IMPACT OF AGRICULTURAL FINANCING ON NIGERIA ECONOMY

ABSTRACT

The importance of agricultural surplus for the structural transformation accompanying economic growth is often stressed by development economists. In view of this, the study empirically assesses the impact of Agricultural finance on the growth of Nigerian economy.
This paper employed secondary data and econometric techniques of Ordinary Least Square (OLS) of multiple regression estimates. The result of the model used suggests that the productivity of investment will be more appropriately financed with resources administered by the commercial and specialized financial Institutions. And also, that there is an urgent and sincere needs to expand the credit size to the Agricultural sector in order to enhance the productivity growth of the sector. It is recommended that maintenance of credible macroeconomic policies that is pro-investment in overhauling the Agricultural Sector and debt-equity swap option are necessary for an agricultural-led economic growth.

Keywords: Agriculture financing, Agriculture output, Economic growth, Gross domestic product, Real interest rate, Commercial bank credit to agriculture, Credit size.

1. Introduction

The Nigeria agricultural Policy provides, among others, adequate financing of agriculture. The role of finance in agriculture, just like in the industrial and service sectors, cannot be over-emphasized. Public expenditure on agriculture has however, been shown not to be substantial enough to meet the objective of the Government agricultural policies (IFPRI, 2008). For a developing country with a mono-product oil economy such as Nigeria, inadequate financing of agriculture portends great danger for many reasons.
The objective of agricultural financing policies in Nigeria is to establish an effective system of sustainable agricultural financing schemes, programs and institutions that could provide micro and macro credit facilities for the small, medium and large scale producers, processors and marketers.

However, agriculture contributes immensely to the Nigerian economy in various ways, namely, in the provision of food for the increasing population; supply of adequate raw materials (and labour input) to a growing industrial sector; a major source of employment; generation of foreign exchange earnings; and provision of a market for the products of the industrial sector (Okumadewa, 1997; World Bank, 1998; Winters., 1998; FAO, 2006). The Nigerian agrarian sector has a strong rural base; hence, concern for agriculture and rural development become synonymous with a common root.

Support for agriculture is widely driven by the public sector, which has established institutional support in form of agricultural research, extension, commodity marketing, input supply, and land use legislation, to fast-track development of agriculture. These are aside the Private sector as participation is not limited to local or foreign direct and portfolio investment financing, but sponsorship are also extended to academic research as well as breakthrough on agricultural issues in universities, capacity building for farmers and, most importantly, the provision of finances to farm businesses. International governmental and non-governmental agencies including the World Bank, Food and Agricultural Organization of the United Nations, etc., also contribute to agriculture through on-farm and off-farm support in form of finance, input supply, strengthening of technical capacity of other support institutions, etc.

1.1 Statement of the Problem

In spite the important role which the agricultural sector plays in the development of a nation, successive Nigerian governments at the Federal, State and Local Government levels have not been able to adequately address the specific constraints in an attempt to increase agricultural production in Nigeria. For example, the Nigerian government was reported to have said and quoted in Ruma (2008) that “nevertheless, the agricultural sector’s contributions to the economic growth and development are yet to be fully exploited since Nigerians are still very vulnerable to hunger and poverty”. The poor who live in the rural and urban centers usually constitute a large percentage of the population in the country and they are the dominant producers of food and other essential materials; yet the formal financial institutions have not adequately provided financial services to them as a result of their stringent conditions for making funds available to farmers as well as the lack of access to available funds. This is because most of the financial institutions are located in the urban areas far from the reach of the farmers who live in the rural areas. These peasant farmers therefore rely essentially on the informal financial institutions in their areas. Konare (2001), states that the issue of inadequate access to credit by rural farmers, among others, has remained the central concern for farmers, and a key constraint to the modernization and diversification of their activities. The poor in the rural area whose main occupation is farming and who can contribute significantly to the development of the sector do not have access to banking services. Mehrteab (2005) opines that the main hurdle confronting the farmers when trying to acquire loans from formal financial institutions is the demand for collateral by those institutions. In addition, the process of acquiring a loan entails a lot of paperwork and many bureaucratic procedures which lead to extra transaction costs. The formal financial institutions are not motivated to lend to farmers. These institutions show a preference for large scale transaction over small scale transaction and non-agricultural over agricultural loans (Mehrteab, 2005). For instance, Mehrteab et al (2005) stated that in Africa, only 5% of the farmers had access to formal credit; hence this situation calls for a shift in attention by the Government to the recognition and development of the informal financial institutions that are predominantly found in the rural areas where agriculture thrives. Besides, there are little or no existing studies known to the author on the evaluation of the impact of informal financing on agricultural production in the Nigerian economy.

Agriculture is expected to make a significant contribution to net foreign exchange earnings for Nigerian economic growth. Therefore, this study sets to reveal the important problems and prospects of the agricultural financing and economic growth in Nigeria. It becomes important to carry out a research on this area of study so as to suggest ways of combating the perceived problems of the peasant scales farmers such as loan procurement, and effective credit lending to the benefit of the local farmers. Also, it sets out to help proffer solutions to the problems being faced by the agricultural sector.

This study will serve as a good background and tool for those intending to carry out further research work on related topics and decision making process by the investors and government of the nation.

In view of the problem identified above, the following research questions were raised for the purpose of the study in order to analyze the impact of agricultural finance on growth of the Nigerian economy. What are the contribution/general impacts of agricultural resource on the Nigerian economy? How has the Interest rates levels affected the Agricultural finance policies of the government in relation to growth of the economy? Is the size of the credit scheme capacity expanded enough to engender the needed impact on the growth of the economy?

1.3 Objective of the study

Therefore, to answer the questions raised the objective of this study is to examine the impact of agricultural finance on the Nigerian economy and Examine the effect of agricultural output on economic growth in Nigeria.

