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CENTRAL BANK INTERVENTION FUND AND AGRICULTURAL OUTPUT IN NIGERIA: AN ARDL APPROACH

Abstract. *This paper examines the impact of central bank financial intervention funds on Nigeria's agricultural exports from 1990 to 2020 with the specific objective of determining the extent to which the funds are financed by the Agricultural Credit Guarantee Fund (ACGSF) in the agricultural sector concerned. Agricultural exports both short-term and long-term during the period were under review. The study uses annual time data obtained from the CBN and WDI database. The Auto-Regressive Distributed Lag (ARDL) technique and the ARDL Bound test were used to determine the short-term and long-term relationships of the variables. The results show that ACGSF shows a positive and significant relationship of agricultural export growth in the short run with coefficients of 0.23, 0.33 and 0.19, but a negative and insignificant relationship of agricultural export in the long run. The analysis also shows a positive and insignificance of employment in agriculture in relation to agricultural production in the short term, while negative and significant in the long term. The 68.3% of the change in the dependent variable, as revealed by the adjusted R2, is due to the combined effect of the independent variables. The study therefore seeks for greater and appropriate funding of the government scheme or monetary authority to have a positive impact on long-term agricultural exports in Nigeria and should ensure immediate repayment of loan(s) to the qualified farmer to avoid diversion, political influence and delay in poor implementation process due to bank deposits of money in the country.*

Keywords: *Agricultural Credit Guarantee Scheme Fund, Agricultural Exports, Employment in Agriculture, Agricultural Sector.*

Introduction

Agriculture is the cultivation of crops and the care of livestock and is the main source of income for most households. Crop production, livestock, forestry and fishing are all sub-sectors of the agricultural sector. Crop production is the biggest driver in this industry; the agricultural sector has problems such as an outdated land tenure structure, limited research and technology, and procurement and distribution problems. In sub-Saharan Africa, agriculture accounts for about 20% of GDP, more than any other region on the planet. From Nigeria to the lush region east of the African Trench, the continent covers 60% of the world's undeveloped land.

Due to the importance of agriculture in the region, cash crops such as coffee or rice are grown for commercial purposes and serve the same services as sugar cane, potatoes, corn and yams are other valuable cash crops. According to data from the Food and Agriculture Organization's Business Statistics Database (Minot, 2010), it is the most produced cash crop in Africa. Cassava, commonly known as yucca, is the world's most productive cash crop. Sugarcane production in Africa is more than 200 million tonnes per year, accounting for 63% of world production. Cassava is less well known in the Western world, despite providing food for 800 million people worldwide.

Cassava is a major root vegetable from which Africa produces 97 percent of the world's sweet potatoes. Nigeria, Ghana, Benin and Ivory Coast make up the "Yam Belt" of West Africa. Approximately 60 million people are directly or indirectly employed in the production of yarn belts. The composition of agricultural GDP in the agricultural region is a significant contributor to Africa's GDP, but what is its role in other parts of the world? Agriculture is an important aspect of the economy in South Asia, as it is in sub-Saharan Africa. India produces more than 24% of the world's rice, while Bangladesh buys nearly 7% of the world's production. Currently, India produces nearly 14% of the world's wheat supply. Agriculture, on the other hand, only accounts for 1% of North America's GDP. The number of farms in the US has declined from a peak in 1930 from 7 million to 2 million in 2020 (Ayodimeji, 2022).

Because of these difficulties, despite Africa's large agricultural sector, productivity is still a problem. Nigeria has been dealing with a high food price crisis for two years in the past, pushing inflation head above the low double-digit rate in 2021. The gap between food and core inflation has consistently exceeded five percent. In Nigeria, however, the decline in agricultural production began to come with the rise of oil in the early 1970s; inconsistencies in government policy did not make farming attractive. Lack of technology to enable farmers to produce large quantities to meet local consumption and foreign needs, environmental art such as drought, pests that damage agricultural products, poor transportation, damage of infrastructure and restrictions on trade contributed to a significant decline in agricultural production (Orji, Ogbuabor, Alisigwe & Anthony-Orji, 2021).

However, financial institutions play a significant role in actually delivering financial support in many emerging and developing economies, particularly Nigeria. As financial entities, banks serve as intermediaries, raising money from surplus units and transferring it to deficit units for use in the economy's productive sectors (Ibrahim & Alagidede, 2018). Deposit Money Banks focus on industrial priorities while acting as lubricants and promoting growth in all economic sectors through their loan policies (Dori, 2016; Ogbuabor & Nwosu, 2017).

Both internal and external financial institutions can play a role in financial development. The central bank, commercial banks, and other domestic financial organizations that finance or extend credit to various economic sectors, such as the agricultural sector (Dori, 2016). On the other hand, international financial institutions like the World Bank, International Monetary Fund (IMF), and African Development Bank also offer financing in the form of credit for purposes including reducing poverty and promoting agricultural development, economic growth, and development. All domestic financial institutions, including credit institutions, financial development institutions, and commercial banks, are under the jurisdiction, supervision, and management of the Central Bank. The expansion of the agriculture sector is influenced by financial institutions in many developed and emerging nations. Access to financial services for farmers is essential to development and

access to modern farming output and its essential component to end poverty and further development of the economy (Awunyo-vitor, 2014).

The Apex Bank of Nigeria's development finance initiatives include the direct or indirect economic involvement of the bank in the formulation and implementation of various policies, plans, programmes, innovations and guidelines aimed at providing adequate or sufficient finance and credit to Nigeria agricultural sector, with the primary objective of accelerating economic growth and development (Dori, 2016; Abili, 2018).

Nigeria's agriculture sector was the most significant economic sector prior to the discovery of oil in terms of contributions to local exports, job generation, and foreign exchange profits (Olomola, 2010; National Bureau of Statistics, 2014). The world's expanding population is fed by agriculture, which also serves as a key source of raw materials for other businesses. This sector has long been considered the most significant employer of employment in most developing countries (Orji, Ogbuabor, Alisigwe & Anthony-Orji, 2021; Agbenyo, Jiang & Antony, 2019). Agriculture also links the subsistence sector with the modern sector, which helps stimulate economic growth. Up to 80% of the country's total food is produced by smallholder farmers and subsistence farmers (Okunola, 2017; Ogbuabor & Nwosu, 2017).

