, the Fin scope survey on Nigeria in 2008 revealed that 86 percent of rural adults are currently embanked and just 15 percent of total farmers are banked (IPD, 2004). As earlier mentioned, a large proportion of the rural population depends on agriculture for their main source of sustenance and livelihood, yet the supplies of finance still leave a wide gap of rural access to finance. Hence, the lack of access to finance constitutes a socio-economic problem for agricultural performance. Most commercial banks that have experienced losses from untimely repayment of agriculture loans given to farmers seek to minimize defaults by choosing carefully the distribution of credit across farmers (Anderson, 1990). According to Duong and Izumida (2002), the supply of agricultural credit plays a critical role in agricultural development.

The role of this study examined the effect of agricultural credit e.g. commercial banks, on its credit on agricultural output in Nigeria and appropriately needs to channel credits to agricultural sectors. The estimated results gotten from the last chapter and its hypothesis showed that there was a positive and significant relationship between agricultural credit guarantee scheme fund and agricultural production in Nigeria. This means that an increase in agricultural credit guarantee scheme fund could lead to an increase in agricultural production in Nigeria; there was a positive and significant relationship between commercial banks credit to the agricultural sector and agricultural production in Nigeria. This result signified that an increase in commercial banks credit to agricultural sector led to an increase in agricultural production in Nigeria. Again, there was a positive and significant relationship between government expenditure on agriculture and agricultural production in Nigeria. This is because an increase in the rate of interest charged farmers for funds borrowed discouraged many farmers from borrowing and thus less agricultural investment. The study recommended that the positive effect of agricultural credit guarantees scheme fund on agricultural production called for the proper funding of the scheme by the government. To this end, there was the need for the government to continue to guarantee loans lent to farmers as this would encourage the banks to lend more to farmers.

Over the years, Rahji and Adeoti (2010) noted that Nigeria has a peculiar focus towards \*agricultural and rural development, these efforts help to foment the constraints to credit finance for farming and household purposes, which imposes high cost of agriculture development on the society. Credit finance is an important ingredient in agricultural production; farming and marketing of commodities, yet the problem of high-risk perception still persists on the part of financiers. Banks perceive agricultural credit as being very risky and they prefer to seek alternative less risky sectors to finance. Ajetomobi and Binuomote (2007) argued that this perception could be because of irrational responses to information and contracting problems pertinent in Nigeria’s agricultural credit markets. According to Rahji and Adeoti (2010), the factors that influence a lender’s behaviour to reduce credit to farmers‟ are determined by the relationships between the farmers and given conditions such as the ability to pay back loan and the availability of certain collateral in the event of loan defaults, the default rates on agricultural loans seem to be on the high side, and this unfortunate situation is attributed to the fact that farmers default payment because such loans are considered more as a gift from government than a debt that have to be paid back. High rate of default reduces the loanable funds available. Hence, financial institutions are forced to apply an ‘access rules based on their policy when considering credit facilities for farmers. Landed properties certified by the appropriate authority, farmland and a guarantee from a respectful individual in the towns or villages should be accepted as mortgages or collaterals against default. the inability of this sector to expand and as well contribute meaningfully to the growth of Nigeria economy was due to inadequate financing to improve on the situation that is, facilitating agricultural credit. Also the problem of rapid agricultural production in Nigeria indicates that efforts directed at achieving expanded economic base of the rural farmers was frustrated by the scarcity of and restriction access to loan able fund. The role of financial capital as a factor of production to facilitate economic growth and production was to formulate by the Federal Government of Nigeria to establish many institutions, programs and schemes aimed at providing the needs of the farmers. Economic growth is the increase in the amount of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product or real GDP. Which is to enhance the provision of the provision of the support services I all parts of the country, government should also established the aagricultural production projects in all state of the federation and establish the National Agricultural Land Development Authority. With the growth in the number of government agricultural development programs, one expected meaningful agricultural output growth, positive change in farm sizes and general growth in the sectors. In order to solve the problem of agricultural financing so as to boost agricultural production and ensure food security especially in the rural areas, federal Government of Nigeria established the Nigeria financing institution, in July, 2001, Nigerian Government finally should establish the Nigeria Co-operative and Rural Development Bank{NACRDB} as an agricultural financing institution to facilitate agricultural production through the provision of affordable credit facilities to micro, small and medium scale farmers.

**2.2 Theoretical Literature**

This theory was considerate to be the central on the part played by government intervention in the financial markets as a critical setback to growth, investment and savings mobilization. The role of government in interest rate control and credit allocation to the productive economic sectors in developing countries hinders the mobilization of savings and discourages financial assets holding, economic growth and capital formation. Interest rate ceiling on deposit indirectly inhibited financial saving which resulted in excess liquidity outside the banking industry. Government pervasive intervention and financial system involvement through the supervisory and regulatory framework, especially interest rate control and credit allocation tends to facilitate financial market distortions. As such, the intervention of government is adversely affecting the market players decision regarding investment and savings and resulted in financial mediation fragmentation. The resultant effect of this scenario is an economy that is financially repressed. The central position is that credit allocation should be determined by the free market and financial markets should also be liberalized. Hence, there will be adjustment in the real interest rate to the equilibrium level and the elimination of projects with low yields. This will result in improvement in the overall savings and investment efficiency and increased supply of total real credit. In return, this would induce increased volume of investment that will engender the growth of the economy. The primary critique of the theory of financial liberalization has been from the paradigm of imperfect information. The Paradigm of Imperfect information argued with the proponents of financial liberalization and examines financial development problems in the form of information asymmetry and credit rationing as a result of expensive information.

**Bank of agriculture (BOA)** Earlier in 1973, the Federal Government established the Nigerian Agricultural and Cooperative Bank (NACB) Ltd with a mission to “provide affordable financial and advisory services to the farm and non-farm enterprises of the national economy using well-trained and highly motivated staff, backed by appropriate technology, thereby fostering accelerated agricultural and rural development.” In October 2000, NACB successfully merged with the defunct Peoples Bank of Nigeria (PBN) and the risk assets of the Family Economic Advancement Programme (FEAP) to form the Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB) Ltd as the single largest development finance institution in Nigeria. In 2011, NACRDB transformed into the Bank of Agriculture (BOA) Ltd. Its share capital of N50bn is fully subscribed by the Federal Ministry of Finance Incorporated (60%) and the Central Bank of Nigeria (40%). Unfortunately, as at date only N20.316bn (40.7%) of the share capital is paid up leaving a shortfall of N29.684bn (59.3%). Records the evidence that at March 2011, it disbursed an accumulated loan of N42bn in the 10yrs period from 2001-2011 [TABLE 1] and mobilized a deposit of N361bn within the same time frame.

**Agricultural Finance Policies in Nigeria.**

The Nigerian government has been making efforts since the 1970s to revitalize its agriculture sector to make the country food self-sufficient again. Nigeria’s agricultural policy comprises of the framework and action plans of government designed to achieve overall agricultural growth and development. These policies aim at attainment of self-sustaining growth in all the sub sectors of agriculture and the structural transformation necessary for the overall socio-economic development of the country as well as the improvement in the quality of life of Nigerians. The main objectives of agricultural financing policies in Nigeria are to establish an effective system of sustainable agricultural financing schemes; and programmes and institutions that could provide micro and macro credit facilities for the micro, small, medium and large scale producers, processors and marketers (CBN, 2007). In response to the poor and dwindling performance of agriculture in Nigeria, various government administrations have over the years initiated policies and programmes aimed to restore the agricultural sector to its place of pride in the economy and to address the issue of provision of credit finance. In addition, due to the agriculture sector’s significant role in nation building, it has attracted the attention of government policies over time because of globalization, technological innovation, and financial crisis. Nigeria’s agricultural policy comprises of the framework and action plans of government designed to achieve overall agricultural growth and development. The agricultural policies in Nigeria affected the level of financial deepening of the country and the relevance of the financial system to economic development (Nzotta & Okereke, 2009). Agriculture policies promote growth because it brings about monitoring and evaluation of the process of agricultural development. The policies aim at the attainment of self-sustaining growth in all the sub sectors of agriculture and the structural transformation necessary for the overall socio-economic development. These policies have been found to be an important tool for agricultural performance in Nigeria.

