



Research Paper

Central Bank of Nigeria Intervention and Food Security in Nigeria

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Abstract: This study analyzed the effect of government financing on agriculture value added in Nigeria between 2003 and 2022 using annual time series data sourced from Central Bank of Nigeria Statistical Bulletin and World Bank Development. Agricultural value added was used as the dependent variable while government financing on agriculture was used as the independent variable. Auto Regressive Distributed Lag (ARDL) Model was used to analyze data. The results of ARDL Model revealed that government financing on agricultural sector had a significant negative relationship with agricultural value added in Nigeria. The researcher therefore recommended that there should be increase in the amount of funds which the Central bank of Nigeria injects into the agricultural sector through the agricultural credit guarantee and also monitor and ensure compliance that these funds are used for the purpose they were meant for and not diverted.

Key words: agricultural credit guarantee scheme, food security, agricultural financing, agricultural sector, Auto regressive distributed lag model

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I. Introduction

The role of finance in agriculture, just like in the industrial and service sectors, cannot be over-emphasized. Despite the huge potentials of agriculture in Nigeria, the impact of the sector on poverty reduction and self-sufficiency is perhaps very low. Although, several reasons could be deduced for this development, prominent among them are; the poor private investment in agriculture, inadequate access to assets and resource and poor technology as well as epileptic power supply in the country. The neglect of agriculture is partly the result of an assumption that agriculture is inherently an inferior sector, whose share in the economy is certain to decline as the economy grows. Agric sector financing, no doubt, is strategically important in the revival and growth of agriculture but equally important are the other factors of production from which finance cannot be isolated if it was to be effective and efficient. In Nigeria, poor macroeconomic policy, lack of adequate funding and the issue of corruption has contributed to the ineffectiveness of agricultural sector development in Nigeria (Eboh, 2012). Government expenditure on agriculture has however been shown not to be substantial enough to meet the objective of the Government agricultural policies, For a developing country with a mono-product oil economy such as Nigeria's, inadequate financing of agriculture portends great danger for many reasons (Adesina, 2016). Government budgetary allocation towards agriculture has consistently been inadequate and short of expectations despite the assumed interests of the respective governments in the past years. For example, only 4% of the federal government's annual total budget has been consistently allocated to agricultural sector since 2006 (Sanusi, 2011).

In a move to increase funding in the agricultural sector, government introduced the Agricultural credit Guarantee Scheme Fund (ACGSF) for farmers to access so as to improve funding in this sector. However, a lot of Nigerian farmers, particularly small holder farmers, are not aware of the Agricultural credit Guarantee Scheme Fund (ACGSF) Loan to Nigeria's Agricultural sector. Apart from lack of awareness of the availability of this scheme by farmers, corruption is the disbursement of this funds made available for rural farmers as loans so often than not can be diverted to industrial use by top government officials (Ida, 2009). This seems to make the effort of government to increase funding of the agricultural sector futile.

Statement of the problem

In spite of the natural endowments which the Nigerian soil is blessed with, the agricultural sector has continued to record a decline in productivity. The low availability of credit facilities as well as corruption and