In general, the lack of access to adequate finance and capital that Nigeria's agricultural sectors require is a major problem, preventing them from accessing sufficient and effective inputs to increase production. Financial industries lend a disproportionately low portion of their loan portfolios to agriculture and various problems such as ineffective policies and lack of managerial skills of financial institutions. Banks are hesitating to borrow money to farmers. Most farmers have no collateral and find it difficult to meet the strict requirements of bank loans (Bada, 2018).

The disposition of financial institutions is a consequence of the ongoing agricultural crisis that calls for improved agricultural productivity and farmers' livelihoods, which calls for government spending and direct-to-farmer interventions by the Apex Bank of Nigeria. Farmer with the focus of solving the long-term problems of the financial institution. (Dori, 2016). The Central Bank of Nigeria's role in fostering economic expansion and a sound economy extends beyond monetary policy (Dori, 2016), demonstrates how credit schemes like agricultural export refinancing, rural finance and bank support, agricultural credit guarantee scheme, commercial agricultural credit scheme, small and medium industries credit scheme, anchor program, commercial agricultural bank loan, and so on, work in the development finance industry (Dori, 2016; Adamgbe, Belonwu, Ochu & Okafor, 2020).

The Agricultural Credit Guarantee Scheme Fund (ACGSF), established to assist Nigerian farmers increase their bank credit, the Nigerian Agricultural and Cooperative Bank (NACB), which was established to promote medium- and long-term loans to farmers, and the Agricultural Credit Guarantee Scheme Fund (ACGSF) were all created to assist farmers in overcoming financial difficulties and improving their access to funds. In order to develop smallholder farmer-reputable major processor ties and stimulate financing in the Agricultural Sector Bank (CBN), the Central Bank of Nigeria (CBN) introduced the Anchor Borrower Program in 2016.

Despite the number of interventions and programs that are in place, the Nigerian agricultural sector is still struggling with insufficient funds and capital required by the sector. As Nigeria's population grows, food production cannot sustain its population growth, leading to increased levels of imported food and the cost of imports. There is therefore a growing need for adequate financing of agricultural investment and effective access to agricultural credit facilities to meet the growing demand for food and meet the rapid growth of the world's population and the changing food choices of the rising class. Emerging markets such as Nigeria are targeting higher prices for agricultural products. This study therefore examines the impact of the Central Bank's Financial Intervention Fund on agricultural exports in Nigeria, by using the ARDL approach to examine the effects of the central bank funding scheme on agricultural exports in Nigeria (ITA, 2021; Akinrinola & Okunola, 2020).
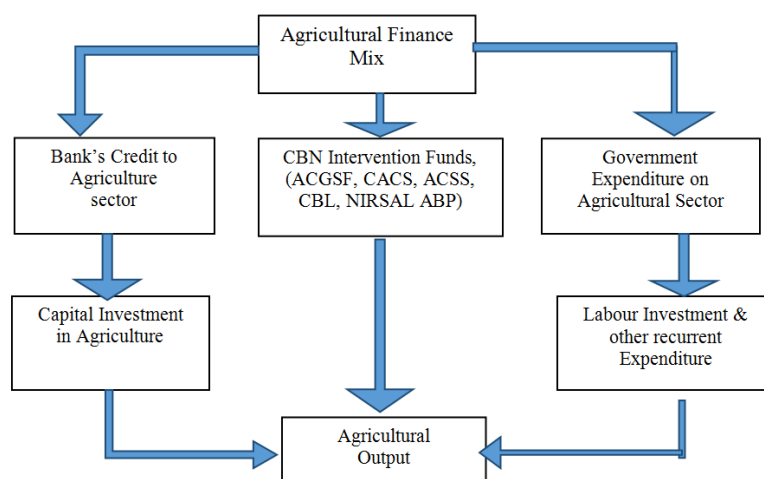
Figure 1: Agricultural Finance Mix
Source: Adapted from Okuneye and Ajayi (2021) and Modified by Author

The conceptual framework of agricultural finance and output is showed in figure 1 above. From the Figure 1 above, it is obvious that agricultural finance such as bank loans for agriculture, government spending on agriculture as well as CBN intervention funds such as ACGSFL, ABP, CACS, significantly boosts the flow of funds to the agricultural sector through agricultural capital investment and agricultural labour investment.

Literature Review

Agricultural capital investment is the usage of funds for the procurement of farm products and capital goods that enhance to farm production, while agricultural labour investment refers to the use of funds for the payment of wages and salaries to farm employees. Capital investment and labour investment impact the productivity of the agricultural sector as capital products purchased for workers in the agricultural industries together complement to the sector's development effort (Okuneye & Ajayi 2021).

Agricultural financing has witnessed tremendous hindrance in Nigeria in recent times particularly as it concerned credit supply from financial institutions. This is apparently due to the fact that agricultural lending is considered to be more risky, having low returns on investment and unprofitable relative to other sectors (Enyim, Ewno & Okoro, 2013). As a matter of fact, most financial institutions have lost utmost interest in agricultural finance (Obilor, 2013) and thus, leaving the peasant farmers which form the bulk of the employment component of the sector to rely on the informal source of credit supply like cooperatives associations, family, friends and money lenders (Akinleye, Akanni & Oladoja, 2003). One major error of this arrangement according to Nwankwo (2013) is that the informal sources cannot meet the credit needs of the farmers adequately.

Consequently, a number of financial institutions have been set up by the government (CBN intervention) to expand the credit flow to the industry, such as the Agricultural Credit Guarantee Scheme Fund (ACGSF) and the Agricultural Credit Support Scheme (ACSS), the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB), the Nigerian Development Agency for Small and Medium Enterprises (SMEDAN), and the Special Presidential Cassava and Rice Initiatives. Others include, but are not limited to, the Rail, Roads and Rural Infrastructure Directorate (DFRRI), the National Economic Empowerment and Growth Plan (NEEDS), FADAMA, an Hausa term for irrigable property, selective credit management, agricultural subsidies and the 2014 Youth Employment in Agriculture Program (YEAP), which contributed to the implementation of the Agricultural Transition Agenda (ATA), which became the Youth Employment in Agriculture Program (YEAP) in 2014 (Ogboru, Abdulmalik & Park, 2018). Anchored Borrower Programme recently launched by CBN in 2016 (CBN, 2016), Private sector-led accelerated agriculture development scheme {P-SADDS} (CBN, 2020).