This is an investigation into the impact of agricultural finance on the Nigeria economy between the periods of 1990 and 2009. The choice of this study period is based on the availability of data. The study was limited to agricultural policies formulation and implementation on one hand and agricultural finance on the other and how has the finance policies faired so far in the growth and development of Nigerian economy.

2. LITERATURE REVIEW

Agriculture in Nigeria is the most dominant sector and major source of livelihood for the majority of the population. It accounts for about 70% of employment, and in spite of this Binswanger, (1999:23) says it has not been able to achieve the major objectives of agricultural development which the World Bank (1997) identified to include; (i) increase in food production and farm income, (ii) make household food, water and energy secure and (iii) restore and maintain the natural resources. It states further that the failure of agriculture to meet these objectives is due to limited use of purchased inputs and mechanization. This limitation is tied to undercapitalization or lack of credit (Aku, P.S, (1995). Hence, since the availability of adequate credit is central to improvement in agricultural productivity in an economy, this chapter is devoted to both theoretical and empirical review of renowned opinions on the impacts of credits on Agricultural outputs especially in Nigeria.

2.1 THEORETICAL LITERATURE

Dual-Gap Analysis

It has been established that capital imports can raise the growth rate, but we have not considered how capital imports are financed and how the terms of borrowing may affect the growth rate. A model which incorporates these considerations is developed by Thirlwall, (1983) as presented thus,

$$\text{Let } O = Y + rD \quad (1)$$

where O is output, Y is income, r is the interest rate, and D is debt. The difference between domestic output and national income is factor payments abroad. From equation (1) we have:

$$\Delta O = \Delta Y + r\Delta D \quad (2)$$

Now $$\Delta O = \sigma I \quad (3)$$

Where σ is the productivity of capital, and

$$I = sO + \Delta D - srD \quad (4)$$

and s is the propensity to save. Substituting equation (4) into (3).

$$\Delta O = \sigma(sO + \Delta D - srD) \quad (5)$$

Equation (6) shows that the growth of output ($\Delta O/O$) will be higher than the rate obtainable from domestic saving alone as long as $\Delta D > srD$, that is as long as new inflows of capital exceed the amount of outflow on past loans that would otherwise have been saved. On the other hand, making the rate of growth of income as the dependent variable, then from equation (1) we have:

$$\Delta Y = \Delta O - r\Delta D \quad (6)$$

Substituting (4) into (3) and the result gives the following:

$$\Delta Y = \sigma(sO + \Delta D - srD) - r\Delta D \quad (7)$$

Now since $Y = O - rD$, we can also write (7) as:

$$\Delta Y = \sigma sY + \Delta D(\sigma - r) \quad (8)$$

And dividing through by Y we have an expression for the rate of growth of income of:

$$\frac{\Delta Y}{Y} = \sigma s + (\sigma - r)\frac{\Delta D}{Y} \quad (9)$$

Equation (9) shows that the growth of income($\Delta Y/Y$) will be higher than the rate obtainable from domestic saving alone as long as $\Delta D > srD$, that is as long as new inflows of capital exceed the amount of outflow on past loans that would otherwise have been saved. The Equations (5) and (9) lays the basis for agriculture financing and economic growth relationship.

However, Thirlwall et al (1983) has it that the basic underlying assumption of dual-gap analysis is a lack of substitutability between foreign and domestic resources. This may seem a stringent assumption, but nonetheless may be valid particularly in the short period. If foreign exchange is scarce, it is not easy in the short run to use domestic resources to earn more foreign exchange, or to save foreign exchange by improving the productivity of imports. If it were easy, the question might well be posed: why do most developing countries suffer chronic balance-of-payments deficits over long periods despite vast reserves of unemployed resources? If domestic saving is scarce, it is probably easier to find ways of using foreign exchange to substitute, raising the domestic savings ratio and the productivity of capital.

2.2 EMPIRICAL LITERATURE

Various people have defined Agriculture in different ways but common among these definitions is the fact that it is the production of food, feed, fiber and other goods by the systematic growing and harvesting of plants and animals.

Akinboyo (2008) defines Agriculture as the science of making use of the land to raise plants and animals. It is the simplification of nature’s food webs and the rechanneling of energy for human planting and animal consumption. Until the exploitation of oil reserves began in the 1980s, Nigeria’s economy was largely dependent on agriculture. Nigeria’s wide range of climate variations allows it to produce a variety of food and cash crops.

Agriculture has been defined by Ahmed, (1993) as the production of food and livestock and the purposeful tendering of plants and animals. He states further that agriculture is the mainstay of many economies and it is fundamental to the socio-economic development of a nation because it is a major element and factor in national development. In the same view, Okolo (2004) describes agricultural sector as the most important sector of the economy which holds a lot of potentials for the future economic development of the nation as it had done in the past. Before the discovery of oil in Nigeria, agriculture accounted for over 60% of its Gross Domestic Product (GDP) as well as being a major source of foreign exchange earnings. It provided food and employment for the teeming population and raw materials for the growing industries. Ogen (2007) states that from the standpoint of occupational distribution and contribution to the GDP, agriculture was the leading sector in the 1960s. Also, the Nigerian economy, like that of Brazil, could reasonably be described as an agricultural economy during the first decade after independence. This is because agriculture served as the engine of growth of the overall economy of the two countries. During the period of 1960s, Nigeria was the world's second largest producer of cocoa, the largest exporter of palm kernel and the largest producer and exporter of palm oil. It was also a leading exporter of other major commodities such as cotton, groundnut, rubber, as well as hides and skins (Alkali, 1997; Lawal, 1997). Despite the reliance of Nigerian peasant farmers on traditional tools and indigenous farming methods, these farmers produced 70% of Nigeria's exports and 95% of its food needs.