The Central Bank’s monetary policy compels all banks to lend at least a minimum percentage of their loanable funds to the agricultural sector (CBN, 2007). The Nigerian government pays particular attention to policies relating to the agriculture sector because such emphasis engenders better performances, foreign earnings, and of course the provision of food for sustainability and livelihood of the populace. According to Akiri and Adufu (2007), the financial system in the country as well as government efforts inculcate agricultural growth incentives in the nature of their services and functions within the economy through their role as financial intermediary. Some of these policies have failed while some are still operational; reasons for failure have been attributed to the unwillingness of the conventional banks to support small enterprises; lack of effective skill to deliver planned services; scarcity of loan able funds, absence of specialized institutions to support the sector; incompetent management and low management capacity of farmers (CBN, 2007). The broad policy of the overall agriculture sector includes attaining self-sufficiency in basic food commodities in which the country has comparative advantage in local production; to increase production of agricultural raw materials to meet the growth of an expanding industrial sector; to increase production and processing of exportable commodities as a source of foreign exchange earnings; modernization of agricultural production, processing, storage and distribution through new technologies and management; creation of more agricultural and rural employment opportunities to increase the income of farmers and rural dwellers; protection and improvement of agricultural land resources and preservation of the environment for sustainable agricultural production. Policies are required to boost economic growth and tackle the problems in the sector. In order to attract finance for the growth of the agriculture sector the government has been involved in a list of policy initiatives on the provision of agricultural finance services in Nigeria from the 1970s to date and are discussed below. These policies include schemes, initiatives programmes and institutions.

**Sectoral Allocation of Credits (1970–1996)**

The sectoral allocation of credit facilities to the agriculture sector was in accordance with the CBN‟s guidelines to stimulate the productive sectors and thereby to stem inflationary pressures. At the same time, interest rates were kept low with the intention of promoting investment. During this period the government identified the various needs of each sector and designed peculiar assistance to aid their performances, for instance, the fixing of interest rates at relatively low levels was done mainly to promote investment and growth in the agriculture sector. Although the sectoral allocation of credit to preferred sectors took close to 75–79 per cent of banks’ loans and advances during the years 1986, 1987 and 1989, a wide disparity was observed between the policy’s intentions and actual performance as a larger share of the credit went to the government (Ikhide, 1996). The dominance of government was an underlining factor for the discontinuity of the credit allocation in 1996 alongside the non-availability of collateral and absence of proper bookkeeping by the beneficiaries.

**Nigerian Agricultural Co-operative and Rural Development Bank Ltd (NACRDB) – formerly known as Nigerian Agricultural Co-operative Bank**

The NACRDB is the foremost development finance institution in Nigeria. The bank is a limited liability company wholly owned by the Federal Government of Nigeria, 60 percent of the shares are secured by the Federal Ministry of Finance while the Central Bank of Nigeria (CBN) owns the remaining 40 percent. The bank is traditionally active in the agricultural micro finance and agricultural finance markets focusing on agricultural saving mobilization, credit delivery, inculcation of banking habits and poverty reduction. In doing this, the bank provides credit facilities to its target clients that cannot readily access the services of conventional banks. This special bank for rural development emerged from the amalgamation of the erstwhile Nigerian Agricultural and Cooperative Bank (NACB), the Peoples Bank and the assets of the Family Economic Advancement Programme (FEAP) in 2000. It offers direct micro credit, on lending credit and macro credit. Its primary function is to finance agriculture as well as small and medium enterprises since the bulk of agricultural enterprises in Nigeria are small. The NACRDB accepts deposits; it also offers loans and advances in which the interest rates are stratified according to the purpose for the loan (Anyanwu, 2004:11). The bank offers a number of micro finance services, including targets savings, start-up capital as well as smallholder loan schemes. The Bank also strives to position itself as the gateway for investors in the Nigerian agricultural sector. The scheme has been instrumental in financing agricultural development in Nigeria.

**Rural Banking Programme (1977–1991)**

This was a rural banking policy, which compelled commercial banks to open a specified number of branches in rural areas. The programme was implemented to encourage investment and growth for rural enterprises, over 700 rural branches were opened before the programme was discontinued in 1991 (Olaitan, 2006). The policy was implemented in phases and it stipulated that not less than 50 percent of the total deposit mobilized from the rural areas should be advanced to rural borrowers. By 1989 a total of 756 new branches had been opened with total deposit in all the rural areas amounting to N5.7 billion. The programme was aimed at achieving one bank branch in each of Nigeria’s 774 local government areas; each of the branches served about 127 000 people (Olaitan, 2006). The programme was discontinued after it achieved this goal in 1991. Despite these efforts, rural communities remain centers of deprivation devoid of opportunities particularly in terms of credit facilities. The reason was that at the time the Rural Banking Scheme was introduced in 1977, the government promoted a managed economic system rather than a free market system (Uche, 1999).

**Lending as a Percentage of Savings Mobilized in Rural Areas to Rural Dwellers (1977–1996)**

This programme introduced the concept of banking to millions of Nigerians living in rural areas. As one of the development roles of the Central Bank of Nigeria (CBN), and the Agricultural Credit Guarantee Scheme (ACGS), this lending scheme sought after evolving a viable and sustainable credit strategy with a built-in growth factor that improved the rate of access to finance amongst rural dwellers to empower their entrepreneurial activities. The programme expected group members to save a portion of their earnings on a regular basis as agreed with any participating bank of their choice over a reasonable period, in order to serve as collateral for lending. The participating bank on its part, lent on a timely manner to the group members in multiples according to their savings. The group members were equally expected to continue with their regular savings simultaneously with loan repayments so that they would qualify for higher loans from the bank. The advantage was that borrowers were able to overcome their collateral problem; it empowered small and medium enterprises; promoted group synergy and catalyzed savings mobilization (Orok-Duke & Edu, 2009). The programme seized it operations based on directives of the government in order to consolidate it with other existing agricultural financing scheme.

**Concessionary Interest Rate (1980–1987)**

During this period, the Central bank of Nigeria allocated special credit to the agriculture sector with concessional interest rates to address the issue of rural finance. Since banks in general preferred to provide mainly short-term loans for risk management reasons, the Central Bank of Nigeria decided to create a special window for banks that are willing to give out loans for medium and long-term investments in agriculture at affordable interest rate. The concessionary interest rate helped to diversify and expand the productive base of the productive sectors in the Nigerian economy to encourage medium to long-term lending to the real sectors. The eligibility for projects to be financed by the concessionary interest rate were those with five years tenor for the repayment of the loan, and the facility was given at a rate lower than the stipulated Minimum Re discounting Rate (MRR) of the CBN to deliberately encourage a high ratio of aggregate (medium and long term) credits to the real sector for growth and development. Concessionary interest rates offered farmers an additional potential for agricultural investments, increased business activities and profit earnings. However, interest chargeable on agricultural lending was compulsorily set at between three and five percent points below the market rate charged for other economic activities. The hindrance the concession agreement had on rural agriculture finance remained the problem of endemic poverty that deters farming activities. However, the programme was discontinued in 1987.