sharp practices in financing agricultural development in Nigeria has hindered the potential of agricultural sector to boost economic growth and food security in Nigeria. Other factors hindering the development of agriculture in Nigeria include social-economic and structural problems such as: Poor and inefficient allocation of adequate funds to the agricultural sector, Unavailability of credits to local farmers, Lack of capacity building on the part of the farmers due to inadequate knowledge which often result to loan default, High interest rates on loan facilities which affects the borrowing ability of farmers in Nigeria and the inability of farmers to utilize credits granted due to illiteracy and inadequate formal training. Having realized the declining role of agriculture to food security, the government over the years has put in place certain policy measures and programmes with a view of increasing the contribution of agriculture to food security. However, a peep into the federal government capital expenditure on agriculture as a ratio of the total federal government capital expenditure, it portrays a gloomy future for the sectors development in the country. From 1980 to 2011, the federal government capital expenditure on agriculture were below 10% except in the following years; 1981, 1982, 1983 (the highest), 1985, 1986, 2001, 2002, 2004, 2005, 2007, 2008 and 2009 because these were the years that coincides or the year after with different government agricultural development policies and programmes such as the Green Revolution in 1980, the structural adjustment programme (1986), The Directorate of Foods, Roads and Rural Infrastructure (1987) although it was 5.7% but increased to 7.1% the following year, food for all programme in 1987, the better life for rural women programme also in 1987, the Rural Agro-Industrial Development Scheme (Gollin, 2002). Others include; Agricultural credit guarantee scheme fund (ACGSF), an initiative/intervention measure of the Central Bank of Nigeria which have features such as the self-help group linkage banking, trust fund model and interest draw back (CBN,2018). Other schemes include; the Agricultural Credit Support Scheme (ACSS), Commercial Agriculture Credit Scheme (CACS. Under the current administration of President Muhammadu Buhari, budgetary allocation for agriculture rose from 1.8% in 2017 to 2.0% in 2018, then fell to 1.56% in 2019 and 1.34% in 2020 before recording a slight increase in 2021. In 2022, the government have budgeted 1.8% of annual budget to agricultural sector. But this is still way short of the 10% yearly budget allocation proposed by African Union Maputo Declaration (AUMD) of 2003. Commercial banks in Nigeria do still prefer the service and commerce sectors for lending and even when such loans are given out to the farmers, the guarantee that such money will be utilized for agricultural purpose is not certain. Also, interest rate the commercial banks do charge is also on a high side and discourages potential borrowers. As much as getting startup capital is difficult; the financial institutions in Nigeria are always reluctant to finance Agribusiness projects despite the fact that there is always a ready market for Agricultural produce. The excuse is that Agricultural production is too risky for them to invest in rather they prefer to invest in the processing aspect of Agribusiness because it falls under manufacturing. They have forgotten that the raw materials for the manufacturing firms are basically and primarily Agric produce directly or indirectly Okopi (2008)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 as much as getting startup capital is difficult; the financial institutions in Nigeria are always reluctant to finance Agribusiness projects despite the fact that there is always a ready market for Agricultural produce. The excuse is that Agricultural production is too risky for them to invest in rather they prefer to invest in the processing aspect of Agribusiness because it falls under manufacturing. They have forgotten that the raw materials for the manufacturing firms are basically and primarily Agric produce directly or indirectly Okopi (2008)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. Additionally, the process of acquiring a loan entails a lot of paperwork and many bureaucratic procedures that lead to extra transaction costs. These institutions show a preference for large-scale transaction over small-scale transaction and non-agricultural over agricultural loans. This begs the question if agriculture is adequately financed in Nigeria and to ascertain the extent to which this finance impacts on economic growth and development in Nigeria. Consequently, there is a need to undertake a study on this note to provide clear perspectives on the impact of Central bank of Nigeria intervention (agricultural credit guarantee scheme) o food security in Nigeria.

Objective of the study

The objective of the study is to evaluate the effect of Central Bank of Nigeria intervention on food security in Nigeria.

Research hypothesis

H₀₁: Central Bank of Nigeria intervention does not have significant impact on food security in Nigeria

Agricultural Credit

Agricultural credit can be defined as the mobilization of resources at all levels in order to increase production and productivity in agriculture and to enhance the productive capacity. Agriculture credit in an emerging world could have positive effects on the growth of gross domestic products, which translates to the entire economy's wellbeing. Agriculture credit/finance brings about growth and it solves the problems militating against

the agriculture sector's productivity (Wiggins, 2009). Economic growth is defined as "a long term rise in capacity to supply increasingly diverse economic goods to its population; this growing capacity is based on advancing technology, and the institutional and ideological adjustments that it demands" (Todaro, 1992). This definition implies that economic growth is synonymous with a sustained rise in national output, provision of wide range of economic goods, presence of improved technology and institutional, attitudinal and ideological adjustments.

Agricultural Credit Guarantee Scheme Fund

According to the Central Bank of Nigeria (2018), Government in a bid to provide the necessary financial facilities and help curb the difficulties experienced in accessing funds by farmers in the commercial banks and reduce the interest rate charged to farmers, established the Agricultural Credit Guarantee Scheme Fund (ACGSF) in 1977, which the federal government holds 60% share and the Central Bank of Nigeria (CBN) holds 40% share in the scheme. The Fund guarantees credit facilities extended to farmers by banks up to 75% of the amount in default net of any security realized. During the regulated period (1978-1989) in the scheme, there was consistent increase in the lending portfolios of the commercial banks to the Agriculture but as some as the deregulation sets in the financial institution, the banks reduced lending to the agricultural sector. To help advance the objectives of establishing the Agricultural Credit Guarantee Scheme Fund (ACGSF), innovations were made which include; Self-Help Group Linkage Banking, Trust Fund Model and Interest Draw Back. Agricultural Credit Guarantee Scheme Fund (ACGSF), of all its effect in the Agricultural sector, did not serve all the needs of the agricultural sector. Then, the Agricultural Credit Support Scheme (ACSS) initiative was established by the federal government and the central bank of Nigeria and support by the Bankers' Committee. The scheme according to CBN (2018) was introduced to enable farmers exploit the untapped potentials of Nigeria's agricultural sector, reduce inflation, lower the cost of agricultural production, generate surplus for export, increase Nigeria's foreign earnings as well as diversify its revenue base. To ensure that the objectives of the scheme are realized without hindrance, the scheme operates under federal and state committees. The banks under the scheme provide funds on single digit arrangement. Initially it will be 14% percent interest rate but if the farmer honours the terms of the loan and return it on time, the farmer will get 6% rebate.