The agricultural sector however suffered neglect during the hey-days of the oil boom in the 1970s. Ogen (2007) states that agricultural sector accounted for less than 5% of Nigeria's GDP in 2004. Since then, Nigeria has been facing serious poverty challenges and the insufficiency of basic food needs (NEEDS, 2004). It is further revealed by the NEEDS Policy Paper, (2004) that it is estimated that two-thirds of Nigerians live below the poverty line of US$1 per day, most of whom are in the rural areas. The root of this crisis lies in the neglect of agriculture and the increased dependency on mono-cultural economy based on oil.

Ikala (2010) has described that agriculture is the profession of majority of humans. The United Nations Organization (2008) estimated that the world as a whole, over 50% of the world population is engaged in agriculture or dependent of it for a living; this is a general description of the sector. On the other hand, it includes farming, fishing, animal husbandry and forestry. Oji-Okoro, (2011) states that agricultural sector is the largest sector in the Nigerian economy with its dominant share of the GDP, employment of more than 70% of the active labour force and the generation of about 88% of non-oil foreign exchange earnings. Its share of the GDP increased from an annual average of 38% during 1992 and 1996 to 40% during 1997-2001, compared to crude oil, the GDP declined from an annual average of 13% in 1992-1996 to 12% during 1997-2001.

Development economists have focused on how agriculture can best contribute to overall economic growth and modernization. The physiocrats laid more emphasis on agriculture in the development of an economy. In their views, the development of an economy depends on the growth of the agricultural sector. The source of national wealth is essentially agriculture. The physiocrats believe that the fate of the economy is regulated by productivity in agriculture and its surplus is diffused throughout the system in a network of transactions. The agricultural sector to the physiocrats is the only genuinely productive sector of the economy and the generator of surplus upon which all depends.

Todaro and Smith (2003), while looking at Lewis theory of development, assume that the underdeveloped economies consist of two sectors. These sectors are the traditional agricultural sector characterized by zero margin agriculture, consumer price index, annual average rainfall, population growth rate, food importation and GDP growth rate. The study performed comprehensive analysis of data and estimated the Vector Error Correction model. Their results showed that federal government capital expenditure was found to be positively related to agricultural output.

Oji-Okoro (2011) employs multiple regression analysis to examine the contribution of agricultural sector on the Nigerian economic development. They found that a positive relationship between Gross Domestic Product (GDP) vis a vis domestic saving, government expenditure on agriculture and foreign direct investment between the period of 1986-2007. It was also revealed in the study that 81% of the variation in GDP could be explained by Domestic Savings, Government Expenditure and Foreign Direct Investment.

Using time series data, Lawal, (2011) attempted to verify the amount of federal government expenditure on Agriculture in the thirty-year period of 1979–2007. Significant statistical evidence obtained from the analysis showed that government spending does not follow a regular pattern and that the contribution of the agricultural sector to the GDP is in direct relationship with government funding to the sector. Ogwuma (1981), studied on public expenditure in Agricultural sector using econometric analysis. Based on his report, Agricultural financing in Nigeria shows positive relationship between interest rate and loanable funds on the level of Agricultural output.

The strong correlation that has been established between Nigerian's total GDP and agriculture suggests that the prospects of the non-oil sub-sector and the overall economy are closely tied to the performance of the agricultural sector. Ukeji (2003) submits that in the 1960's, agriculture contributed up to 64% to the total GDP but gradually declined in the 70's to 48% and it continues in 1980's to 20% and 19% in 1985; this was as a result of oil glut of the 1980's.

Agricultural credit in Nigeria dates back to the 1930s but organized credit to farmers did not start until 1972 when the Nigeria Agricultural and Cooperative Bank (NACB) were established (Ajakaiye. 1984). He further said that agriculture is the largest sector of Nigerian economy, though its contribution to the Gross Domestic Product (GDP) has declined from 67% in 1950 to 18% in 1980.

According to the Federal Ministry of Agriculture publication (1980), 58% of farming- related borrowings was obtained from family and friends; 24% from professional private money lenders, 15% from merchant and only 3% from commercial banks and other institutional sources. As Garba (2000) noted, they are grossly, inadequate and unsatisfactory for the credit needs of the farmers. Thus, there is the need for lager credit sources.

The importance of bank credits to agricultural production is well established in many countries. In the study by Sohail et al (1991:38) on the relationship between bank credits and agricultural outputs in Pakistan, they found out that a statistical significant relationship existed between bank credit in Pakistan and the agricultural outputs.

Moreover, Yaron et al (1997:203) also argued that directed credit programmes were associated with the adoption of modern technologies such as green-houses in Morocco and tube wells in North West Bangladesh and these innovations were associated with increase in production gains in the agricultural sector (see also Ijaiya and Abdulraheem 2000).

May (1970:08) reported that countries that emphasized the agricultural sector ended up with faster industrial growth than those that focused on industries alone. Hence, agriculture may therefore be the fastest road to industrialization.

Emmanuel (2008:781) carried out a study on the impact of macroeconomics environment on agricultural sector growth in Nigeria. The macroeconomic policies included in the model are: credits to the agricultural sector, nominal interest rates on the loan, exchange rate, world prices of agricultural produce, foreign private invest-government expenditure and inflation rate.

Using multiple regression analytical technique (ordinary least square), he discovered that nominal interest rate is positively related to the index of agricultural production. This implies that at higher nominal interest rate, more credit facilities are made available to the operators of the Nigerian agricultural sector, but at lower nominal interest rate as credit facilities are no more widely available. The index of agricultural output is also positively related to world prices of Nigeria major agricultural commodities.

This implies that better world prices enhance agricultural output growth in Nigeria. Similarly, the index of agricultural production was positively related to government expenditure on agriculture. Moreover, it was discovered that the index of agricultural production is negatively related to the level of inflation, implying that as inflation becomes high, the index of agricultural production declines. He thus recommends that macroeconomic policies that enhance favourable exchange rates make agricultural credit widely available at a low interest rate, reduce the rate of inflation, increase foreign private investment in agriculture, would not fortify government investment in the sector but would be invaluable in supporting agricultural output growth in Nigeria. The experience of Nigeria shows that appropriate expenditure by government (on agricultural research, extension credit and roads) can have spectacular effects on the output of peasants and that agriculture instead of acting as a brake on the rest of the economy, can be turned into a leader generating demand for other sectors, and also providing them with capital.