**Peoples Bank of Nigeria (1990–2002)**

The Peoples Bank of Nigeria (PBN) was one of the government’s efforts to promote rural financial intermediation with an objective of tackling poverty and promoting rural empowerment. The government established the bank at a time it realized that there was increasing poverty, mostly among farmers, rural dwellers, micro entrepreneurs and women, which lowered the standard of living of the people. The poverty reduction strategy in Nigeria targeted the underprivileged group in rural and urban areas. The bank encouraged savings and offered credit facilities. The People’s Bank was set up to meet the credit needs of the rural and urban poor, artisans, farmers, petty traders, vehicle mechanics, and so on. However, because it was supply-led and heavily dependent on subventions from the federal government for its operations, the recovery of loans was not very efficient and so it faced problems of de-capitalisation due to heavy overheads that outstrip earnings (Yunusa, 1998).

**Community Banks (CBs)/Micro finance Banks (MFBs) (1990 to date)**

The community and micro finance banking concept was introduced to provide banking and financial services for the promotion of rural economies and to develop micro-enterprises. Community banks are communally owned and are structured as rural credit institutions. By 1995, there were about 1 358 community banks in operation in Nigeria (CBN, 2009). CBs in Nigeria are established using the already existing rotating savings and credit associations (ROSCAs) using the deposit mobilization capability and funding capacity in key sectors of the rural economy. The bank is designed and modified to meet the needs of the small-scale entrepreneur who dominates the informal sector where many economic activities are carried out within a largely peasant mode of production (Yunusa, 1998). The community banking scheme came out of the need to close the credit gap in the rural economy where people have been marginalized by modern banking and to make the agricultural sector more productive by promoting rural activities such as agricultural practices. In a bid to reduce poverty through empowering the people by increasing their access to factors of production, the bank provides credit and other financial services to its members. The CBN‟s monetary credit guideline of 1996, provided that a statutory allocation of 18 per cent of all community banks‟ deposits should go to agricultural related activities (Onugu, 2000). In 2005 most of the existing community banks were converted to micro finance banks as stipulated by the CBN to better assist in wealth creation among enterprising poor people and to promote sustainable livelihood by strengthening rural responsive banking methodology. Community banks / micro finance banks assist in eradicating poverty through the provision of micro finance and skill acquisition development for income generation (Anyanwu, 2004).

**Nigerian Agricultural Insurance Corporation (1996 to date)**

The NAIC was introduced at a time the need for financing agriculture development in Nigeria required a specialized agricultural insurance company to provide insurance cover for farmers. The idea was informed by government’s concern over the vacuum created due to the unwillingness of conventional insurance company to cover agriculture activities, which they considered as being too risky. The CBN supports the Nigerian Agricultural Insurance Corporation’s operations in dealing with the special risk involved in the agriculture sector. NAIC was established specifically to provide insurance cover for farmers against natural disasters and other risks associated with agricultural production. One of these is the mandatory insurance cover on loans granted by banks to the agricultural sector under the Agricultural Credit Guarantee Scheme (ACGS). It is the only existing insurance company owned by the Federal government, the insurance cover has a unique socio–economic obligation to farmers who benefit from any agro-allied credit by approved lending institutions or agencies. So far, the achievements of NAIC scheme in keeping farmers in business are increased coverage; underwritten commodities from few crops and livestock to a majority of crops to allow for a good portfolio mix of agricultural commodities; premium generation from policies issued with risk of about N100 billion and over; claims settlement ranging from N500 million to various farmers and cooperative groups; increased volume of lending to the agricultural sector by encouraging lending institutions to lend more to especially small and medium scale farmers; and attracting international recognition through collaboration with the likes of the African Insurance Organization (AIO), the United Nations Commission on Trades and Agricultural Development (UNCTAD) and the Food and Agricultural Organization.

**Family Economic Advancement Programme (1997–2001)**

FEAP was introduced to provide credit facilities to cooperative societies in both rural and urban area while improving the quality of life of rural dwellers as they engage themselves with economic activities. FEAP was an economic project, it also operated as an empowerment programme designed especially for locally based producers of goods and services and potential entrepreneurs in the cottage industries particularly for the poor and needy. The programme was aimed at improving the standard of living of the low-income groups by stimulating appropriate economic activities in the various wards of each local government area of Nigeria. The performance of FEAP was not impressive on its objectives, as its administration was characterized by monopolistic politics of personal rule where there was no accountability and transparency. The scheme was discontinued to be joined to the Nigerian Agricultural Co-operative and Rural Development Bank Ltd in 2001. FEAP was referred to as a “gold-mine” in favour of a few people, in the pretence of caring for the poor (Osinubi, 2003).

**Small and Medium Enterprises Equity Investment Scheme (2001–2008)**

The Central Bank of Nigeria facilitated the Small and Medium Enterprises Equity Investment Scheme (SMEEIS) through commercial banks. It provided finance for small and medium scale enterprises development in Nigeria. The scheme enforced all banks to make a provision of 10 percent of their annual gross profit (before tax) for equity investment in small and medium enterprises. The notion behind the establishment of the scheme was to promote indigenous entrepreneurship, develop local technology, generate employment, facilitate the flow of funds from banks for the establishment of new, viable SMEs, ensure output expansion, re-distribute incomes and promote industrial linkages. The Scheme involved equity participation of banks in enterprises that they have appraised to be viable. The banks collaborated with the entrepreneurs to develop agro-allied activities in small enterprises by ensuring micro and small enterprises have unhindered access to SMEEIS Funds (Olaitan, 2006). The scheme was scrapped in 2008 and replaced with a Micro Credit Development Fund, which mandated banks to contribute five percent of their profit before tax to micro credit banks, in order to dispense credit facilities (CBN, 2009).

**Refinancing and Re discounting Facility (2002 to date)**The Re discounting and Refinancing Facility (RRF) of the Central Bank has a particular focus on supporting agricultural exports. This facility is available to assist commercial banks to provide short-term finance in local currency at preferential interest rates in support of ex ports of produced goods. Potential exporters are expected to be creditworthy, the credit facility received from RRF is intended to develop agribusiness through export channels, thereby enhancing production unit. Intending farmers wishing to export their produce are required to have at least 35 percent export orientation or existing providers of export services. The objectives of RRF include the following: to encourage medium and long-term bank lending to the productive sectors of the economy in order to expand and diversify the nation’s production base; to reverse the trend where short-term credits to general commerce and trade dominates domestic lending; and to deliberately encourage a high ratio of aggregate (medium and long term) credits to the real sector for growth and development (CBN, 2009).

**Agricultural Credit Support Scheme (2006 to date)**
As part of the Central Bank of Nigeria (CBN) and the Agriculture ministry’s developmental role, both institutions make funds available to participating banks under the ACSS in order to promote commercial agricultural enterprises in Nigeria. The scheme provides funds for agriculture on concessionary basis especially for small scale farmers, credit support and interest rate draw back scheme. The objective of the ACSS scheme is to speed up the development of the Nigerian agricultural sector by providing credit facilities to commercial agricultural enterprises at a single digit interest rate; to enhance national food security by increasing food supply and effecting lower agricultural produce and product prices, thereby promoting low food inflation; to reduce the cost of credit in agricultural production to enable farmers to exploit the potentials of the sector; and to increase output, generate employment, diversify the revenue base, increase foreign exchange earnings and provide input for the industrial sector on a sustainable basis (CBN, 2007). The scheme supports the efforts of the ACGS but it is not as effective.