Concept of Agricultural Loan

This is a loan facility offered to people employed in the Agricultural sector to carry out agricultural activities. This provides the capacity to purchase a new farm or expand current operations. Farm loans are available through traditional lenders as well as dedicated government agencies. Fortunately, government usually comes in with low interest loans and other subsidies that usually help the farmers to make profit at the end. These loans are mostly used for the following (business.com, 2021);

- i. Purchase farm land
- ii. Cover operating expenses
- iii. Help with the marketing of their farm product

Concept of Food Security

Food security can be defined as access by people to enough food for an active, healthy life and includes at a minimum the ready availability of nutritionally adequate and safe food, and the assured ability to acquire acceptable food in socially acceptable ways without resorting to emergency food supplies, scavenging, stealing and other coping strategies. This is sometimes referred to as the availability and safety of consumable food through the production and preservation processes up to the time of consumption. Food security is described as the availability of food, safety and intake at individual, household, sub-national and global levels. (Tiffin, 2012). The goal is to show that a nation that cannot feed itself is food insecure. A more straightforward definition of food security concerns the availability of food in sufficient quantities to meet the sustenance of the population. Hunger is severe manifestation of food insecurity. The National Agency for Food and Drug Administration and Control (NAFDAC) is involved in quality control and safety of packaged foods in Nigeria especially of meat and poultry. The emphasis should be first on production before preservation of the produce.

Food security was presented for the first time at the world food conference in 1974 viewed solely from the perspective of having adequate availability of food on a national scale (Emenuka, 2019). Today, it is a condition in which all people do not have for a healthy and active life due to the absence of right proportion and quality of food (Egwu, 2016). Accordingly, there are four dimensions to this: unavailability of sufficient amount of food which is a function of low food production; instability of supply over time which depends on the ability to supply over time which depends on the ability to preserve/store produced food and supplement available food through imports if necessary; access to the available food which depends on income level and its distribution; lack of adequate food utilization which encompasses procurement, ingestion and digestion all of which are dependent on nutritional quality, education and health.

Food security in a broad sense has to do with always having an adequate level of food and food products to meet increasing consumption demand to mitigate fluctuation in output and price (Dim, 2013).

According to FAO (1996) food security is a situation when all people always have physical and economic access to sufficient, safe, and nutritious food for a healthy and active life. Emmanuel et al., (2017), see food security as a function of food production level, that is, high level of food production is equal to food security. However, to Bashir, (2013), food security entails producing food that will go round every citizen both in quality and quantity. To achieve this, agricultural production needs to be enhanced with adequate knowledge of the environment, climatic condition, the market, and its operation, and be aware of price and price mechanism, good transportation system, storage, fashion modality to check glut and be well prepared in case of disasters. Food insecurity is the opposite of this, it is the lack of access to sufficient quality and quantity of save nutrition food for an active and healthy life; the inability of households or individuals to meet the required consumption level in the face of fluctuating production, price, and income (Maharjan & Chhetri, 2006). According to Gillespie and Haddad (2001), food insecurity boils down to inability of households to have reliable access to food in sufficient quantity and quality to enjoy active and healthy life. Food importation as a result of insufficiency have continued to be on the rise in Nigeria, a country which according to Adebayo & Omonona (2016) and Ademola, (2019) is the highest food producer in sub-Sahara Africa.

Rice Production and Food Security in Nigeria

Rice is the seed of a monocot plant and one of the major sources of carbohydrate. This all important crop has changed from being a ceremonial food to a staple food in many Nigerian homes. The place of rice in the food security consciousness of Nigerians cannot be over-emphasized. It would be recalled that when the President Muhammadu Buhari's administration banned the importation of foreign rice into Nigeria, it created a heavy multiplier effect on the cost of other food items. The price of a bushel of local (Nigerian) rice galloped geometrically from N2,500 to N10,000 while foreign rice was sold for as high as #25,000 per bag. The resultant effect was the journeying of traders from Lagos, Abuja, Port Harcourt and other cities into the nooks and crannies of every remote place in Nigeria in search of local rice. There was widespread rice scarcity and it generated massive criticism on the governance and body politics of the Nigerian State. The fact that rice was nowhere to be found increased the overall national malnutrition level. Apart from the ban placed on rice importation by President Muhammadu Buhari, his political disposition and policies led to the massive exodus of foreign investors, which created massive financial difficulty, price-hike and unlimited level of hunger and food insecurity in Nigeria. In less than two years of his administration, rice which was hitherto a staple food became food for only the rich class. It practically disappeared largely from the local and major markets in the country. There was high search for anything called rice leading to the massive search for and resort to local rice. Okonkwo (2016) revealed how the divisive and tempestuous politics in Nigeria neglected food production and thereby intensified food insecurity. The consequence according to him is food crisis aggravated since the year 2007.