Theoretical Review and Framework
The Post-Keynesian Growth Approaches

The post-Keynesian approach, an alternate paradigm for analyzing growth, emphasizes the impact of demand factors. In the post-Keynesian tradition, Kaldor is the most important economist. Thirlwall, McCombie, and Thirlwall were all greatly influenced by his work   claims that "growth is demand-determined for the simple reason that when factors of production are freely mobile, no growth rate can be restrained by supply." Because capital and labor are extremely mobile, growth must be driven by demand. Demand adjusts supply. We cannot go back to the pre-Keynesian belief that supply adapts to demand. John Hick proposed that endogenous banking lending should be more significant than central banks money supply for the interest rate (Ramesh & Roger 2021).

Furthermore, post-Keynesian economists contend that convergence at the level is unlikely. Instead, due to the action of cumulative causation mechanisms, uneven growth or divergence is the more likely outcome. As a result, Obadan and Odusola (2010) not only disputed the mainstream neoclassical convergence approach, but also laid the groundwork for a more interventionist strategy, based on the establishment of a more rigorous study of the processes that support divergent policies that encourage private investment, he suggests increase in non-government spending (Haris, 2005).

The Endogenous Growth Model

The concept of economic growth is a key indicator of a country's economic development. In comparison to the previous era, it indicates a quantitative change and signifies a positive change in gross domestic product (GDP). Since the commencement of systematic economic analysis, economic development has faced intellectual obstacles. In the modern sense, the economic growth model began with Harrod and Dormar and continued with Solow's neoclassical growth theory, which has been based on exogenous dynamics. The model was criticized for treating technological breakthroughs as exogenous variables and neglecting to account for disparities in economic growth between countries. Exogenous growth has been attacked in this context for not being in accord with economic realities and for being insufficient in explaining the phenomena of economic growth. Theories of exogenous growth were replaced by endogenous growth theories beginning with Romer and Lucas from 1980s (Gleen, Aguilar, Joao, Dias & Arnold, 2021).

As a contrast to neoclassical growth theory, endogenous growth theories, which began with contributions by Romer, pointed to significant progress in terms of growth models beyond birth. In this context, technological development is based on exogenous variables including neoclassical growth models and endogenous growth models as endogenous variables such as endogenous growth models. Today, models have been developed that go beyond the Solow model in order to fully grasp the economic growth process (Atgur, 2019).

According to Mankiw (2009), the technological progress is an endogenous variable and closely affects the growth rate. On the other hand, it is important long run economic growth in terms of welfare level of people living in a country. They have made significant progress countries that can realize a stable and rapid economic growth in terms of welfare level of citizens in long run. Solow model is based on increases in total factor productivity from outside the model to realize long run increases in per capita production. Increases in factor productivity include research and development activities carried out by firms; training and work during training and all these activities are sensitive's to economic environment. Endogenous growth has the ability to answer on how are increases in factor productivity increases; what is the amount of public funds spent on public education; how are increases in factor productivity affected by subsidies for R&D; it is meaningful that the government intervenes to promote economic growth (Pelloni, Alessandra, Thanasis & Tadesco, 2018).

Theoretical Framework

The theoretical foundation of this study is premised on the production function, Endogenous Growth model formulated by Romers and Lucas (1988). An aggregate Production function expresses the relationship between output and inputs which express as:

$$Q_t = f\left(A_t, K_t, L_t, H_t, \varepsilon_t\right) \tag{1}$$

where Q_t represent output, which is the dependent variable, L_t is labour, K_t represent investment capital, H_t is human capital are three input factors which are the independent variables, while A_t is exogenous level of technology and $\mathcal{E}_t$ represents error term.

In this context, output represents the contribution of the agricultural sector of the Nigeria Gross domestic product (GDP); labour employed and human capital represents effective workers employed in the agricultural sector, while K represents capital investment in monetary terms as a proxy of CBN interventions funds on agricultural sector in Nigeria.

Therefore the aggregate production function of equation (1) can be written as:

$$Q_t = A_t K_t^a (L_t H_t)^\beta \mathcal{E}_t \qquad (2)$$

Taking the Log of Equation (2), the relationship for growth can be expressed as:

$$\log Q_t = \log A_t + \alpha \log K_t + \beta \log(L_t H_t) + \log \mathcal{E}_t \qquad (3)$$

Where $\log A_t = \theta$, and $\log \mathcal{E}_t = \mathcal{E}_t$, therefore, equation (3) can be written as:

$$\log Q_t = \theta + \alpha \log K_t + \beta \log(L_t H_t) + \mathcal{E}_t \qquad (4)$$

Where $\theta = const$, α, β are the coefficients of the variables while $\mathcal{E}_t$ is the error term. Adequate financing and investment from both public sources (Government and CBN) and private financial institutions (Banks) as a capital plays critical role in enhancing output in agricultural sector (Akande & Ola-David, 2010).

Empirical Review of Related Studies

In order to ascertain the affinity between deposit bank loans and Nigeria's tillage production over the period of 1980 to 2013, Agunuwa, Inaya, and Preso (2015) looked into the effect of deposit money bank funds on farming in the nation, and increased association among deposit money bank loan and agricultural output was found using ordinary least squares (OLS) methodologies, however, a negative affinity between deposit money banks, interest rates, and tillage output was found. Additionally, the findings indicate a strong positive correlation between Nigerian government spending and agricultural output. The study suggested that a way of funding in agricultural financing appealing to deposit money banks, the agricultural credit guarantee scheme should improve its requirements for credit guarantees and the interest rate in the agricultural sector should be subsidized.