**Agricultural Credit Guarantee Scheme (1977 to date)**
This is the scheme under review in this study, it was established in 1977 and commenced operations from 1978 to date, it considers critical issues in diversifying appropriate development strategies capable of providing the required finance for farmers and small and medium enterprises. The ACGS provides credit finance to a large number of farmers in the rural areas, for sustainable growth and financial empowerment in the agriculture sector (Olaitan, 2006). It assists farmers on how to improve their productivity and ensure a good market for their product. The ACGS fund makes access to finance much easier, it guarantees credit facilities from the bank to farmers at 75 percent of total fund borrowed without any security, which contributes to improving the livelihoods of farmers and emerging entrepreneurs in the agriculture sector. The Central Bank of Nigeria handles the operation of the scheme and stipulates the guidelines for the eligibility of farmers to access the funds. The ACGS is one of the very important schemes in terms of financing the activities of the agriculture sector in Nigeria.

**2.3 Empirical Literature**

➢ ***Agricultural Finance and Agricultural Production***

Numerous studies have been conducted to reveal the impact of agricultural finance on agricultural production in both developed and developing economies. Majority of these studies seems to suggest that bank credit has a positive effect on economic growth and development. For instance, in some of the studies discovered that about 70 per cent of the overall credit to the agricultural sector was employed in fertilizer and seed purchases and submitted that, the majority of the increased agricultural production could be attributed to changes in the quality and quantity of fertilizer and seed. In nwanze 2001 was reported that the flow of fund assessed by farmers was found to have increase inputs demand for the sole aim of increasing crop production. Irrigation, the elasticity of credit amount, the use of chemical pesticides and fertilizer and number of tractors etc with respect to agricultural income as the dependent variable on per cultivated as well as per cropped acre basis revealed that credit for production and tube wells have a significant and positive impact at 95 per cent level of confidence. The use of fertilizer and number of tractors was insignificant with positive contributions. This was due largely on the inappropriate use of tractors and fertilizer. The study on his own investigation of the several networks by which financial development is being channeled to the agricultural sector and also examines the effect of the financial sector development on the output and investment of the agricultural sector using aggregate data. The empirical result from this study shows a significant and positive relationship between bank lending to agriculture and agricultural sector real output. The paper revealed that, emphasis on investment in the agricultural sector should top the agenda of financial sector development as a primary focus on economic diversification by Nigerian governments. The lesson from this study maintained that, the performance of the Nigerian agricultural sector is enhanced by the development of the financial sector. He also undertook an empirical investigation of the financial sector reforms effect on the Nigerian manufacturing and agricultural sectors by employing annual time series data between 1980 and 2007. The estimation techniques of impulse response and variance decomposition were employed in the estimation of the equation. Results showed that credit to private sector positively impacts the agricultural and manufacturing sector of the economy and capacity utilization. This implied domestic investment would be facilitated with increased credit to private sector. Furthermore, results findings revealed that currency outside banks had a negative impact on actual output of agriculture and manufacturing sectors. Also, currency outside banks boosted agricultural and manufacturing sectors and capacity utilization in the long run.

However, gross domestic savings impacted negatively on capacity utilization and a positive influence on manufacturing and agricultural outputs. Nevertheless, political instability declined agricultural and manufacturing outputs in the short period and the both sectors experienced increase in outputs in the medium and long periods. The results further showed that political instability caused expansions in capital utilization in the short period, while contractions were experienced in the subsequent terms.

➢ ***Government Expenditure and Agricultural Production***

The sole provider of capital resources and financial incentives for the agricultural sector over the years has been the government. According to Nwosu (2004), there have been consistent attempt to increase these support incentives by government through increased budgetary expenditure and provision of available affordable credit facilities. However, Nwosu (1995) revealed that, over the years, government budgeting provision has serves as a critical determinant of the output and performance of the Nigerian agricultural sector. Food and Agricultural Organization (FAO) concluded in 2008 that the allocation of capital to the Nigerian agricultural sector from 1970 to 1980 averaged at 4.74 per cent. This figure rose to 7.00 per cent between 1980 and 2000, and further moved to 10.00 per cent between 2001 and 2007. In spite of this upward trend, it is far below what is being recommended by FAO that government should assigned about 25 per cent of its budgetary allocation to the development of the agricultural sector. Along this reasoning, several studies are focused toward examining the impact of the expenditure of government on agricultural output. For instance, the results show that agricultural output does not respond significantly to government expenditure on agriculture. It confirms that the government contribution to agriculture is not enough for its development. The study therefore suggested that the unique role of agriculture is recognized so that the sector can obtain its right share of government expenditure. In conducting the study on the impact of agricultural expenditure of government and other determinant of agricultural output on the value of the Nigeria agricultural output, they specified the Cobb Douglas growth model to accommodate food important, annual average rainfall, commercial credit to agriculture, GDP growth rate, and consumer price index and population growth rate. The error correction result revealed that, the capital expenditure of government had a positive relationship with agricultural output. And shows the relationship that existed between budgetary provision to agricultural sector and Nigerian agricultural production was found to significant, strong and positive.

The recommendations made from the study were that, the allocation from the budget to the agricultural sector should be increased and monitored to achieve employment, food security, and ultimately, enhanced growth and development of the Nigerian economy. However, the data used from 1975 to 2010 when studying the effect government expenditure on the Nigerian agricultural output. The variables of this study included foreign direct investment on agricultural sector, annual rainfall, government expenditure on agricultural sector, agricultural credit guarantee scheme fund, and commercial bank loans and advances to the agricultural sector. a positive but insignificant relationship existed between agricultural financing (expenditure) and its output in Nigeria.

➢ ***Interest Rate and Agricultural Production***

Interest rate constitutes a very important factor affecting the productivity of agriculture. As observed by Nwosu and Eluemunor (2010), one of the purposes of the policies of agricultural credit years over was the provision adequate credit to the agricultural players at an affordable cost and at the right time. The intervention of government in form of sectoral credit allocation, oligopolistic tendencies, interest rate ceilings and highly concentrated market structure that resulted in monopoly as well as promoting other inefficiencies that are responsible for economic distortions. On the empirical ground, there are several studies investigating the effect of interest rate on agricultural productivity. So far the studies carried out a study on the relationship between the growths of the Nigerian agricultural sector, macroeconomic policy and institutions finds significant signal in sustenance of the hypothesis that institutions are more critical in economic growth particularly the Nigerian agricultural sector growth. The study recommended that, interest rate should be liberalized to the agricultural sector and institutional supports should be strengthening basically on the areas such as extension services to farmers and subsidized inputs and examined the nexus of lending rate, deregulation of interest rate and agricultural productivity in Nigeria using annual data spanning 1986 to 2009. The authors used ordinary least squares (OLS) econometric estimation technique and co-integration and ECM as well as long run relationship was revealed among the variables from the co-integration test while the error correction modeling revealed a significant and positive relationship between interest rate deregulation and agricultural productivity. It is also expected that government must make it possible for the financial sector to carry out the policies that will guarantee available credit to the preferred sector, especially every sort of farmers and not bigger borrowers only like the government alone for the sole aim of boosting the productivity of the Nigerian agricultural sector.

➢ ***Bank Credit and Economic Growth***

Numerous studies exist examining the effect of bank credit on economic growth both in Nigeria and abroad. It analyses the credit market compositions in the United States and Nigeria to the degree to which financial markets have contributed to the growth of the economy. The Granger causality test was employed to test if private sector credit Granger-caused the growth of the economy. A strong causal significant relationship was found between economic growth and credit. Fully investigate the impacts of the efficiency of the financial sector on the growth of the economy comprising the middle and low income countries. Employing the financial augmented model, the study found support for a significant positive effect on economic growth by financial capital. Further investigation of the impacts of the activity, size and efficiency of the financial sector on the growth of the economy revealed that efficiency, size and activity are critical for the growth of the economy. The study revealed also the evidence of interaction between activity and size of the financial sector and financial sector efficiency and submitted that financial sector greater efficiency contributed to productive use of a financial capital of a country resulting in higher growth.