The government has been unable to save her nationals from imminent hunger and food shortages. It sought the solution in the importation of rice to cushion the effect of global crisis for which reason it entered into bilateral agreements with the reluctant Asian governments of India, Indonesia and Malaysia, placing an order of N80 billion for the commodity. Unfortunately, the rise in dollar in relation to the naira in the international market, and the increasing drowning of Nigeria into recession made a mess of the waiver that was given to the rice importers as the price of foreign rice continued to rise. The implication was that importers sought every kind of deal with smugglers and all those operating in the informal international markets, especially those within the international border areas. In addition, Abubakar Mohammed, Chairman, Rice Processors Association of Nigeria (RIPAN) and some members of the organisation raised alarm in 2016 over the heavy rate of rice smuggling from the Republic of Benin, Niger and Cameroon into Nigeria. He maintained that investigations revealed that parboiled rice is imported at little or no duty rate into the above countries and then pushed-down to Nigeria, hence, Abubakar states that "1 million Mt of parboiled rice are berthed at Republic of Benin". The group (RIPAN) further maintains: We have it on good authority that the governments of those countries provide the smugglers with necessary assistance such as warehousing facilities, local transporting logistics among others, because of the import duties accruing to the treasuries. However, the combined investment of (Nigerian) local rice producers of over N200 million (worth) is threatened because of smuggling activities and if the menace is not checked, it would kill off the huge investments made by the federal government in the various rice intervention programmes. It would also kill the huge investment of the private sector stakeholders in the rice value chain and undermine the zeal and efforts of over 25 million Nigerian farmers across the country. The demand for rice has increased at a much faster rate in Nigeria than in other West African countries. For example, in the 1960s, Nigeria had the lowest per capita annual consumption of rice in the sub region, averaging 3kg. Per capita consumption levels grew significantly at 7.3% per annum, averaging 18kg in the 1980s and 22kg between 1995 and 1999. By 2008, it rose to 32kg with per capita consumption in the urban area averaging 47kg.

Government Intervention and Food Security in Nigeria

The President Buhari led administration tried to ensure that Nigeria is food secured through the investment and facilitation of rice farming in Nigeria during his administration. An example of this scenario is the Rice Pyramid that was on display by Rice Farmers Association of Nigeria (RIFAN) showing that Nigeria can increase food sufficiency through the cultivation of rice. This intervention was made possible by the then president Buhari led administration through the Central Bank of Nigeria's Anchor borrower's program in the same vein, the Federal Government led by President Tinubu is also towing the same approach of investing in agriculture in order to ensure food security in Nigeria. The president has reiterated his commitment to ensure food security in the country. The Minister of Agriculture and Food Security, Sen. Abubakar Kyari, stated this when Gov. Dikko Radda of Katsina State paid him a courtesy call on Tuesday in Abuja. He said that Katsina State remained one of the frontline states in the quest to achieve President Bola Tinubu's food security agenda through the Federal Ministry of Agriculture and Food Security. "There is no gainsaying that we are out to achieve Mr President's agenda of food security, poverty reduction and job creation," he said. Kyari said that the ministry was also committed to achieving the Federal Government's plan to cultivate 500,000 hectares of arable lands to ensure food security (Ewetan et. al, 2017).

Current State of Nigerian Agriculture

Nigeria's key agricultural statistics according to Oyaniran (2020) are as follow; the share of agricultural contribution to GDP as at Q1 2020 is at approximately 22%; the agricultural sector remains the largest employer in Nigeria (36% of labourforce); More than 80% of Nigeria's farmers are smallholder farmers (SHFs). These numbers accounts for 90% of Nigeria's agricultural produce; only about N40 billion was earmarked by the government for agricultural research and development (R&D) in 2019; Agriculture budget represents 1.8% (or N183 billion) of the total 2020 budget size. This significantly falls short of the 10% specified in the Maputo Declaration; Nigeria's tractor density is put at 0.27 hp/ hectare which is far below the FAO's recommended tractor density of 1.5 hp/hectare; Nigeria's agricultural trade deficit widened by N689.7 billion in 2019 compared to N549.3 billion in 2018; In four years (2016–2019), Nigeria's cumulative agricultural imports stood at N3.35 trillion, four times higher than the agricultural export of N803 billion within the same period; Nigerians spent about N22.8 trillion on food items in 2019, representing more than half (56.7%) of the total household expenditure of N40.2 trillion.