Anetor, Ogbechie, Kelikume and Ikpesu (2016) utilizing the vector autoregressive (VAR) proposal, researchers examined the effect of loan availability and several deposit money banks' lending strategies on tilling output. The research discovered that, while the commercial credit sector in agriculture has a compelling effect on farming production, the ACGSF did not do well in explaining the presentation of the agricultural sector employ timely figures through the analytical news of the Apex Bank of Nigeria for the sample period 1981–2013. The research recommends that the government encourage commercial banks to make investments in the agriculture sector by offering lending facilities at interest rates below market rates.

Dori (2016) evaluated the effect of nations loan assured fund on agriculture and wealth growth using descriptive statistics and content analysis. Through the secondary data analysis, it was discovered that the scheme expands beneficiaries' access to modern agricultural inputs, outputs, income, and stable livelihood in Nigeria while increasing the flow of credit to farmers. Additionally, it has enhanced Nigeria's GDP, foreign exchange revenues, agricultural exports, food production, food security, local food import replacement, and rural development.

Eseyin (2016) examined different alternatives to agricultural investment and their implications for poverty reduction in Nigeria from 1985 to 2012. Using two-model timely econometric analysis with Cobb-Douglas production function, the result shows that capital, labor

and ACGSF lag effects were discovered to be statistically relevant. The research concluded that private investment should be encouraged by expanding credit facilities under the ACGSF.

In their 2017 study, Mboto, Atseye, and Lawal looked at the effect of loan on nation's agricultural exports from the years 1999 to 2016. They specifically observed at the effect of tillage deposits and bank loans. Agricultural Exports in Nigeria: Bank of Nigeria. The results show that bank credit guarantee as well as the Agricultural Credit Guarantee Scheme Fund has a symbolic effect on farming exports in the nation using annual data sourced from the Central Bank of Nigeria statistical Bulletin for the period. Descriptive statistics and OLS multiple retrogression techniques were used to explain the statistics. The report suggests, among other things, that the government, via appropriate authorities, channel credit to the agricultural sub-sector via selective credit management measures.

Akerele, Ashaolu, Sanusi and Egbetade (2017) discovered the impacts of the Agricultural Credit Guarantee Scheme Fund on farming output in three different sub-sectors of tillage in nation. Statistics on the volume of exports in the sub-sector of agriculture, livestock and fisheries and the amount of funds allocated to individual sub-sectors between 1982 and 2013 were subjected to an econometric (current) analysis. The results show a positive and statistically relevant effect of the volume of funds allocated to the sub-sectors of plant and animal production on growth production in individual subsectors. Likewise, the amount of funds allocated by the fisheries sub-sector to fish exports has an increase effect on fish exports and is notable at the 10% level. While an increase in pool size in one year may increase crop and fish production in the same year, it may take up to 2 years for livestock production to expand significantly. The results concluded that the expansion of the Agricultural Credit Guarantee Fund has many positive signs for agricultural growth, especially in the crops and livestock sub-sector, but has a weak impact on fish production. The study proposes additional incentives to increase agricultural production and proposes measures to ensure that funds are used for specific agricultural activities

Omekwe, Bosco and Obayori (2018) examined the determinants of Nigeria's agricultural exports from 1985-2016. It uses econometric co-integration testing techniques and the error correction model (ECM) approach, and the results of the Johansen test discovered that there is a cointegration comparison that fits the model for the ECM. Meanwhile, ECM results show that Agricultural government financing is positive and important in relation to agricultural exports, agricultural loan have an increase and notable impact on agricultural exports. In inclusion, climate change has a plus value on agricultural production. The study concluded that financing agriculture; Agricultural credits such as climate change are determinants of agricultural exports from Nigeria. However, the study recommends increasing the infrastructure fund in the annual budget to ensure infrastructure in rural areas where many agricultural products are produced, and rural farmers should be encouraged to access credit in the agricultural sector.

Emenuga (2019) investigated over the course of 37 years, from 1981 to 2017, the effect of commercial bankers on the expansion of the real estate market in Nigeria. Information about the agricultural sector's commercial bank credit, interest rates, agricultural productivity and agricultural credit guarantee schemes Central Bank of Nigeria Statistical Bulletin. According to the Johansen co-integration test and error correction model, bank loans and agricultural development in Nigeria have long-term relationship methodologies that were utilized to arrive at this conclusion. The study discovered that ECM was unfavorable and statistically significant at the 5% level. According to the study, interest rates were negatively correlated with agricultural growth in Nigeria, whereas commercial bank loans for agriculture and the loan guarantee method were favorably correlated. The research concluded deposit money banks notably impact the growth of agriculture in the nation and suggests the delays and difficult access to credit should be removed in other to diversify the economy and increase agricultural production hence help economic growth.

Akinrinola and Okunola (2020) investigated the effectiveness of federal Agricultural Credit Guarantee Program (ACGS), which, from 1978 to 2014, was the Federal Government of Nigeria's main approach to credit. The ARDL was used to analyze the long-run and short-run dynamics of ACGS and agricultural growth co-integration frontier test, and the findings indicated that there is a

strong link between total credit, total credit, and agricultural productivity. The findings indicate that while the overall amount of credit has a large productivity ratio in the long run, the total quantity of credit is not important over the long term. In the short term, backlog for is more significant to the level of productivity than the overall quantity of loans. A_t delays, the total amount of debtors had a negative but sizable productivity ratio.

Ibitomi and Ijaiya (2020) studied how Nigerian agricultural exports were affected by agricultural financing schemes. Data were analyzed employing Ordinary Least Squares (OLS) regression and dataset obtained from the Monetary Authority of Nigeria's quarterly releases and the Department Of statistics (NBS) (CBN). Agricultural Credit Guarantee Program Funds (ACGSF), Commercial Banks of Agriculture Credit (CBCA), Government Expenditure on Agriculture (GEA), Annul Rainfall (AR), and Population Growth (PG) are all positively correlated, according to the data. The capital stock (CS) and interest rate (IR) have a negative, considerable impact on agricultural productivity, respectively. According to the study's findings, agricultural investment practices have a significant impact on Nigeria's agricultural exports, and more money should be spent on agricultural expenditures to boost production and give farmers access to finance to increase agricultural output.