**2*.*4Summary of the Literature**

Agricultural credits are believed to be a very important in farming activities as adequate provision of fund to farmers makes all activities in output. Based on this percentage, the study was basically to ascertain the impact of this credit banks to agricultural on output of agricultural sector in Nigeria. From the result obtained, there exist a significant relationship between agricultural credits guarantee scheme Fund and agricultural output in Nigeria. The result also showed that commercial bank credits to agricultural sector related significantly and positively with the agricultural output in Nigeria.

Further investigations revealed that government expenditure on agricultural output, lastly the results showed a negative effect existed between interest rate and agricultural output in Nigeria.

**CHAPTER THREE**

**METHODOLOGY**

The quasi-experimental research design was adopted for this study. This type of research design employed empirical estimation techniques in estimating the causal relationship between the explanatory variables and the explained variable. In particular, the study adopts both descriptive and analytical methodologies in analyzing and in the estimation of the relevant relationships.

The descriptive methodology employs statistical tools such as simple tables, graphs, percentages and correlation analysis in analyzing trend performances of the variables captured in the study and examining the degree of relationship among the variables. The analytical methodology in this study was the ordinary least square (OLS) estimation techniques in estimating the relevant data. Times series data were collected on annual basis on the macroeconomic variables captured in the model.

**3.1 Theoretical Framework**

Government pervasive intervention and financial system involvement through the supervisory and regulatory framework, especially interest rate control and credit allocation tends to facilitate financial market distortions. As such, the intervention of government is adversely affecting the market player decision regarding investment and savings and resulted in financial mediation fragmentation. The resultant effect of this scenario is an economy that is financially repressed.

According to McKinnon (1986) the central position is that credit allocation should be determined by the free market and financial markets should also be liberalized. Hence, there will be adjustment in the real interest rate to the equilibrium level and the elimination of projects with low yields. This will result in improvement in the overall savings and investment efficiency and increased supply of total real credit. In return, this would induce increased volume of investment that will engender the growth of the economy. The primary critique of the theory of financial liberalization has been from the paradigm of imperfect information. The Paradigm of Imperfect information argued with the proponents of financial liberalization and examines financial development problems in the form of information asymmetry and credit rationing as a result of expensive information.

According to Stiglitz and Weiss two critical problems are associated with information asymmetry. Adverse selection of imperfect information paradigm is the first and the second is moral hazard, that is, the effect of information asymmetries on higher rates of interest which emanates from financial liberalization and reform policies in particular, worsen the taking of risk in the economy and also threatens the financial system stability which can result easily to financial crises.

**3.2. Specifications of Model**

This study is anchored by employing the Augmented Dickey-Fuller (ADF) unit root test. Time series data are assumed to be non- stationary; therefore it is necessary to carry out the unit root test because of the problem of non- stationary data producing spurious results. On Mckinnon financial liberalization thesis. According to the theory, free market should be the basis for determining credit allocation and the markets should be completely liberalized. By so doing, there will be enhancement in the efficiency of savings and investment and the overall real credit supply to the economy in general and agricultural sector in particular would increase. Thus, an increase in credit to the agriculture sector by financial institutions provides invertible funds needed for investment in agriculture in the country. This in turn leads to an increase in the output of agriculture. Based on this theoretical postulation, the study specified agricultural production as a linear function of credit disbursed by commercial banks to agricultural sector, government expenditure on agriculture, agricultural credit guarantee scheme fund, and interest rate. Agricultural output as the dependent variable was being proxies by agricultural gross domestic product (AGDP) was used as the dependent variable to represent agricultural output.

Based on these determinant factors, the model for this study is formulated and specified functionally as:

Where:

AGOUT = f(CBCRA, INT, ACGSF, GEXPA)---------------------------Bi

InAGOUTt = B2 + B2CBCRAt + B3INT + B4InACGSFt + B5InGEXPAt + U------B2

Where AGOUT is Agricultural Output

 CBCRA is Commercial Bank Credit To Agricultural Output INT is Interest Rate

ACGSF is Agricultural Credit Guarantee Scheme Fund.

GEXPA is Government Expenditure

B1 is the intercepts

B2 to B5 are the Partial slope

U is the error term

AGOUT = agricultural output, measured by agricultural gross domestic product in Nigeria.

CBCRA = commercial banks credit to agricultural sector in Nigeria

GEXPA = government expenditure on agriculture in Nigeria

ACGSF = agricultural credit guarantee scheme fund

**3.3 Evaluation Techniques**

This study used time series data that covers a period of 35 years (1980-2015). The methods of data analysis include the Augmented Dickey- autoregressive model. The stationary of data must be established and the order of integration determined. This is done by employing the Augmented Dickey-Fuller (ADF) unit root test. Time series data are assumed to be non- stationary; therefore it is necessary to carry out the unit root test because of the problem of non- stationary data producing spurious results.

**3.4 Data Sources and Econometrics Software**

To achieve the stated objectives of the study, secondary data were collected in form of annual l time series data from Central Bank of Nigeria (CBN) statistics proves. The agriculture financing economic growth relationship will be analysed using OLS (Ordinary Least Square) technique. The factors influencing financing options will be ascertained with method of instrumental variables because of the system of simultaneous equation. The residual series of the estimated equation is tested for stationary with Augmented Dickey run relationship between economic growth and agriculture financing options.

 **CHAPTER FOUR**

**PRESENTATION AND ANALYSIS OF RESULT**

The result of the ordinary least square (OLS) regression model was presented in this chapter. An OLS model was estimated to evaluate the impact of agricultural financing on the agricultural output in Nigeria.

**4.1 Analysis of Unit Root and Co-Integration Results of Model I**

To test for the unit root, we employ Augmented Dickey-Fuller (ADF) test. The results are shown in the table below.

Table 4.1

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Variable at level form | Variable at difference form | Order of integration |
| Variable  | ADF Stat. | Lag | 5% | ADF Stat. | Lag | 5% |  |
| In(AGOUT) | -1.506940 | 1 | -2.948404 | -4.027949 | 1 | -2.951125 | 1 (1) |
| CBCRA |  -1.964365 | 1 | -2.948404 | -6.411192 | 1 | -2.951125 | 1 (1) |
| INT | -1.882963 | 1 | -2.948404 | -6.742930 | 1 | -2.951125 | 1 (1) |
| In(ACGSF) | -0.836081 | 1 | -2.948404 | -8.448459 | 1` | -2.951125 | 1 (1) |
| In(GEXPA) | - 0.339954 | 1 | -2.948404 | -5.704453 | 1 | -2.951125 | 1(1) |
| (RESIDUAL) | -3.927645 | 1 | -1.950687 | NA | NA | NA | 1(0) |

The results show that all the variables are integrated of order one 1(1) (differenced once to attain stationary).In other words, all the variables have unit roots, but stationary after being differenced. This is because the ADF statistics for each of the variables are less than the critical levels at 5%. In other words, the null hypothesis for unit root is accepted for all the variables at the level form. On the other hand, the ADF statistics for each of the variables when differenced are higher than their critical values at 5% which implies that the null hypothesis of unit root is rejected.

 However, though the variables are not stationary, there is tendency of long-run relationship between the dependent variable and the independent variables. Thus, we proceeded to examine their long-run equilibrium relationship using co-integration ADF (CADF) test after which we examined the adjustment to short-run discrepancies when co-integration was established. As already shown in table 4.1 above, the error term (residual) is stationary at its level form. This implies that there exists a long-run relationship between dependent and independent variables.