Growth trends and major challenges to Nigerian agriculture

Over the past 20 years, value-added per capita in agriculture has risen by less than 1 percent annually. It is estimated that Nigeria has lost USD 10 billion in annual export opportunity from groundnut, palm oil, cocoa and cotton alone due to continuous decline in the production of these commodities which are generally considered as cash crops. As concerns food crops, increases in production have not kept pace with population growth, resulting in rising food imports and declining levels of national food self-sufficiency (Abuka & Ebiemere, 2013). For example, Nigeria is one of the largest producers of rice in Africa and concurrently the continent's leading consumer of rice, but she is also one of the largest rice importers in the world. Rice is not only an important food security crop but is an essential income-generating crop for the majority of small-scale producers who commonly sell up to 80% of total production and consume only 20%. Rice generates more income for Nigerian farmers than any other cash crop in the country. With regards to tuber crops, the country is the largest producer of cassava in the world, with about 50 million metric tons produced annually from a cultivated area of about 3.7 million ha. Nigeria accounts for about 20% of the world cassava production, and about 34% of Africa's production of the crop. Close to 65% of total production is in the southern part of the country where it is predominantly grown by smallholders on small plots for family consumption and sales at the local level. Large-scale commercial plantations of cassava are rare. Livestock and fisheries development is an important component of Nigerian agriculture with abundant social and economic potentials. In spite of this high potential, domestic fish production still falls far below the total demand, which was estimated at 2.2 million metric tons per year in 2008 (FAOSTAT, 2018). As a result, the country imports about 60% of the fish consumed. To reduce the level of fish imports, aquaculture has been given particular attention as one of the priority value chains to be developed. As far as livestock production is concerned, about 60% of the ruminant livestock population is found in the country's semi-arid zone and mostly managed by pastoralists. Domestic production of livestock products is far below the national demand, resulting in large imports of livestock and livestock products. Except for eggs, the domestic production of animal products is less than half the demand for beef mutton and goat meat, while for milk and pork products it is less than a quarter of the demand; NV20:2020, 2009 (Abuka and Ebiemere, 2013).example, Nigeria is one of the largest producers of rice in Africa and concurrently the continent's leading consumer of rice, but she is also one of the largest rice importers in the world. Rice is not only an important food security crop but is an essential income-generating crop for the majority of small-scale producers who commonly sell up to 80% of total production and consume only 20%. Rice generates more income for Nigerian farmers than any other cash crop in the country. With regards to tuber

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Theoretical Framework

Structural Change Theory

The study is anchored on the Structural Change Theory. This theory was developed by Lewis Arthur in 1954. The Structural Change Theory as analysed and modernized by (Agbenyo, 2020) in a study, "the structural change theory – an analysis of success and failures of technology", called it "development with unlimited supply of labour". The assumption of this theory is that an economy is made up of two sectors. One is the traditional

(agricultural or subsistence) sector while the other is the modern (capitalist, industrial or manufacturing) sector. This gave rise to the two-sector model. The theory also assumed that the development of an economy is dependent on the growth of the two sectors. $Y = f(\text{AGRIC}, \text{IND})$, Where; Y = Economic development, AGRIC =Agricultural sector and IND = Industrial sector. The agricultural sector and the industrial sector are interrelated. The agricultural sector employs capital inputs, labour expertise and also a final consumer of the output of the industrial sector, while the industrial sector employs labour and output of the agricultural sector. This theory is important to this study because agricultural development cannot be possible without proper funding. The proper funding of agriculture is made possible through proper funding of agricultural schemes; the proper funding of these schemes will lead to increase in agricultural output which will, in turn, lead to economic development which will invariably lead to poverty alleviation. Other reforms or strategies are likely to be ineffective and perhaps even counterproductive unless there are corresponding structural changes that control productivity.

Empirical Review

(Agugo, 2021) analyzed the implication of agricultural financing on rural poverty alleviation in Nigeria. The agricultural financing indicators considered as independent variables include government expenditure on agriculture sector, commercial bank credit to agriculture sector, agriculture sector guarantee fund, lending rate. The independent variable for economic growth is considered as real gross domestic product. The study adopted ex-post facto research design. The data was sourced from central bank of Nigeria. (CBN) Statistical Bulletin and it was analyzed using multiple regression analysis. The result revealed that government expenditure to agriculture sector has positive and insignificant effect on gross domestic product in Nigeria, commercial bank credit to agricultural sector has positive and significance impact on gross domestic product in Nigeria, Agricultural sector guarantee scheme fund loan to agricultural sector has positive and significance impact on gross domestic product in Nigerian and that lending rate loan to agricultural sector has negative and significance impact on gross domestic product in Nigeria. It was recommended that government at all level should increase their allocation to the agriculture sector of the economy to enhance the profane of the sector.

(Ayinde & Falola, 2021) examined the impact of agricultural credit on rural poverty reduction in Nigeria using data from smallholder farmers. The study elicited data through the use of questionnaires and used survey research design to analyse data. The dependent variable used for this study was rural poverty reduction, while the independent variable employed was agricultural credit. The results obtained in this study indicated that agricultural credit had a significant and positive impact on reducing rural poverty in Nigeria.

(Azam & Khan, 2021) investigated the effectiveness of agricultural credit in reducing rural poverty in Tanzania. The dependent variable used was rural poverty perception index, while the independent variable used were agricultural credit loans, bank credit facility, government spending on agriculture and interest rates. The results show that agricultural credit has a significant and positive impact on reducing rural poverty in Tanzania.

(Adepoju, et al., 2020) investigated the impact of agricultural credit on poverty reduction in Nigeria using regression analysis. The dependent variable used in the study was poverty reduction proxied by national poverty index, while the independent variable used were agricultural credit, commercial banks credit, lending rate and government expenditure. The results revealed that agricultural credit had a significant and positive impact on reducing poverty in Nigeria.