2.3 Impact of Informal Agricultural Financing on Agricultural Production

Okurut and Thuto (2007) affirmed that the informal financial sector plays a key role in resource mobilization and allocation in developing economies. Bouman (1995) reported that in Cameroon, approximately 50% of the national savings and 27% of the total credit requirements was provided by the informal sector while Jones et al (1998) noted that 55% of all private savings in Ghana were mobilized through informal sources. In India, it was reported by Timberg and Aiyar (1984) that informal credit markets accounted for approximately 20% of total commercial credit outstanding; while Bagachwa (1995) observed that approximately 55% of star-up capital for micro entrepreneurs in urban and rural areas in developing countries was provided by the informal financial sector. Okurut and Thuto (2007) stated that informal credit is demanded for both productive investment (agriculture production or business) and consumption smoothing. It was further reported by Okurut and Thuto et al (2007) that a survey conducted by Morewagae (1995) on 1140 informal micro enterprises in Botswana revealed that 74% relied on informal sources for investment credit, as cited in Okurut and Thuto et al (2007). Verhoef (2001) reported the great impact of “Stokvels”, which is a type of Rotating and Savings Association

(ROSCA) in South Africa, as informal market savings mobilizers. He stated that overtime “Stokvels” developed into a network of highly diversified savings and credit organization to suit the needs of all income groups. He went further to state that the “Stokvels” eventually emerged as a strong intermediary in the informal financial sector that the

South African Reserve Bank had to include them in the regulatory framework of the financial institution hem in the regulatory framework of the financial institution in 1994.

Floro and Ray (1997) reported that the activities of the informal credit sector in the Philippines have been very prominent in the last three decades especially in the rice-growing areas where marketing agents’ informal lending activities resulted in the rapid commercialization and intensified trading activity in the rural areas. This is a measure of the impact of informal financial institutions on the economic lives of the Philippines. Cristensen (1993) reported that the impact of the informal financial institutions on informal sector activities differs from country to country depending on the level of the development of the financial markets. He stated the informal financial sector increased in importance in proportion to the level of underdevelopment.

There is no gainsaying that the informal financial institutions in the developing countries are playing significant roles in the development of the national economy particularly in the rural areas where they abound. Spio and Groenewald (1997) stated that these institutions take different forms and perform different functions in different parts of the world. For example, in Asia, indigenous financial institutions such as “the curb market in Korea”, “the financial companies in India” and “the chit funds in Thailand” tend to engage in a considerable volume of business and trade finance for even large-scale enterprise. They affirmed that the poor performance of the formal finance sector in some areas has caused the informal sector to re-emerge as the main source of financial services for most rural firms and households. Heidhues (1985) in Spio and Groenewald (1997) estimated informal finance to have constituted over two-thirds of all agricultural credits in Africa. They further stated that the informal financial institutions are used almost exclusively to finance household consumption, investment or small-scale business enterprises. The market is said to facilitate both consumption and input use during the periods between planting and harvesting.

According to Adeoye (2005) and Olaiya (2005), these informal financial institutions are the major providers of funds for the promotion and development of small-scale businesses in the rural areas. Adeoye et al (2005) citing Onoh (1980) listed the functions of the informal financial institutions to include the following among others: the mobilization of savings from members' resources; the provision of credits to all accredited financial members; they engage in developmental functions of providing finances for local projects like the execution of town halls, health care and road projects; and giving mutual aid to members.

2.4 Financing Agriculture in Nigeria

Finance is one input required for agricultural development as it represents the power to purchase all other inputs and thus, it is not the single determinant of the level of development in agriculture. Several studies have been carried out on commercial banks and the finance of agriculture in the country. According to Elegham (1983:06), the availability of credits to local farmers poses a serious problem. This is because of the rate in the increase of defaulting cases among small farmers. Tims. (1974) also revealed that commercial banks in Nigeria were willing to grant to large-scale farmers because it has noticed that small farmers default. Mostly in the act of loan repayment, they also have no provision for collateral security required by banks. It is in light of this that the government has always maintained that commercial banks should not neglect agricultural and allied activities since they are the Chief agent of mobilization of savings.
Notwithstanding the unsuitability of commercial banks for financing agriculture in general and small-scale farmers in particular, studies carried out by Akinwole (1985), Osuntogu (1973) and Ijere (1975) pointed out the need for raising the volume of loan resources available to the credit constitutions, so as to permit increase in lending to the individual borrowers. However, Ogunfowora et al (1972) attributed most of the shortcomings and institutional credits in Nigeria to facts such as; ineffective supervision or monitoring, insufficient funds, political interference, cumbersome and time consuming loan processing and gearing absence of financial projections.
The importance of project supervision or monitoring of facilities is to ensure that all conditions attached to the approval of credits facilities are complied with. Credit Supervision is also aimed at identifying emergent problems before they got out of control. Problems detected earlier through warning signals could be easily solved to avoid total loss of the project.
Agricultural facilities granted are closely monitored. This is occasioned by the nature of the industry, especially the production aspect that is highly risky because of its precarious nature.
Agricultural facilities are also known to be specific-purpose oriented i.e planting, fertilizing, harvesting and transporting etc.). As a result of follow-up facilities, the indications of possibility

of default (usually) referred to as "danger sign" of default are easily detected, a current finding in the view on bank credit management.