**4.2 Impact of government agricultural financing on the agricultural productivity in Nigeria**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable  | Coefficient  | Std. Error | t-stat. |
| Constant  | -20.75951 | 3.993677 | -5.198096 |
| CBCRA | -0.001600 | 0.002029 | -0.788593 |
| INT | 0.063872 | 0.019376 | 3.296417 |
| In(ACGSF) | 0.103647 | 0.196899 | 0.526396 |
| In(GEXPA) | 3.715854 | 0.745351 | 4.985374 |

R2 =0.949939 F-stat. =147.0627 D.W =0.364208

**4.3 Evaluation Based On Economic Criteria**

The OLS regression applied the Log Linear Model in order to determine the relative change in the dependent variable from a relative change in each of the explanatory variables. The result has established a negative and insignificant relationship between commercial bank credit to agricultural sector and agricultural output. This has been found to be inconsistent with the theory.

The result also revealed a positive and significant relationship between interest rate and agricultural output. This has been found to be inconsistent with the theory. The result also revealed a positive and insignificant relationship between agricultural credit guarantee scheme fund and agricultural output. This has been found to be consistent with the theory.

Lastly, the result also revealed a positive and significant relationship between government expenditure on agriculture and agricultural output. This has been found to be consistent with the theory.

**4.3.1 Summary of the Signs**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable  | Expected Sign | Realized Sign | Remark  |
| CBCRA | Positive | Negative  |  Does not conform |
| INT | Negative | Positive  | Does not conform |
| In(ACGSF) | Positive | positive  | Conforms |
| In(GEXPA) | Positive | positive | Conforms |

**4.4 Evaluation Based On Statistical Criteria**

Coefficient of Determination (R2)

This measures the goodness of fit of the regression model. It shows how the variation in the dependent is explained by explanatory variables, from the table, R2 =0.949939. This implies that about 94% variation on agricultural output is explained by the explanatory variables.

Student t-Test

This tests the explanatory power of the Independent variables; the result shows that the commercial bank credit to agricultural sector (CBCRA) has an insignificant impact on agricultural output. This is because its absolute t-statistic of -0.788593 is less than the critical t-statistics of 2.042 at 5% level of significance. Its coefficient of -0.001600 implies that a unit increase in commercial bank credit to agricultural sector will decrease agricultural output by -0.001600 units.

Again, the variable interest rate (INT) has a significant impact on agricultural output. This is because its absolute t-statistic of 3.296417 is greater than the critical t-statistics of 2.042 at 5% level of significance. Its coefficient of 0.063872 implies that a unit increase in interest rate (INT) increases agricultural output by 0.063872 units.

Furthermore, the variable agricultural credit guarantee scheme fund (ACGSF) has an insignificant impact on agricultural output. This is because its absolute t-statistic of 0.526396 is less than the critical t-statistics of 2.042 at 5% level of significance. Its coefficient of 0.103647 implies that a percentage increase in agricultural credit guarantee scheme fund (ACGSF) increases agricultural output by 0.103647 percent.

Lastly, the variable government expenditure on agriculture (GEXPA) has a significant impact on agricultural output. This is because its absolute t-statistic of 4.985374 is greater than the critical t-statistics of 2.042 at 5% level of significance. Its coefficient of 3.715854 implies that a percentage increase in government expenditure on agriculture (GEXPA) increases agricultural output by 3.715854 percent.

F-Statistic

The F-statistic is used to determine the overall significance of the entire variable in the model. The calculated f-statistic of 147.0627 is greater than the critical f-value of 8.59. This implies that the entire variables joined together are significantly different from zero.

**4.5 Evaluation Based On Econometric Criteria**

Autocorrelation Test This test whether the error are correlated with one another. To do that, we apply the Durbin Watson‘d’ test with the hypothesis as below.

From the Durbin Watson table, the estimated d\* is 0.364208 while the dl is 1.098 at 0.01 level of significance (0 < d < dl => 0 <0.3642< 1.153 ) which falls under the do not reject region. However, we conclude that there is no autocorrelation problem.

Heteroscedasticity Test

This test is conducted to check if errors have constant variance or not. The null hypothesis is that the errors are homoscedastic (no heteroscedasticity). Note that this test follows chi-square distribution. We compare the estimated chi-square statistics with the critical chi-square statistics. From the result obtained χ2 Cal = is 15.33508 less than χ2 critical of 20.599 which is statistically insignificant and therefore do not reject the null hypothesis of homoscedasticity.

***Multicollinearity Test***

This test was carried out through the use of correlation matrix. It suggests that if the pair wise correlation coefficient between two regression is high, say in excess of 0.8, then multicollinearity is a serious problem (Gujarati, 2009). The correlation matrix as shown in the appendices; from the result, the existence of collinearity can be found among the explanatory variable. Thus, we can conclude that multicollinearity is a problem in this model. Hence, the highest value is 096.

***Normality Test***

This test is to know if the error term is normally distributed. The null hypothesis is that the error term follows normal distribution. From our result, the Jarque Bera Statistic of 3.1225. The Jarque Bera is less than critical chi-square values of 5.99. Thus, we accept the null hypothesis which implies that the errors do follow normal distribution.

**4.6 Regression Results**

|  |  |  |
| --- | --- | --- |
| Dependent Variable: LAGOUT |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:18 |  |  |
| Sample: 1980 2015 |  |  |
| Included observations: 36 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -20.75951 | 3.993677 | -5.198096 | 0.0000 |
| CBCRA | -0.001600 | 0.002029 | -0.788593 | 0.4363 |
| INT | 0.063872 | 0.019376 | 3.296417 | 0.0025 |
| LACGSF | 0.103647 | 0.196899 | 0.526396 | 0.6024 |
| LGEXPA | 3.715854 | 0.745351 | 4.985374 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.949939 |     Mean dependent var | 13.35900 |
| Adjusted R-squared | 0.943480 |     S.D. dependent var | 2.484567 |
| S.E. of regression | 0.590679 |     Akaike info criterion | 1.913158 |
| Sum squared resid | 10.81595 |     Schwarz criterion | 2.133091 |
| Log likelihood | -29.43684 |     Hannan-Quinn criter. | 1.989920 |
| F-statistic | 147.0627 |     Durbin-Watson stat | 0.364208 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