Adeshina, Tomiwa and Eniola (2020) studied how Nigerian agricultural exports were affected by agricultural financing schemes. Data were analyzed using Ordinary Least Squares (OLS) regression with data acquired from the Central Bank of Nigeria's (CBN) Statistical Bulletins and the National Bureau of Statistics (NBS). Agricultural Credit Guarantee Program Funds (ACGSF), Commercial Banks of Agriculture Credit (CBCA), Government Expenditure on Agriculture (GEA), Annul Rainfall (AR), and Population Growth (PG) are all positively correlated, according to the data. The capital stock (CS) and interest rate (IR) have a negative, considerable impact on agricultural productivity, respectively. According to the study's findings, agricultural investment practices have a significant impact on Nigeria's agricultural exports, and more money should be spent on agricultural expenditures to boost production and give farmers access to finance to increase agricultural output.

Ebere, Oresanwo, Omogboye and Timothy (2021) investigated from 1981 to 2019 the viability of agricultural exports using agricultural financing from Nigeria. The study discovered that while agricultural expenditure has less of a direct relationship to agricultural exports in Nigeria, credit grants provided to the farming production have a direct moderating impact on exports in Nigeria. There is also a one-way warning that covers both agricultural loans and farm expenditure. Agriculture exports' one-way feedback impact on Nigeria's agricultural spending is another factor. The projected commitment of the government to invest in the agricultural sector and enhance the national budget's allotment to the agricultural sector in Nigeria is the paramount thing to boost agricultural ouput production and ensure food all through the year.

Afolabi, Ikpefan, Osuma and Evbuomwan (2021) studied Nigeria's economic growth with agricultural credit between 1981 and 2017. Using annual information from the World Development Indicators and the Statistical Bulletin of the Central Bank of Nigeria (CBN) (WDI). The research findings using Auto-Regressive Distributed Lag (ARDL) demonstrate a considerable long-term impact of DMBCA on economic growth, while there is a short-term direct association between the two. With a direct link in the short run and an inverse relationship in the long run, ACGSF is not important in either the short run or the long run. The report recommends that coordination tests be carried out by the federal government to make sure that farmers, particularly small farmers, have simple access to financial help and subsidies offered and that the resources are dispersed appropriatel.

Methods
Research Design

The study made use of ex post facto research design. An ex- post facto investigation seeks to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors. Ex- post facto design is considered to be appropriate

for this study because the study is non-experimental, and investigate causal relationship between the dependent variable (agricultural output) and the independent variables CBN intervention schemes.

Data and Sources

This study use annual time series secondary data. These are described as data previously obtained for purposes other than the present study. The data is sourced from Statistical Bulletin of the Central Bank of Nigeria (CBN), International Labor Organization and World Bank Data (ILO).

Method of Data Analysis

The analysis in this study was done in two stages, namely: descriptive analysis and inferential analysis. The relevance of descriptive analysis is to provide insight into the distribution pattern of time series value of the variables overtime. On the other hand, the inferential analysis serves as the basis on which the research hypothesis was tested in other to achieve the research objective, and answer the research question.

Model Specification

The study specifies the following functional relationship between agricultural sector output and CBN financial intervention funds, drawing on the theoretical framework and the research of Oluleye and Toba (2014):

$$AO = f(ACGSF, EA) \tag{5}$$

Where: ACGSF stands for support for the agriculture credit guarantee program agricultural industry as a stand-in for CBN intervention funds, and AO stands for agricultural output (measure of agricultural output performance). More econometric models that are appropriate for the study's goals are built on the foundation of this straightforward functional model. Equation (5) can be expressed in a linear econometric:

$$AO_t = \beta_0 + \beta_1 ACGSF_t + \beta_2 EA_t + \varepsilon_t \tag{6}$$

Where: AO_t, $ACGSF_t$, EA_t are as defined earlier. β_1 and β_2 are the coefficients of the slope, which represents the intercept and is the error phrase that was adopted by the method to capture the effect of some elements which impact agricultural output but are not directly encompass on the approach. It shows the nature and the magnitude of the effect a given change in the Agricultural Credit Guarantee Scheme ($ACGSF$) and employment in agriculture has on agricultural output.

Method of Model Estimation

$$\Delta AO_t = \alpha_0 + \sum_{j=1}^{p} \varphi \, \Delta AO_{t-1} + \sum_{j=0}^{p} \beta_{jt-j} +_j \Delta EA_{t-j} + \lambda_1 AO_{t-1} + \lambda_2 ACGSF_{t-1} + \lambda_3 EA_{t-1} + \varepsilon_t \tag{7}$$

Where Δ denotes the first difference of variables, ε_t is random disturbance term, AO_t is the dependent variable (Agricultural output), φ, β, and ϕ represents the short-term dynamics estimates of the explanatory variables; λ_1 to λ_3 are the long-run estimates of the explanatory variables, while a_0 is the constant parameter.

Apriori Expectation

Employment in agriculture is anticipated to have a positive association with agricultural output, as is the Agricultural Credit Guarantee Scheme (ACGSF) in respect to farming output. The following are the a *priori expectations* for the indicators for the parameter coefficients: ACGSF and EA's elasticity on agricultural output (AO) in Nigeria are 1 and 2, respectively. Consequently, 1>0 and 2>0.

Explanatory Variables	Dependent Variable (Agricultural output)
ACGSF	+
EA	+

Results

Descriptive statistics, the Augmented Dicker Fuller and Philip Perron tests for unit roots, and the ARDL bound test technique were used in the analysis of the data to identify the variables' short - and long-term associations.

4.1. Descriptive Analysis

Along with kurtosis, skewness, standard deviation, and Jarque-Bera statistics, the descriptive statistics also include mean, median, and kurtosis. Results of descriptive data were shown in Table 4.1 for Nigeria's agricultural output (AO), agricultural credits guarantee scheme funds (ACGSF), and employment in the agricultural sector (EA). The median and mean values provided evidence of the great degree of consistency among all the relevant variables. Because the mean and median values fall between the minimum and maximum values for all the series, they exhibit a higher level of consistency. Additionally, it was inferred that the values of the study's variables clustered around their average values, suggesting that the distribution of all the variables used might follow a normal pattern.