2.4 Sources of Agricultural Financing?

According to Amechi (2004:120) sources of agricultural financing are as follows:

A. AGRICULTURAL BANKS

In Nigeria, we have the Nigerian Agricultural and Financial Bank (NACB) which was established in 1973 primarily to finance agricultural projects. Its cardinal aims are:

i. To stimulate interest in agricultural Production.
ii. To improve agricultural Production technique
iii. To improve storage and marketing of agricultural produce.
iv. To grant loans on fairly easy terms to finance agricultural projects.

State and local governments may also serve as intermediaries by receiving the loan from the federal government and the NACB for transmission to the farmers or relevant farmer's organization.

The federal government, through the Central Bank of Nigeria, is the sole financier of the NACB. Its headquarters are located in Kaduna.

B. COMMERCIAL BANK

According to Amechi (2004); Commercial banks can also finance agricultural projects. She further said; "In Nigeria, the federal government directs Commercial banks to allocate a part of their lending to agriculture at reduced interest rates. Such banks usually set up departments of agriculture and employ agriculturists to manage them. Such loans can be on:

SHORT-TERM: Where the loans are used to finance Annual and biennial crops and quick maturing Livestock8 Projects such as pigs and poultry.

MEDIUM-TERM: Where the loan matures in two or three years, such loans are normally invested on biennial and some perennial crop which mature in about three years such as Cassava, Citrus, Oil palm etc.

LONG-TERM: Where the loan matures in three or more years, they are used to finance long-spanning perennial crops such as Cocoa, Kola, rubber, etc.

C. SELF-FINANCING:

According to Aryeetey (1996:18), this is where a farmer decides to reinvest his savings in another agricultural project or expanding an already existing one. This, however, is a slow process since saving money depends on a lot of factors: economic and fiscal factors. It leads to small-scale farming and is only suitable for subsistence farming.

D. GOVERNMENT SOURCES:

Government (Federal, State and local) can give agriculture loan to farmers either directly or indirectly through some agencies like Ministries of Agricultural Banks, the Agricultural Development Programme (ADP) and others

3.0 METHODOLGY

This section covers the areas of model specification, variables identification and data sources, estimation techniques, evaluation procedures. This research examined to what extent in which agricultural finance has determine the level of economic growth in Nigeria. Since the data to be employed are time series data, an ordinary least square (OLS) method will be used to estimate the model parameters. In order to facilitate time series analysis, data such as GDP, interest rate, agricultural Output (AOP), credit size (CRZ) and commercial bank credit (CBC) shall be obtained from the Central bank of Nigeria (CBN) statistical bulletin.

3.1 Model Specification

Inspired by the Dual-Gap Analysis development by Thirlwall and the work of Oji-Okoro (2011) where the contribution of agricultural sector to the Nigeria economic development was examined, where GDP was the dependent variable while domestic saving, Government expenditure on agriculture, foreign direct investment were the independent variables. Hence, in line with these and a little modification the model adopted in this study is functionally expressed as;

$$Y = f(X_1, X_2, X_3, X_4 \ldots\ldots\ldots\ldots\ldots X_n)$$

$$GDP = f\ (CBC, RINTR, AOP, CRZ)$$

Where;

GDP - Gross Domestic Product

RINTR - Real interest rate

CBC - Commercial bank credit

AOP - Agricultural output

CRZ - Credit size

The model is thus mathematical presented as follows;

$$GDP = \beta_0 + B_1CRZ + B_2RINT + \beta_3AOP + \beta_4CBC + \mu_i$$

In order to achieve the objective of this study, the variables were estimated in their logarithm functions and expressed as follows;

$$logGDP = \beta_0 + logB_1CRZ + logB_2RINT + log\beta_3AOP + log\beta_4CBC + \mu_i$$

Where

GDP = Gross domestic product

AOP = Agricultural output

RINTR = Real Interest Rate

CRZ = Credit Size

CBC = Commercial Bank Credit to Agriculture

B_o = constant term

$B_1 – B_4$ = parameters to be estimated

μ_i = stochastic error term.

3.2 VARIABLE IDENTIFICATION

Gross Domestic Product (GDP), this was chosen as a dependent variable in this study because it is used as an indicator for assessing the growth of Nigerian economy, while Agricultural Output (AOP) was chosen as an independent variable in order to capture the effect of commercial banks credit on agricultural output in Nigeria. This will also serves show how significant changes in the variable are to the economic growth of Nigeria. Credit size (CRZ) is an explanatory variable stating the amount of loan/credit allocated to agricultural sector to enhance agricultural productivity in the nation that is economy as a whole. Interest rate (RINT) was employed as an explanatory variable in this study because it shows the rate of interest that causes the change in GDP, and Commercial bank credit (CBC) was also included as an explanatory variable.

3.4 ESTIMATION TECHNIQUE

The Ordinary Least Square (OLS), method shall be used for the estimation of parameters of the model specified earlier on. This estimation technique is relevant to the objectives of this study because it has been used in the study of a range of economics relationship with satisfactory result. The specified model shall be confronted with the data collected to obtain the numerical value of the non-zero parameter estimated. The evaluation method was based on the various test of significance will be carried out to know whether the estimates of the parameter confirm with the assumption of ordinary least squarer and to ascertain the forecasting ability of the model.

4.0 DATA ANALYSIS AND DISCUSSION OF RESULTS

This chapter is designed to reflect the analysis and discussion of results, based on the methodology employed in the previous chapter.

ANALYSIS OF RESULTS

$$\log GDP = 11.83743 - 0.377318CRZ + 0.421706RINT - 0.024776AOP + 0.082138CBC$$

$$(0.613691) \quad (0.041283) \quad (0.140689) \quad (0.032517) \quad (0.030809)$$

The estimated regression model above revealed that the intercept of the model is 11.83743. This shows that, holding the explanatory variables constant, i.e at the zero level of all the explanatory variables, the Gross Domestic Product (GDP) will increase by over 11.83%. The results further revealed that, the coefficients of Credit Size (CRZ) and Agricultural Output (AOP) are negatively related to the entire Gross Domestic Product; these are -0.377318 and -0.024776 respectively, it is further revealed that the coefficients of Real Interest Rate (RINT) and Commercial Bank Credit to agriculture (CBC) are positively related to the Gross Domestic Product; these are 0.421706 and 0.082138 respectively.