UNIT ROOT TEST AT LEVEL FORM

|  |  |
| --- | --- |
| Null Hypothesis: LAGOUT has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -1.506940 |  0.5184 |
| Test critical values: | 1% level |  | -3.632900 |  |
|  | 5% level |  | -2.948404 |  |
|  | 10% level |  | -2.612874 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LAGOUT) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:58 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LAGOUT(-1) | -0.016390 | 0.010876 | -1.506940 | 0.1413 |
| C | 0.432852 | 0.146617 | 2.952262 | 0.0058 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.064384 |     Mean dependent var | 0.215485 |
| Adjusted R-squared | 0.036032 |     S.D. dependent var | 0.158304 |
| S.E. of regression | 0.155426 |     Akaike info criterion | -0.829854 |
| Sum squared resid | 0.797185 |     Schwarz criterion | -0.740977 |
| Log likelihood | 16.52245 |     Hannan-Quinn criter. | -0.799174 |
| F-statistic | 2.270870 |     Durbin-Watson stat | 1.403787 |
| Prob(F-statistic) | 0.141340 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: CBCRA has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic |  -1.964365 |  0.9998 |
| Test critical values: | 1% level |  | -3.632900 |  |
|  | 5% level |  | -2.948404 |  |
|  | 10% level |  | -2.612874 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(CBCRA) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:25 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| CBCRA(-1) | 0.107237 | 0.054591 | 1.964365 | 0.0580 |
| C | 3.911365 | 6.021244 | 0.649594 | 0.5205 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.104690 |     Mean dependent var | 10.82286 |
| Adjusted R-squared | 0.077559 |     S.D. dependent var | 30.09853 |
| S.E. of regression | 28.90777 |     Akaike info criterion | 9.621543 |
| Sum squared resid | 27576.76 |     Schwarz criterion | 9.710420 |
| Log likelihood | -166.3770 |     Hannan-Quinn criter. | 9.652224 |
| F-statistic | 3.858728 |     Durbin-Watson stat | 2.756665 |
| Prob(F-statistic) | 0.057956 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: INT has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -1.882963 |  0.3361 |
| Test critical values: | 1% level |  | -3.632900 |  |
|  | 5% level |  | -2.948404 |  |
|  | 10% level |  | -2.612874 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(INT) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:42 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| INT(-1) | -0.194034 | 0.103047 | -1.882963 | 0.0685 |
| C | 2.797866 | 1.605251 | 1.742946 | 0.0907 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.097017 |     Mean dependent var | 9.99E-17 |
| Adjusted R-squared | 0.069654 |     S.D. dependent var | 3.725728 |
| S.E. of regression | 3.593630 |     Akaike info criterion | 5.451648 |
| Sum squared resid | 426.1678 |     Schwarz criterion | 5.540525 |
| Log likelihood | -93.40384 |     Hannan-Quinn criter. | 5.482328 |
| F-statistic | 3.545548 |     Durbin-Watson stat | 2.137088 |
| Prob(F-statistic) | 0.068546 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: LACGSF has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -0.836081 |  0.7962 |
| Test critical values: | 1% level |  | -3.632900 |  |
|  | 5% level |  | -2.948404 |  |
|  | 10% level |  | -2.612874 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LACGSF) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:52 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LACGSF(-1) | -0.051344 | 0.061410 | -0.836081 | 0.4091 |
| C | 0.829034 | 0.802654 | 1.032866 | 0.3092 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.020743 |     Mean dependent var | 0.165983 |
| Adjusted R-squared | -0.008931 |     S.D. dependent var | 0.729235 |
| S.E. of regression | 0.732484 |     Akaike info criterion | 2.270695 |
| Sum squared resid | 17.70559 |     Schwarz criterion | 2.359572 |
| Log likelihood | -37.73716 |     Hannan-Quinn criter. | 2.301375 |
| F-statistic | 0.699031 |     Durbin-Watson stat | 2.673943 |
| Prob(F-statistic) | 0.409123 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: LGEXPA has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | - 0.339954 |  0.9772 |
| Test critical values: | 1% level |  | -3.632900 |  |
|  | 5% level |  | -2.948404 |  |
|  | 10% level |  | -2.612874 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LGEXPA) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 10:53 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LGEXPA(-1) | 0.007023 | 0.020658 | 0.339954 | 0.7360 |
| C | -0.004563 | 0.177612 | -0.025692 | 0.9797 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.003490 |     Mean dependent var | 0.055654 |
| Adjusted R-squared | -0.026707 |     S.D. dependent var | 0.076148 |
| S.E. of regression | 0.077158 |     Akaike info criterion | -2.230471 |
| Sum squared resid | 0.196462 |     Schwarz criterion | -2.141594 |
| Log likelihood | 41.03324 |     Hannan-Quinn criter. | -2.199790 |
| F-statistic | 0.115569 |     Durbin-Watson stat | 2.035083 |
| Prob(F-statistic) | 0.736046 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

UNIT ROOT AT FIRST DIFFERENCE

|  |  |
| --- | --- |
| Null Hypothesis: D(LAGOUT) has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -4.027949 |  0.0037 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LAGOUT,2) |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:01 |  |  |
| Sample (adjusted): 1982 2015 |  |  |
| Included observations: 34 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LAGOUT(-1)) | -0.674460 | 0.167445 | -4.027949 | 0.0003 |
| C | 0.141720 | 0.045082 | 3.143626 | 0.0036 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.336435 |     Mean dependent var | -0.005657 |
| Adjusted R-squared | 0.315699 |     S.D. dependent var | 0.185644 |
| S.E. of regression | 0.153569 |     Akaike info criterion | -0.852307 |
| Sum squared resid | 0.754673 |     Schwarz criterion | -0.762521 |
| Log likelihood | 16.48922 |     Hannan-Quinn criter. | -0.821687 |
| F-statistic | 16.22438 |     Durbin-Watson stat | 1.831143 |
| Prob(F-statistic) | 0.000324 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: D(CBCRA) has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -6.411192 |  0.0000 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(CBCRA,2) |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:04 |  |  |
| Sample (adjusted): 1982 2015 |  |  |
| Included observations: 34 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(CBCRA(-1)) | -1.154415 | 0.180062 | -6.411192 | 0.0000 |
| C | 12.61499 | 5.525561 | 2.283024 | 0.0292 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.562264 |     Mean dependent var | 1.576747 |
| Adjusted R-squared | 0.548584 |     S.D. dependent var | 45.56697 |
| S.E. of regression | 30.61529 |     Akaike info criterion | 9.737899 |
| Sum squared resid | 29993.47 |     Schwarz criterion | 9.827684 |
| Log likelihood | -163.5443 |     Hannan-Quinn criter. | 9.768518 |
| F-statistic | 41.10338 |     Durbin-Watson stat | 1.897614 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: D(INT) has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -6.742930 |  0.0000 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(INT,2) |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:05 |  |  |
| Sample (adjusted): 1982 2015 |  |  |
| Included observations: 34 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(INT(-1)) | -1.173895 | 0.174093 | -6.742930 | 0.0000 |
| C | -0.001714 | 0.648582 | -0.002642 | 0.9979 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.586921 |     Mean dependent var | -0.010000 |
| Adjusted R-squared | 0.574013 |     S.D. dependent var | 5.794360 |
| S.E. of regression | 3.781846 |     Akaike info criterion | 5.555324 |
| Sum squared resid | 457.6755 |     Schwarz criterion | 5.645110 |
| Log likelihood | -92.44051 |     Hannan-Quinn criter. | 5.585943 |
| F-statistic | 45.46710 |     Durbin-Watson stat | 2.112315 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: D(LACGSF) has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
| \* |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -8.448459 |  0.0000 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LACGSF,2) |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:07 |  |  |
| Sample (adjusted): 1982 2015 |  |  |
| Included observations: 34 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LACGSF(-1)) | -1.383369 | 0.163742 | -8.448459 | 0.0000 |
| C | 0.235261 | 0.122488 | 1.920678 | 0.0637 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.690452 |     Mean dependent var | -0.006697 |
| Adjusted R-squared | 0.680778 |     S.D. dependent var | 1.229081 |
| S.E. of regression | 0.694427 |     Akaike info criterion | 2.165563 |
| Sum squared resid | 15.43133 |     Schwarz criterion | 2.255349 |
| Log likelihood | -34.81458 |     Hannan-Quinn criter. | 2.196183 |
| F-statistic | 71.37645 |     Durbin-Watson stat | 2.134992 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |
| --- | --- |
| Null Hypothesis: D(LGEXPA) has a unit root |  |
| Exogenous: Constant |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -5.704453 |  0.0000 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(LGEXPA,2) |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:08 |  |  |
| Sample (adjusted): 1982 2015 |  |  |
| Included observations: 34 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LGEXPA(-1)) | -1.008594 | 0.176808 | -5.704453 | 0.0000 |
| C | 0.056633 | 0.016725 | 3.386161 | 0.0019 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.504189 |     Mean dependent var | -6.72E-05 |
| Adjusted R-squared | 0.488695 |     S.D. dependent var | 0.109684 |
| S.E. of regression | 0.078430 |     Akaike info criterion | -2.196186 |
| Sum squared resid | 0.196843 |     Schwarz criterion | -2.106400 |
| Log likelihood | 39.33515 |     Hannan-Quinn criter. | -2.165566 |
| F-statistic | 32.54078 |     Durbin-Watson stat | 2.000166 |
| Prob(F-statistic) | 0.000003 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Co- integration test