The standard deviation gauges a variable's variability or how far it deviates from its average. A low standard deviation value indicated that a variable's value typically falls within a narrow range of the mean, whereas a high standard deviation value showed that the variable's value typically deviates from the mean value. The findings indicate that while AO and ACGSF values deviate from the mean value, EA has a low standard deviation of 5.6197

Skewness is another indicator of distribution. This gauges the skewedness and irregularity of the data series' mean-centered distribution. A normal distribution has zero skewness, while distributions with a positive or negative skewness have the right tail or left tail, respectively. Since they have positive values, variables like AO and ACGSFL are favorably skewed to the right, but EA is negatively skewed due to its negative value.

The kurtosis statistic assesses the peakiness and flatness of the series' distribution. The kurtosis of the normal distribution is 3.which is referred to as mesokurtic. The distribution is referred to be platykurtic in relation to normal if kurtosis is less than 3, and hyperkurtic in relation to normal if kurtosis is greater than 3 is regarded leptokurtic relative to normal distribution. Due to their values being fewer than 3, the variables AO, ACGSF, and EA in Table 4.1 are platykurtic. The Jarque-Bera statistic, sometimes known as the J-B statistic, is used to check for normalcy in the series' distribution. It compares the skewness and kurtosis of the series to those with series that have a normal distribution. If the likelihood of the Jarque-Bera statistic is more than 5%, the decision criterion is to reject the normal distribution null hypothesis. The findings demonstrate that the null hypothesis of a normal distribution is accepted for the variables AO and EA, which have a normal distribution since their J-B statistical probability values are rejected at a level of 5%, whereas the null hypothesis cannot be rejected for the variables ACGSF.

Table 1 Descriptive Statistics			
	AO	**EA**	**ACGSF**
Mean	8216.52	43.8556	3063928.0
Median	4932.76	44.6450	544997.9
Maximum	18348.18	50.5700	12997004.0
Minimum	2303.51	34.4367	24654.90
Std. Dev.	5530.40	5.6197	3906479.0
Skewness	0.5321	-0.2974	1.0467
Kurtosis	1.73	1.6169	2.77
Jarque-Bera	4.5719	2.8335	7.3776
Probability	0.1017	0.2425	0.0250
Observations	40	40	40

Note: AO= Agricultural output, ACGSFL= Agricultural Credits Guarantee scheme Fund Loan, and EA=Employment in Agriculture
Source: Author Computation, 2022

4.2. Analysis of Correlation

The correlation study reveals the potential strength of degree of linear correlation among the variables utilized as well as the direction of correlation between the chosen variables, which can be either positive or negative as the coefficient lies within the boundaries of +1 and -1. A negative perfect linear relationship and a positive linear relationship, respectively, are indicated by correlation coefficients of -1 and +1. The goal is to show how the CBN financial intervention funding variable (ACGSF) and agricultural output in Nigeria relate to one another. According to Table 4.2's correlation analysis, there is a relationship between AO and the explanatory factors that might be both positive and negative. A positive correlation between AO and ACGSF suggests that when the value of ACGSF allocated to agriculture rises, the value of agricultural output rises as well, which results in the development of agriculture in Nigeria. However, in Nigeria, there is a negative association between AO and EA. This suggests that when the EA's value rises, the value of investments and financial involvement in the agricultural sector fall, which in turn causes a decline in agricultural output

Table 2
Correlation Matrix

	AO	ACGSF	EA
AO	1.000		
ACGSF	0.840	1.000	
EA	-0.992	-0.833	1.000

Source: Author Computation, 2022

4.3. Unit Root Test

The foundation element tests can be used to identify the variables' integration order. In this study, enhanced versions of Philip Peron (PP) and Dickey Fuller (ADF) are employed. The ADF and PP tests are based on the null hypothesis of a unit root. The outcomes of the root unit tests are displayed in Table 3 and Table 4, respectively. The Table 3 displays the outcomes of the unit root test with intercept, whereas the results of the unit root test with intercept and trend were shown in Table 4. Multiple integration orders might be seen in the two Tables. Under the unit root test, the variables are stationary at the initial differences with intercept in except for the agricultural output (AO), which appeared must remain still and level with the ADF and PP in Table 3. At level with the ADF and at first difference with the PP unit root test, the ACGSF is stationary. Table 4, contrasted with, showed the outcomes of the root unit test with mixed integration orders for the trend and intercept. Agricultural output (AO), ACGSFL, and EA are stationary at initial differences when using both ADF, while EA is stationary at level. Although other variables showed stationary at the start of differences, AO is stationary at the same level as the PP test. The variables combine the I(0) and I(1) series, according to the research's overall result. These findings add to the supporting evidence for the distributed auto-regressive lag model (ARDL). The research findings using the ARDL method that is shown in Table 5.

Table 3
Unit Roots Test of the Variables (with Intercept)

Variables	ADF Test			PP Test		
	Level	1st diff	Status	Level	1st diff	Status
AO	-3.734** (0.012)	-	I(0)	-4.080*** (0.005)	-	I(0)
ACGSF	-5.340*** (0.000)	-	I(0)	-	-6.646*** (0.0000)	I(1)
EA	-	-6.430*** (0.000)	I(1)	-	-4.670*** (0.001)	I(1)

*Note: ***, ** and * denotes 1%, 5% and 10% significance level respectively*
Source: Author's Compilation 2022

Table 4
Unit Roots Test of the Variables (with Trend and Intercept)

Variables	ADF Test			PP Test		
	Level	1st diff	Status	Level	1st diff	Status
AO	-	-23.671*** (0.000)	I(1)	-6.230*** (0.000)	-	I(0)
ACGSF	-	-11.230*** (0.000)	I(1)	-	-12.312*** (0.0000)	I(1)
EA	-5.762*** (0.001)	-	I(0)	-	-4.608*** (0.007)	I(1)

*Note: *** and ** denote 1% and 5% significance level*
        Source: Author's Compilation 2022