As shown in the estimated model above, it is evident that, the coefficient of Credit Size (CRZ) is negatively related to the Gross Domestic Product. This result didn't conform to the economic a priori expectation of positive relationship. Hence a unit change in Credit Size will bring about a decrease in the Gross Domestic Product by about 37%.

The regression result further revealed that, there exist a positive relationship between Real Interest Rate (RINTR) and the output in the economy, this result is in concurrence to the economic apriori expectation of positive relationship. However, a unit change in Real Interest Rate (RINTR) will bring about an increase of about 42% in the output of the economy, this implies that as interest rate is increasing, people will be induced to invest part of their money and there will be more money in circulation for those that want to borrow for investment purpose.

The regression result also revealed that, there exist a negative relationship between Agricultural Output (AOP) and Output of the Economy. This result is not in concurrence to the economic a priori expectation of positive relationship. Hence, a unit change in the agricultural output will bring about a decrease of about 2.4% in the Gross Domestic Product. This is because most of people in the economy practice a subsistence system of agriculture as a result of inadequate loans for the farmers.

The regression result further revealed that, there exist a positive relationship between Commercial Bank Credit and the Output of the Economy. This result is conforms to the economic a priori expectation of positive relationship. However, a unit change in Commercial Bank Credit will bring about an increase of about 8.2% increase in the Output of the Economy.

4.2 Analysis of the Coefficient of Multiple Determinations (R^2)

The coefficient of multiple determination (R^2) measures the degree of variation in the dependent variable as it's been explained by the explanatory variables. However, the regression result showed that the coefficient of R^2 is 0.956734. This implies that, about 95.7% of the total variation in the output of the economy (GDP) is been explained by the joint variations in the explanatory variables of Credit Size (CRZ), Agricultural Output (AOP), Commercial Bank Credit (CBC) and Real Interest Rate (RINT).

4.2a Test of Statistical Significance

T-test Hypothesis

H_0: $\beta_0 = \beta_1 = \beta_2 = \beta3 = \beta4 = 0$

H_1: $\beta_0 \neq \beta_1 \neq \beta_2 \neq \beta3 \neq \beta4 \neq 0$

Given values in parenthesis (t-ratios) from the result estimated t-calculated. For t-tabulated at 5% level of significance with observation 1990– 2009, t – tabulated at 5% is 1.960 using the two tail test. The decision rule states that; if t-cal > t-tab, the parameter estimate is statistically significant, and if t-cal < t-tab, the parameter estimate is not statistically significant. Therefore, the constant term as well as the coefficient of the some of the explanatory variables such as Real Interest Rate and Commercial Bank Credit are significant statistically at 0.05 level and the rest of explanatory variables Credit Size and Agricultural Output are not statistically significant. This implies that, the behaviour of output in the economy (GDP)is been influenced by the behavior of the statistically significant explanatory variables CBC and RINT respectively and behaviour of output in the economy (GDP) is not been influenced by the behavior of the non statistically significant explanatory variables CRZ and AOP in the model within the period under consideration.

Summary of T - Test

Variable	t-Statistic	t-tabulated	Remarks	Decision Rule
C	4.903229	1.960	Significant	Reject H_0
CRZ	-9.139910	1.960	Insignificant	Accept H_0
RINT	2.997424	1.960	Significant	Reject H_0
AOP	-0.761944	1.960	Insignificant	Accept H_0
CBC	2.666026	1.960	Significant	Reject H_0

F-Statistical Test (5%)

This is used to test for the overall significance of the model.

F – calculated = 82.92412

The degree of freedom is given,V1 = k-1 where k in the number of explanatory variable with the independent variable therefore 5-1=4, and V2 = n-k. Where n is the number of observation and k is the number of variable therefore 20-4= 16.

F – tabulated = 3.01

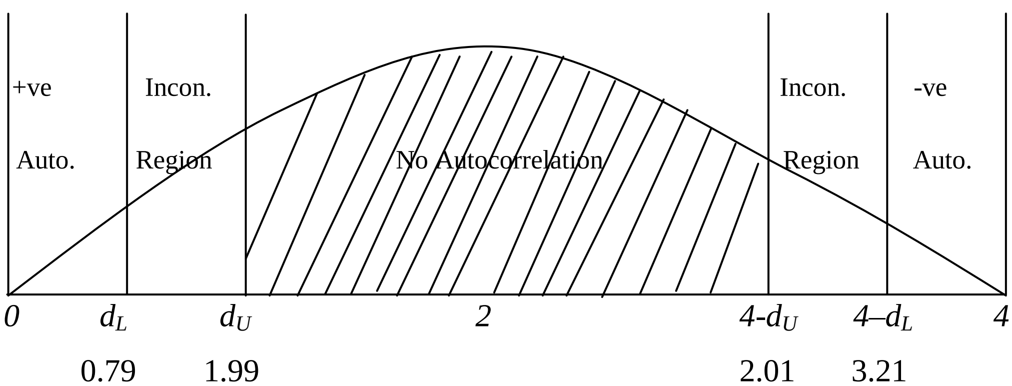
Since $F - cal > F - tab$, hence, the overall model is statistically fit and implies that the mean values of the explanatory variables are different from zero.

<u>Durbin Watson Test</u>

DW calculated (d^*) = 1.209638

DW tabulated = dL = 0.79 dU = 1.99

$4 - dL = 3.21$ $4 - dU = 2.01$



d^*=1.209638

Therefore, since, $d_L < d^* < d_U$ that is ($0.79 < d^* = 1.209638 < 1.99$), hence, we conclude that the test for serial correlation among the successive values of the error term shows that the test is inconclusive.