|  |  |
| --- | --- |
| Null Hypothesis: RESIDUAL has a unit root |  |
| Exogenous: None |  |  |
| Lag Length: 0 (Automatic - based on SIC, maxlag=0) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | -3.927645 |  0.0525 |
| Test critical values: | 1% level |  | -2.632688 |  |
|  | 5% level |  | -1.950687 |  |
|  | 10% level |  | -1.611059 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation |  |
| Dependent Variable: D(RESIDUAL) |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:14 |  |  |
| Sample (adjusted): 1981 2015 |  |  |
| Included observations: 35 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| RESIDUAL(-1) | -0.189512 | 0.098314 | -1.927620 | 0.0623 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.097899 |     Mean dependent var | 0.008793 |
| Adjusted R-squared | 0.097899 |     S.D. dependent var | 0.340266 |
| S.E. of regression | 0.323181 |     Akaike info criterion | 0.606946 |
| Sum squared resid | 3.551159 |     Schwarz criterion | 0.651384 |
| Log likelihood | -9.621553 |     Hannan-Quinn criter. | 0.622286 |
| Durbin-Watson stat | 1.585033 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

NORMALITY TEST



|  |  |
| --- | --- |
| Heteroskedasticity Test: White |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 3.617566 |     Prob. F(14,21) | 0.0040 |
| Obs\*R-squared | 25.44811 |     Prob. Chi-Square(14) | 0.0304 |
| Scaled explained SS | 15.33508 |     Prob. Chi-Square(14) | 0.3556 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: |  |  |  |
| Dependent Variable: RESID^2 |  |  |
| Method: Least Squares |  |  |
| Date: 05/24/18 Time: 11:18 |  |  |
| Sample: 1980 2015 |  |  |
| Included observations: 36 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -369.2058 | 145.5358 | -2.536873 | 0.0192 |
| CBCRA | -0.150829 | 0.143793 | -1.048932 | 0.3061 |
| CBCRA^2 | -1.84E-05 | 2.32E-05 | -0.792991 | 0.4367 |
| CBCRA\*INT | 0.000320 | 0.000658 | 0.487228 | 0.6311 |
| CBCRA\*LACGSF | -0.010354 | 0.006241 | -1.658912 | 0.1120 |
| CBCRA\*LGEXPA | 0.034048 | 0.024548 | 1.387022 | 0.1800 |
| INT | 0.950822 | 0.826676 | 1.150174 | 0.2630 |
| INT^2 | 0.002615 | 0.002513 | 1.040789 | 0.3098 |
| INT\*LACGSF | 0.048919 | 0.051863 | 0.943241 | 0.3563 |
| INT\*LGEXPA | -0.196814 | 0.165917 | -1.186215 | 0.2488 |
| LACGSF | -25.30439 | 12.90338 | -1.961067 | 0.0633 |
| LACGSF^2 | -0.520814 | 0.316018 | -1.648053 | 0.1142 |
| LACGSF\*LGEXPA | 4.523108 | 2.486484 | 1.819078 | 0.0832 |
| LGEXPA | 124.8591 | 53.41430 | 2.337559 | 0.0294 |
| LGEXPA^2 | -10.70834 | 5.031496 | -2.128263 | 0.0453 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.706892 |     Mean dependent var | 0.300443 |
| Adjusted R-squared | 0.511486 |     S.D. dependent var | 0.388464 |
| S.E. of regression | 0.271512 |     Akaike info criterion | 0.524715 |
| Sum squared resid | 1.548093 |     Schwarz criterion | 1.184515 |
| Log likelihood | 5.555130 |     Hannan-Quinn criter. | 0.755003 |
| F-statistic | 3.617566 |     Durbin-Watson stat | 1.608738 |
| Prob(F-statistic) | 0.003972 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Multicollinearity test

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | LAGOUT | INT | CBCRA | LGEXPA | LACGSF |
| LAGOUT |  1.000000 | -0.170094 |  0.754215 |  0.960952 |  0.933646 |
| INT | -0.170094 |  1.000000 | -0.457225 | -0.330007 | -0.336724 |
| CBCRA |  0.754215 | -0.457225 |  1.000000 |  0.838426 |  0.763721 |
| LGEXPA |  0.960952 | -0.330007 |  0.838426 |  1.000000 |  0.965114 |
| LACGSF |  0.933646 | -0.336724 |  0.763721 |  0.965114 |  1.000000 |

**CHAPTER FIVE**

**SUMMARY, POLICY RECOMMENDATIONS AND CONCLUSION**

5.1 **Summary**

In this study, we set out to empirically re-evaluate the impact of agricultural financing on the output in Nigeria from 1980- 2015. The study was conducted to ascertain how agricultural financing effect agricultural output.

Secondary data were used; the source of data included CBN Statistical Bulletin (2015). In order to achieve the objectives of the study, an econometric model was formulated using the Ordinary Least Square (OLS). In the model agriculture output was regressed on commercial bank credit to agricultural sector, interest rate, agricultural credit guarantee scheme fund, and government expenditure on agriculture.

The major findings of the study are summarized below:

1. The result has established a negative and insignificant relationship between commercial bank credit to agricultural sector and agricultural output. This has been found to be inconsistent with the theory.
2. The result also revealed a positive and insignificant relationship between agricultural credit guarantee scheme fund and agricultural output. This has been found to be consistent with the theory.
3. Lastly, the result also revealed a positive and significant relationship between government expenditure on agriculture and agricultural output. This has been found to be consistent with the theory.

**5.2 Policy Recommendations**

Based on the following findings of this study, the following policy recommendations are suggested:

1. The empirical results of the study have revealed an insignificant impact of agricultural credit guarantee scheme fund on agricultural output. We therefore, advocate for a moderate agricultural credit guarantee scheme fund which needed to be sustained for economic growth and development.
2. The government should through the monetary authority, effectively check the interest rate over time in order to dictate when there is need for adjustment.
3. The government should always sustain policies that would enable agricultural output thrive through the efficacy and actualization of all macroeconomic variables.
4. Output is the most desirable form of economic growth. Hence, there is need to encourage and accelerate the factors that affect output in the country especially manpower and skills for as long as the output is low, there cannot be a meaningful growth. Effort should be made to increase agricultural output through the supply of necessary inputs to farmers.
5. Establishment of agricultural fund to finance and facilitate medium/large scale agricultural output, credit should be granted to farmers who are ready and willing to embark on medium/large scale farming to enhance employment, production for local consumption and for export in order to generate foreign exchange revenue for Nigeria.

**5.3 Conclusion**

In this study, we re-evaluated the impact of the impact of agricultural financing on the output in Nigeria from 1980 - 2015. From our findings, a negative and insignificant relationship between commercial bank credit to agricultural sector and agricultural output was revealed.

Also, the result revealed a positive and significant impact between government expenditure on agriculture, interest rate on agricultural output. The general conclusion is that interest rate, government expenditure on agriculture, commercial bank credit to agricultural sector, and agricultural credit guarantee scheme fund have impact on agricultural output of Nigeria.

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