4.4 Regression Results

Table 5
Estimated short-run of the error correction version of the ARDL model

ARDL Error Correction Regression			
Dependent Variable: D(LAO)			
Selected Model: ARDL(1, 3, 2)			
Case 2: Restricted Constant and No Trend			
Included observations: 28			
Short Run ECM Regression			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LACGSF)	0.230076	0.076602	3.003541	0.0073
D(LACGSF(-1))	0.336380	0.088642	3.794809	0.0012
D(LACGSF(-2))	0.194144	0.087227	2.225738	0.0383
D(LEA)	-14.52055	4.484342	-3.238057	0.0043
D(LEA(-1))	14.19748	4.522944	3.138990	0.0054
ECM(-1)*	-0.283706	0.033031	-8.588975	0.0000
R-squared	0.741520	Mean dependent var		0.082355
Adjusted R-squared	0.682774	S.D. dependent var		0.073703
S.E. of regression	0.041512	Akaike info criterion		-3.338277
Sum squared resid	0.037911	Schwarz criterion		-3.052804
Log likelihood	52.73587	Hannan-Quinn criter.		-3.251005
Durbin-Watson stat	2.043925			

Source: Author's computation, 2022

According to the calculated model for goal one, agricultural output is positively impacted by the agricultural loan guarantee plan fund ($\beta = 0.2300, t = 3.0035, p = 0.0073$). This suggests that increasing ACGGSF causes an increase in Nigerian agricultural output. Ceteris paribus, the outcome demonstrates that an increase in ACGSF of 1% will result in an increase in agricultural output of approximately 0.007%. The positive link is statistically significant, as shown by a p-value of less than 0.05 for the t statistics of ACGSF in this study, level of significance.

Additionally, the results of the short-run coefficient estimates of the ACGSF demonstrated that the positive and statistically significant coefficients of lag zero to three of the ACGSF. The total of the (ACGSF) coefficients (from lag 0 to lag 3) is positive and significance in the short run. These findings indicated that ACGSF has a notable favorable effect on AO in the federation during the short term. On the other hand, the employment in agriculture (EA) showed positive and significant effects on AO at the initial difference in the short run, whereas it showed negative and significant effects on AO at the lag zero in Nigeria. This suggests that an increase in EA has been able to prompt a considerable short-term increase in Nigeria's agricultural output.

The Agricultural Credit Guaranteed Scheme Fund and Employment in Agriculture account for 68.28 percent of fluctuations in agricultural output in Nigeria, according to regression

coefficients of 0.74152 and 0.6828, respectively. The remaining 31.72 percent of agricultural variations is not captured by the model. There is no autocorrelation among the residual terms in the model, according to the Durbin-Watson statistics of 2.0439, which is within the allowed range. This supported the calculated equation's good behavior.

The short-run estimation of the error-corrected ARDL model's outputs indicates that the model's coefficient of error correction term (ECM) is significant at the 1% level of significance. These supported the occurrence of co-integration and the stability of the long-term nexus between the variables. The ECM is statistically significant and negative. It is used to gauge how soon the equilibrium is returning in the event of distortion and divergence from the model's short-run dynamic and stable equilibrium. The model's ECM coefficient for model (-0.2837) revealed that 28.37% speed adjustment or convergence after a shock. This means that any short-term changes in agricultural output.

Table 6
Bound Test for Cointegration (Dependent Variable: Agricultural Output, LAO)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	15.92772	10%	2.63	3.35
K	2	5%	3.1	3.87
		1%	4.13	5

K is the number of exogenous variables in the model
Source: Author's computation, 2022

Table 6 the F-statistic of 15.9277 is higher more than upper, lower critical value bounds at a 1% level of significance, according to the results of the ARDL bounds testing that confirmed the existence of a long-term connection between the factors. As a result, the null hypothesis that there is no co-integration is disproved.

Table 7
Estimated Long-run of the ARDL model

Levels Equation				
Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LACGSF	-0.027561	0.183922	-0.149853	0.8825
LEA	-12.37857	2.428261	-5.097709	0.0001
C	24.25430	4.962342	4.887672	0.0001

Source: Author's computation, 2022

This demonstrates that the variables being studied in Nigeria have a long-term nexus. It suggests that, if the variables diverge in the short run by displaying components of disequilibrium and divergence, the presence of cointegration suggested that the variables would eventually reestablish equilibrium and convergence following distortions and deviation in the short run. The presence of cointegration is a definite sign that it is time to move forward with estimating the model's long-term and short-term coefficients.

Tables 7 give the ARDL long-run estimates of the variables, which demonstrate that while EA had unfavorable and large an impact on agricultural output in Nigeria, ACGSF had a poor and minimal effect. Long-term effects on agricultural output (AO) in Nigeria are mitigated by an increase in ACGSF per unit. The research by Afolabi et al. provides support for this study (2021). This suggests that over time in Nigeria, ACGSF impacts have a detrimental impact on AO.

Test of Hypothesis
Research Question
How is the effect of Agricultural credit guarantee credits scheme on agricultural sector output in Nigeria?

Research Hypothesis

H1: Agricultural credit guarantee scheme fund has no positive and significant effect on

Research Objective

Examine the effect of Agricultural credit guarantee scheme fund to agriculture on the agricultural sector output in Nigeria.

Table 8
Estimated short-run of the error correction version of the ARDL model

ARDL Error Correction Regression				
Dependent Variable: D(LAO)				
Selected Model: ARDL(1, 3, 2)				
Case 2: Restricted Constant and No Trend				
Included observations: 28				
Short Run ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LACGSF)	0.230076	0.076602	3.003541	0.0073
D(LACGSF(-1))	0.336380	0.088642	3.794809	0.0012
D(LACGSF(-2))	0.194144	0.087227	2.225738	0.0383
D(LEA)	-14.52055	4.484342	-3.238057	0.0043
D(LEA(-1))	14.19748	4.522944	3.138990	0.0054
ECM(-1)*	-0.283706	0.033031	-8.588975	0.0000
R-squared	0.741520	Mean dependent var		0.082355
Adjusted R-squared	0.682774	S.D. dependent var		0.073703
S.E. of regression	0.041512	Akaike info criterion		-3.338277
Sum squared resid	0.037911	Schwarz criterion		-3.052804
Log likelihood	52.73587	Hannan-Quinn criter.		-3.251005
Durbin-Watson stat	2.043925			

Source: Author's computation, 2022

The estimated model for objective one shows that agricultural credit guarantee scheme fund exerts a positive effect on agricultural output $(\beta=0.2300, t=3.0035, p=0.0073)$. This indicates that rising ACGGSF leads to increase in agricultural output in Nigeria. Ceteris paribus, the result shows that a rise in ACGSF by 1% will lead to a rise in agricultural output by about 23%. The p-value of the t statistics of ACGSF of 0.2300 is less than 0.05 level of significance for this study, showing that the positive relationship is statistically significant.