4.3 Discussion of Findings

From the results presented above, it is worthy of note that the size and amount of credit available to agriculture of the total amount of credit granted by the government has not been able to impact on the level of economic growth in Nigeria. This is as it shows a negative influence on the level of output in Nigeria. This may be attributed to the fact the Country has recorded so much in terms of misappropriation of funds meant to be issued to the agricultural system as credits for the improvement of the system. This also goes with the level of agricultural output which maintained a negative but insignificant influence on the output level of Nigeria. Meanwhile, the real interest rates and the total commercial bank loans to agriculture showed positive impact on the output level in Nigeria. The reason being that when it has to do with the private sectors and individual entities, the loans and advances will have a bit of regularity in terms of disbursements. This is evident in the level and frequencies of loans made available by the apex banks through the commercial and specialized banks in Nigeria.

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

The research study set out to empirically examine the impact of agricultural financing on the growth and development of Nigerian economy. The empirical evidences from the literature and the findings pointed out to the fact that despite the level of finance and credit size available to agricultural sector in Nigeria in relation to the output level in the economy has not made any meaningful effect on the economy. This is evident based on the negative but insignificant posture maintained by the level of output. The findings also revealed that the administration of financing in the agricultural sector in the prevailing level of interest rates during the period under review has really been relatively favourable to the agricultural sectorial output but has not in any way translate to any improvement on the economic system in terms of growth. Besides, the administration and disbursement of credit available to the agricultural sector through the commercial and specialized banking system have also been helpful to the system in terms of its effects on the output growth.

5.2 CONCLUSION

In conclusion, this study asserted that agricultural output level in Nigeria during the period under review for the purpose of the study has contributed negatively to the level of economic development. This revelation persisted despite the fact so many funds from different sources have been expended on the sector. The Nigerian economy still rely heavily on the foreign economies for both the raw materials meant for the industrial and manufacturing sector on one hand and certain number of her food items for the survival of the citizenry on another hand. This outcome may be attributed to the fact that agricultural production in Nigeria has been characterized by low and dwindling output due to the long term neglect it has suffered in the hands of successive governments in Nigeria. There is therefore the need for conscious and concerted efforts by the governments and every relevant stakeholder to ensure a complete overhaul of the agricultural sector to transform it from this current status a fully mechanized one so that it can cater for the industrial and domestic needs of the economy.

5.3 RECOMMENDATION

In view of the summary of findings and revelations emanating from the conclusion of this study which empirically seeks to assess the impact of agricultural finance on the development of Nigerian Economy, it is therefore recommended that efforts should be geared towards transforming the agricultural sector to make it a growth engendering and a reliable one for the Nigeria economic system so as to be able to move towards the standard set out in the millennium development goals (MDGs). Besides, the interest rates should be maintained at a level that it will encourage funds mobilization for the agricultural sector that will translate into output growth for the entire economy.

And finally, the commercial and specialized banks should be encourage in terms of funds disbursement to the agricultural sector so as to ensure proper utilization of such funds for the benefit of the sector in particular and the entire economic system as a whole.

REFERENCES

Abayomi, O. (1997). "*The agricultural sector in Nigeria: The way forward*." CBN Bullion,21: 14-25.

Abdullahi, F.A. (2002). *Spectrum Memory Guide, Agricultural Science for Senior Secondary Certificate Examination.* Ibadan: Spectrum Books Limited.

Adeoye, P.B. (2005). *Informal Financial Sector and Poverty Alleviation. Proceedings of the National Conference on Informal Financial Sector and Sustainable Development in Nigeria.* Department of Banking and Finance, University of Ado-Ekiti, Ado-Ekiti, Ekiti State, Nigeria, pp.93-96.

Adekanye, F. (1986). *Practice of Banking*. London: Collins Publishing Company.

Ahmed, Y. O. (1993). *"Bank of the North Pamphlets on Agricultural Financing. Various circulars and Policy Guidelines on Agricultural Financing in Bank of the North Limited."* A Paper delivered at Seminars at Bank of the North Human Resources and Development Centre by (Agric. Officer, Bank of the North Limited).

Akinboyo, O.L. (2008). "Five decades of agricultural policies: What role has statistics played? CBN Bullion, 32: 134 – 165.

Aku, P.S. (1995). *Comparative Analysis of NAC and ACGSP loan Disbursement to Agriculture in Nigeria.* Journal of Social and Management Studies. Vol.1,No.34.

Alkali, R.A. (1997), *The World Bank and Nigeria*: *Cornucopia or Pandora Box?* Kaduna: Baraka Press, pp15-16

Amechi, N.F. (2004). *Model Agricultural Science*. Oko: Federal Polytechnic press.

Amin, A. A. (1996). *The Effect Of Exchange Rate Policy On Cameroon's Agricultural Competitiveness*. Nairobi: ARC Publishers.

Aryeetey E. and Udry C. (1996), *The Characteristics of Informal Financial Markets in Africa.* Paper presented at the Plenary Session of the Bi-annual Research Conference of the African Economic Research Consortium**,** Nairobi, Kenya, December 1994.

Bagachwa, M. S. D. (1995), *Financial Integration and Development in Sub-Saharan Africa: A Study of Informal Finance in Tanzania,* Overseas Development Institute Working Paper 79, p50.

Bouman, F. J. A. (1995), *Rotating and Accumulating Savings and Credit Associations: A Development Perspective.* World Development, 23(3):371-84.

Eicher, L. & Witt, J. C. (1964). *Nigerian Development Plan In Growth and Development of the Nigerian Economy.* USA: Michigam State University Press

Ekezie, E.S. (1997). *The Elements of Banking Money Financial Institutions and Markets*. Onitsha: Africana-fep Republishes.