The study conducted by (Asukwo, et al., 2020) examined “The effect of Commercial Banks Lending on the Growth of the Agricultural Sector in Nigeria. The findings revealed that there was a significant relationship between loans and advances, interest rate and liquidity on agricultural output. Conclusively; Based on the analysis of the result, it is shown that there is a significant relationship between loans and advances and agricultural output liquidity and asset had a significant relationship on agricultural output. It is concluded that commercial bank plays a vital role in agricultural sector and they give loans to this sector of the economy in order to improve agricultural output. The study recommended that bank should make efforts to grant agricultural loans at the appropriate time. Also, recommended that the rate of lending should not be more than single digit and adequate funds should be available to commercial banks.

Research design

This study adopted the ex-post facto research design. The method of data collection for this study was the desk survey method of collecting data. It is concerned with the collection of data from existing sources to get initial ideas about research interest.

Model specification

Based on the theoretical framework, objectives and the hypothesis of this study, a model showing the effect and relationship amongst/between the variables of interest were specified. Based on this, the model showing the effect and relationship between /amongst the variables of interest were transformed into functional and econometric equations. Thus:

$$AP = f(AF)$$

1

Where:

AP = Food Security (Total Food Production (TFP))

AF = Central Bank of Nigeria Intervention (proxied by agricultural credit guarantee scheme fund (ACGSF))

Therefore, given the models and their corresponding proxies, the econometric equations after the ordinary least square (OLS) dynamics shall be thus:

Equation one: Total Food Production (TFP)

$$\text{LogTFP} = b_0 + b_1\text{logACGSF} + \text{et}$$

Data Analysis and Findings

Table 4.1 Descriptive statistics

	AVA	ACGSF
Mean	94.26400	6654389.
Median	93.69000	6173674.
Maximum	111.7400	12456251
Minimum	69.87000	1151015.
Std. Dev.	12.34106	3025742.
Skewness	-0.393830	0.065658
Kurtosis	2.185899	2.166107
Jarque-Bera	1.069307	0.593851
Probability	0.585872	0.743099
Observations	20	20

The descriptive statistics presented in Table 4.1 shows that ACGSF had a mean value of N66.5 billion, while TFP had a mean value of approximately 94.3. Note that the Mean describes the average value for each data series in the model. From the analysis, ACGSF had a higher Standard Deviation than TFP, implying that it is the more volatile variable than TFP in the model. The Table further reveals that ACGSF was skewed to the right with positive skewness value while TFP was skewed a little to the left with negative skewness value. Kurtosis measures the peakness or flatness of the distribution of a series. The kurtosis of a normal distribution is 3. If it exceeds 3, it means that the distribution is peaked or leptokurtic relative to the normal. Conversely, if it is less than 3, it shows that the distribution is flat or platykurtic relative to the normal. Table 4.1 further reveals that both variables are flat or platykurtic since their kurtosis values are less than 3. Jarque-Bera (JB) tests whether the series is normally distributed or not. The test statistic measures the difference of the skewness and kurtosis of the series with those from a normal distribution. In JB statistic, the null hypothesis which states that the distribution is normal is rejected at 5% level of significance. From the results of the analysis presented in Table 4.1 above, all the variables had Probability values of greater than 0.05, as such, we conclude that all the variables are normally distributed. The number of observation is twenty, signifying the number of years of the study.

Inferential results

ARDL Model result with logTFP as Dependent Variable

Table 4.2 Result of ARDL Model for model (1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(TFP(-2))	0.382460	0.213209	1.793828	0.1031
LOG(ACGSF)	-0.326012	0.181812	-1.793130	0.1032
C	8.858661	2.740576	3.232408	0.0090
R-squared	0.926126	Mean dependent var		1.370431
Adjusted R-squared	0.874415	S.D. dependent var		0.477666
S.E. of regression	0.169275	Akaike info criterion		-0.413481
Sum squared resid	0.286541	Schwarz criterion		-0.017760
Log likelihood	11.72133	Hannan-Quinn criter.		-0.358916
F-statistic	17.90948	Durbin-Watson stat		1.681182
Prob(F-statistic)	0.000066			

Source: Researchers' analysis with e-views 10 output (2023)

The Auto Regressive Distributed Lag (ARDL) Model result as shown in the Table 4.2 above suggests that Central Bank intervention (ACGSF) has a significant negative relationship with total food production in Nigeria. A percentage increase in ACGSF would bring about approximately 34 percent decrease in TFP. A keen observation of the result showed that the R-squared and Adjusted R-squared was approximately 0.93 and 0.87 respectively. This means that the explanatory variables accounted for about 93% variations in the explained variable. Put differently, about 93% variation in agricultural value added growth rate was explained by the independent variables, while the remaining 7% may be attributed to variables not captured in the model (stochastic variables).

Post estimation test

Table 4.3 Test for Auto-correlation

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob*	
. * .	. * .	1	0.200	0.200	0.8513	0.356
.* .	*** .	2	-0.319	-0.374	3.1408	0.208
.* .	. .	3	-0.214	-0.062	4.2437	0.236
. .	. .	4	0.061	0.017	4.3403	0.362
. * .	. .	5	0.091	-0.030	4.5682	0.471
. .	. .	6	-0.016	-0.024	4.5759	0.599
. .	. * .	7	0.047	0.108	4.6478	0.703
. .	. * .	8	-0.038	-0.104	4.6993	0.789
. * .	. * .	9	-0.176	-0.135	5.9334	0.747
. .	. .	10	-0.058	0.010	6.0823	0.808
. * .	. .	11	0.080	-0.031	6.4152	0.844
. * .	. * .	12	-0.116	-0.251	7.2284	0.842

Source: Researchers’ analysis with e-views 10 output (2023)

This test is carried out to further test for auto correlation. The result of Correlogram Q-Statistic in Table 4.3 suggest that the variables are free from auto correlation.

The correlogram Q- Stat. table indicates that all p-values were >5% hence the conclusion that the model was free from auto correlation.

Test for serial correlation

Table 4.4 Test for serial correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.934533	Prob. F(2,6)	0.4433
Obs*R-squared	4.275371	Prob. Chi-Square(2)	0.1179

Source: Researchers’ analysis with e-views 10 output (2023)

The Breusch-Godfrey Serial Correlation LM Test above in Table 4.4 above showed that the probability values of 0.4433 and 0.1179 are statistically insignificant at 5% level of significance. The shows that the model is free from serial correlation.

Test for Heteroskedasticity

Table 4.5 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.621260	Prob. F(7,10)	0.7289
Obs*R-squared	5.455414	Prob. Chi-Square(7)	0.6046
Scaled explained SS	2.113927	Prob. Chi-Square(7)	0.9533

Source: Researcher’s analysis with e-views 10 output (2023)

The heteroskedasticity test in Table 4.5 above suggest that the variables are free from the problem of heteroskedasticity since the p-values of the F-stat. and Obs*R-squared of 0.7289 and 0.6046 respectively are >5% significance level.

Test of hypothesis

Decision Rule: The researchers’ used critical values like p-value as the basis for acceptance and rejecting of null hypotheses. Where the critical p-value computed is less than 5% significance level, the variable was taken as being significant, hence it was rejected.

H₀₁: Central Bank of Nigeria does not have significant impact on total food production in Nigeria

Variables	Coefficient	t-Statistic	P-value
LOGACGSF	-1.035153	-3.388187	0.1032

Source: Extracted from Table 4.2

The test of hypothesis (H₀₁) revealed that the p-value of LOGACGSF is greater than 0.05 significance level, with a probability value of 0.1032. The researcher therefore refuses to reject the null hypothesis. This result shows that Central Bank of Nigeria Intervention had an insignificant impact on food security in Nigeria.

II. Conclusion and Recommendation

The study was carried out to evaluate the impact of Central Bank of Nigeria intervention on food security in Nigeria with the use of annual time series data within the period of 2003-2022. The study made use of Auto Regressive Distributed Lag (ARDL) Model ascertain the extent to which agricultural credit guarantee scheme fund, a proxy of Central Bank of Nigeria intervention influenced total food production, a proxy of food security in Nigeria. Empirical result revealed as shown in this study that agricultural credit guarantee scheme fund had non-significant effect on total food production in Nigeria. This study concluded that there is non-significant effect of Central Bank of Nigeria intervention on food security in Nigeria within the referenced period. The researcher recommended that there should be increase in the amount of funds which the Central bank of Nigeria injects into the agricultural sector through the agricultural credit guarantee and also monitor and ensure compliance that these funds are used for the purpose they were meant for and not diverted.