Emmanuel .O.E. (2008). *Macroeconomic Environment and Agricultural Sector Growth in Nigeria.* World Journal of Agricultural Sciences. Vol.8, No.16.

Emeka, O.M. (2007*). Improving the agricultural sector toward economic development and poverty reduction in Nigeria*. CBN Bullion, 4: 23-56. FAOSTAT 2004.

Floro, M.S. and Ray, D. (1997). *"Vertical Links Between Formal and Informal Financial Institutions*." Review of Development Economics.1 (1): 34-56

Fosu, K.F. (1992). *The Real Exchange Rate and Ghanas Agricultural Export*. Nairobi: ARC Publishers.

Garba, P.K. (2000). *An Analysis of the Implementation and Stability of Nigeria Agricultural Policies*. Accra: AEC Publishers.

Heidhues, F. D. (1985), *Agricultural Credit and Agricultural Development.* Journal of Economics 31: 59-70

Iganiga, B.O. and Unemhilin, D.O. (2011). *"The Impact of Federal Government Agricultural Expenditure on Agricultural Output in Nigeria*". Journal of Economics, 2(2): 81-88

Ijaiya, G.T. & Abdulraheem, A. (2000). Commercial Banks Credits to the Agricultural Sector and Poverty Reduction in Nigeria. A Calibration Analysis. Nigeria *Journal of Agricbiz and Rural Development*. Vol.XL,No.12.

Ijere, M.O. (1996). *New perspectives in Financing Nigeria Agriculture.* Benin: Dimension Publishers.

Ikala, P. A (2010). *Impact of public agriculture expenditure on agricultural output and economic growth: (1978-2007).* An Unpublished thesis of the Caritas Unversity, Amorji-Nike; Emene Enugu.

Iyoha, M. (2004). *Applied Economics Second Edition.* Benin: Mindex Publishing Nigeria.

Konare K. (2001) *Challenges to Agricultural Financing In Mali.* An M.Sc Thesis Submitted to Department of Agricultural Economics, Michigan State University.

Koutsoyiannis, A. (2001). *Theory of Econometrics an Introductory Exposition of Economics Method.* New York: Palgrive Publishing Ltd.

Lawal. A. A. (1997), *The Economy and the State from the Pre-Colonial Times to the Present. In A. Osuntokun. and A. Olukoju. (eds).* The Nigerian Peoples and Cultures, Ibadan, Nigeria: Davison.

Lawal, W.A. (2011). "*An analysis of government spending on agricultural sector and its contribution to gdp in nigeria ."* International Journal of Business and Social Science, 2(20), 244-250.

Mackie A.B (1964) *The role of agriculture in economic growth and development. Illinois Agricultural Economics*. Agric Journal, 43: 45-56.

Muftau, A.I. (2003). *Commercial Bank Credit to the Agricultural Sector and the Nigerian Economy. An Analysis of the Future Trend.* A Journal of Department of Business Administration . Vol.28, No.32.

Nigeria *Economic Empowerment and Development Strategy- NEEDS (2004).* Executive Summary on Nigeria Agricultural Policy Support Facility (A-PSF). An Agricultural Policy, Research and Knowledge Program to Support Nigeria's NEEDS.

Nzotta, S.M. (1999). *Money Banking and Finance* Theory and Practice. Lagos: Intercontinental Publishing.

Obadan, I.M. (2000). *Prospect for Diversification in Nigeria Export Trade.* Benin: Dimension Publishers.

Ogen .O. (2007), *The Agricultural Sector and Nigeria's Development: Comparative Perspective from the Brazilian Agro-Industrial Sector Economy, (1960-1995)* Nebula March 2007@Noble World Archives.

Oji-Okoro, I. (2011). "*Analysis of the contribution of agricultural sector on the Nigerian Economy*

Olajide S.O (2011). *Ethno-botanical Survey of a Disturbed Rainforest Ecosystem in South East Nigeria*. Nigerian Journal of Agriculture, Food and Environment. 7(1):1-8

Oluwasanmi, H. A. (1966). *Agriculture and nigeria's economic development*. Ibadan:

economic development." world review of business research, 1(1), 191 – 200.

Okolo, D. A. (2004), *Regional Study on Agricultural Support:* Nigeria's Case, being Special Study Report prepared for Food and Agricultural Organization (FAO)

Okumadewa. F. (1997). *Poverty and Income in Nigeria -Measurements and Strategies for Reform:* Paper presentedat the Vision 2010 Workshop, Abuja, April 14.

Okurut, N. and Thuto, B. (2007), *Informal Financial Markets in Botswana: A Case Study of Gaborone City*. Study prepared for Botswana Institute for Development Policy Analysis (BIDPA)

Ruma. S.A. (2008), *Nigeria Ranks 20th on Global Hunger Index – Minister for Agriculture,* The Online Punch Newspaper. Retrieved from online http:/www.punch.com/Articl.aspx?theartic=Art200803172393867, 15th March

Spio, K. and Groenewald, J.A. (1997), *Rural Financial Markets: An Overview*. *Agrecon,* Vol. 36, No. 2:pp.121-138

Timberg, T. A. and Aiyar, C. V. (1984), *Informal Credit Markets in India*. Economic Development and Cultural Changes. Vol., 33 (1): pp.43-59.

Todaro, M. P. and Smith, S. C. (2003). *Economic development:* 8th ed, Singapore: Pearson Education.

Ugochukwu, O.C. (1999). *STAN Agricultural Science for Secondary Schools.* Lagos: Longman Nigeria Plc,

Umoh, G.S. (2003). *Macroeconomic environment and the Perennial Crops*. Akwa: African Feb Publishers.

Winters, P.A.(1998): *The Role of Agriculture in Economic Development: Visible and Invisible Surplus Transfers*. Journal of Development Studies, June.

Woolf, S.S. and Jones A.O (1969). Agrarian change and economic development: the historical problem London: Methuen.