References

- [1]. Abedullah, C., Mahmood, N., Khalid, M. &Kouser, S. (2009). The role of agricultural credit in the growth of livestock sector: A case study of Faisalabad. *Pakistan Veterinary Journal*, 29 (2), 81–84.
- [2]. Adamgbe, E. T., Belonwu M. C., Ochu, E. R. & Okafor I. I. (2020). Analysis of the impact of central bank of Nigeria's agricultural intervention funds.
- [3]. Agugo S.W. (2021). Implications of agricultural financing on the rural poverty alleviation of Nigeria, a seminar in finance presented to the Department of Finance. Michael Okpara University Agriculture Umudike.
- [4]. Anthony-Orji, O. I., Orji, A., Ogbuabor, J. E. and Ezealigo, P. (2020). Empirical analysis of agricultural and non-agricultural exports’ impact on infrastructural investment in Nigeria. *Ekonomika APK*, 5, 87–96. DOI: 10.32317/2221- 1055.202005087.
- [5]. Bekun, F. V. (2015). The contribution of agricultural sector on the economic growth of Nigeria (1981- 2013). A Research paper submitted to Institute of Graduate Studies, Eastern Mediterranean University, Gazimagusa, North Cyprus.
- [6]. Central Bank of Nigeria (CBN). Annual Reports and Statistical Bulletins 2001, 2005, 2007, 2009, 2012, 2013, 2014, 2017.
- [7]. Central Bank of Nigeria, (2010); Economic Report Fourth Quarter. [Www.Cbn.Gov.Ng](http://www.Cbn.Gov.Ng).
- [8]. Central bank of Nigeria, *Economic and Financial Review* 9(4): 117.
- [9]. Central Bank of Nigeria. Various Years. “Statistics”. Accessed December (2014); [Http://Www.Cenbank.Org/](http://Www.Cenbank.Org/).
- [10]. Demetriades, P. O. & Hussein, A. K. (1996). Does financial development cause economic growth? Time series evidence from 16 Countries. *Journal of Development Economics*, 51(4), 387-411.
- [11]. Ewetan, O., Fakile, A., Urhie, E. &Oduntan, E. (2017). Agricultural Output and Economic Growth in Nigeria. *Journal of African Research in Business and Technology*. DOI: 10.5171/2017.516093.
- [12]. Ewubare, D.B. & Eytipe, J.A. (2015). The Effects of public expenditure on agricultural production output in Nigeria. *Journal of Research in Humanities and Social Science*, 3(11), 07-23.
- [13]. Eze, C. C., Lemchi, J. I., Ugochukwu, A. I., Eze, V. C., Awulonu, C. A. O. &Okon, A. X. (2010). Agricultural Financing Policies and Rural Development in Nigeria. In *The 84th Annual Conference of the Agricultural Economics Society*, Edinburgh, Scotland. DOI: 10.22004/ag.econ.91677.
- [14]. Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration – with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52 (2), 169–210. DOI: 10.1111/j.1468- 0084.1990.mp52002003.x.
- [15]. Kenny, S. V. (2019). The role of agricultural sector performance on economic growth in Nigeria. Online at <https://mpra.ub.uni-muenchen.de/93132/> MPRA Paper No. 93132, posted 09 Apr 2019 16:19 UTC
- [16]. Nnamdi, I. S., & Torbira, L. L. (2015). Micro credits in Nigeria economic growth: A multisectional Analysis. *Nigeria Journal of Financial Research*, 10(1), 442-454.
- [17]. Nnamdi, I. S., & Torbira, L. L. (2015). Micro credits in Nigeria economic growth: A multisectional Analysis. *Nigeria Journal of Financial Research*, 10(1), 442-454.
- [18]. Nwakanma, P.C., Nnamdi, I. S., & Omojefe, G.O. (2014). From rural to microfinance banking: Contribution of Micro credits to Nigeria ‘Economic growth-An ARDLApproach. *International Journal of Financial Research*, 5(3),414-426.
- [19]. Ogunbible, A. O. (2008). Poverty reduction and access to agricultural inputs. Government’s seven point agenda: implication for agricultural development.
- [20]. Okoronkwo, U. U. (2016) “Africa and the global food prices” in U. U. Okonkwo (Ed.) *Food and drinks in African History*. Enugu: Madonna University Press, p. 230.
- [21]. Olajide, O., Akinlabi, B. & Tijani, A. (2012); Agricultural resource and economic growth in Nigeria. *European Scientific Journal*, 8 (22). Pp. 103-115.

- [22]. Orji, A., Ogbuabor, J. E., Okeke, C. M. and Anthony-Orji, O. I. (2019). Exchange rate movements and the agricultural sector in Nigeria: An Empirical Investigation. *Journal of Academic Research in Economics*, 11 (3), 616–627.
- [23]. Oyaniran, T. (2020); State of Agriculture in Nigeria. AFCFTA workshop; September, 2020.
Pesaran, M.H., Shin, Y. and Smith, R. (2001), “Bounds testing approaches to the analysis of level relationships”. In: *Journal of Applied Econometrics* 16 (3): 289-326.
- [24]. Phillips, P. C. B. & Loretan, M.(1991): Estimating Long-Run Economic Equilibria. *The Review of Economic Studies*, 58(3), 407-436.
- [25]. Robinson, M. S. (2001). The microfinance revolution: Sustainable finance for the poor. Open society/world bank.138-149 Rome. 80pp. ([Http://Www.Fao.Org/3/CA0922EN/CA0922EN.Pdf](http://www.fao.org/3/CA0922EN/CA0922EN.pdf))
- [26]. Schreiner M. and Yaron J. (2001). Development Finance Institutions: Measuring Their Subsidy, The World Bank, Washington D.C.
- [27]. Tiffin, E. O. (2012). An analysis of the determinants of agricultural credit approval/loansize by commercial banks in South Western Nigeria. *Journal of Nigerian Development Studies*, I (1), 6-26.
- [28]. Tsegai, D., Kassie, M., & Shiferaw, B. (2020). Impact of credit access on productivity and food security of smallholder farmers in Ethiopia. *Agricultural Finance Review*, 80(1), 60-75.
- [29]. Udih, A. (2014). cited in Asukwo, J. I., Owui, H. O., Olugbemi, M. D., & Ita, R. I. (2020). Commercial banks lending and the growth of agricultural sector in Nigeria; *IJAR International Journal of Banking and Finance*, 6(3), 543-551.