The regression R-Square 0.74152 and Adjusted R-square of about 0.6828 show that 68.28% of variations in agricultural output in Nigeria is caused by Agricultural Credit Guaranteed Scheme Fund and Employment in Agriculture. The other 31.72% of variations in agriculture sector output is not captured by the model.

The Durbin-Watson statistics of 2.0439 which lies within the accepted region revealed that there is no autocorrelation among the residual terms in the model and this confirmed that the estimated equation is well behaved. The outcomes of the estimated short-run of the error correction version of the ARDL model shows that the coefficient of error correction term (ECM) for model is significant at a 1% level of significance. These affirmed the incidence of cointegration and a stable long-run nexus between the variables. The ECM is negative and statistically significant. It is used to measure how quickly the equilibrium is restoring in the case of distortion and divergence from a dynamic and stable equilibrium of the model in the short run. The ECM coefficient for model (-0.2837) revealed that 28.37% speed of adjustment or convergence to long-run equilibrium after a shock. This implies that any short-term deviation of the agricultural output (AO) was restored in the long run.

Table 9 shows the ARDL bounds testing which affirmed the grounds of a long-run relationship within the variables. It revealed that the F-statistic of (15.9277) is higher than upper and lower bounds critical values at a 1% level of significance.

Table 9
Bound Test for Cointegration (Dependent Variable: Agricultural Output, LAO)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	15.92772	10%	2.63	3.35
K	2	5%	3.1	3.87
		1%	4.13	5

K is the number of exogenous variables in the model
Source: Author's computation, 2022

Hence, the null hypothesis for no co-integration is rejected. This shows that a long-run nexus occurs amid the variables under study in Nigeria. This further implies that if the variables diverge in the short run by showing elements of disequilibrium and divergence; the presence of cointegration suggested that the restoration of equilibrium and convergence among the variables after distortions and deviation in the short run. The existence of cointegration is a clear indication to continue with the estimation of the short-run and long-run coefficients of the model.

Table 10
Estimated Long-run of the ARDL model

Levels Equation				
Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LACGSF	-0.027561	0.183922	-0.149853	0.8825
LEA	-12.37857	2.428261	-5.097709	0.0001
C	24.25430	4.962342	4.887672	0.0001

Source: Author's computation, 2022

Tables 10 provides the ARDL long-run estimates of the variables and it shows that ACGSF exert negative and insignificant effect on agricultural output while EA impacted positively and significant on agricultural output in Nigeria. The coefficient of ACGSF in the long run is negative and not significant; a unit rise in ACGSF reduces the impact on agricultural output (AO) in the long run in Nigeria. This study is supported by the study of Afolabi et al (2021). The negative relationship implies that ACGSF effects have a negative influence on AO in the long run in Nigeria.

Determining out how much of an influence the Central bank's financial intervention fund has on Nigeria's agricultural output is the main goal of this study. The outcome of the research demonstrated that ACGSF has, on the short term, increased agricultural productivity in Nigeria. This satisfying association fits a priori expectations. This shows that higher ACGSF allocations to the agricultural sector result in higher agricultural output in Nigeria. In order to raise agricultural output, income, employment generation, potential, and standard of life in the short term, more people are buying and embracing new, higher-quality seeds, fertilizer, and technology. The null hypothesis, according to which there is no connection between ACGSF and AO, is disproved. This outcome is in line with research by Mile et al., (2021); Abbas, (2021), and Udoka et al (2016). However, in the long run, ACGSF bring about the decline in AO because the study's finds that there is an unfavorable association between ACGSF and AO, AO declines as a result of ACGSF. Therefore, in the long run in Nigeria, the alternative is rejected while the null hypothesis is supported. Long-term effects on agricultural output (AO) in Nigeria are mitigated by an increase in ACGSF per unit. The research by Afolabi et al. provides support for this study (2021). According to the findings, agricultural employment (EA) has a considerable detrimental impact on AO. This study indicates that increase in EA has not been able to produce significant growth in the agricultural output in Nigeria in the long run.

4.5. Diagnostics and Stability Tests

The study performed diagnostic tests for the residuals and a stability test of the coefficients to verify the dependability and stability of the ARDL estimations. The findings are shown in Table 3. The Breusch-Godfrey LM test of autocorrelation and the ARCH test for conditional heteroscedasticity were both applied to the residuals in this investigation. The Ramsey Reset test was also utilized in the study to check for model misspecification and coefficient stability.

	F- Stat	**Probability**
Table 11		
Diagnostic Tests		
Model		
Normality Test	1.3262	(0.5153)
Serial Correlation LM Test	1.6561	(0.2202)
Heteroskedasticity Test	0.7427	(0.6670)
Ramsey Test	0.09311	(0.9268)

Source: Author's computation, 2022

Since the P-values for both statistics are greater than 0.05, the results of the diagnostic tests in Table 6 demonstrated that the model is free from serial or autocorrelation and heteroscedasticity. The residual term for the model is demonstrated by the normality test to be regularly distributed. A P-value of larger than 0.05 is also reported by the Ramsay RESET results, indicating that the functional form of the models is accurately described and that the coefficients are stable over time. Since the ARDL model estimates pass all of these diagnostic tests, this indicates that they are dependable and acceptable.

4.6. Stability Tests

The study uses the recursive residuals' cumulative sum (CUSUM) and continuous sum of squares (CUSUMSQ) estimations to confirm the parameter stability of the ARDL model. Figure 4.1 of the model displays the CUSUM and CUSUMSQ results. Because the figures showed that the lines are inside the 5 percent crucial boundaries, indicating that the derived model is stable, the coefficients are comparatively stable, consistent, and consistent.
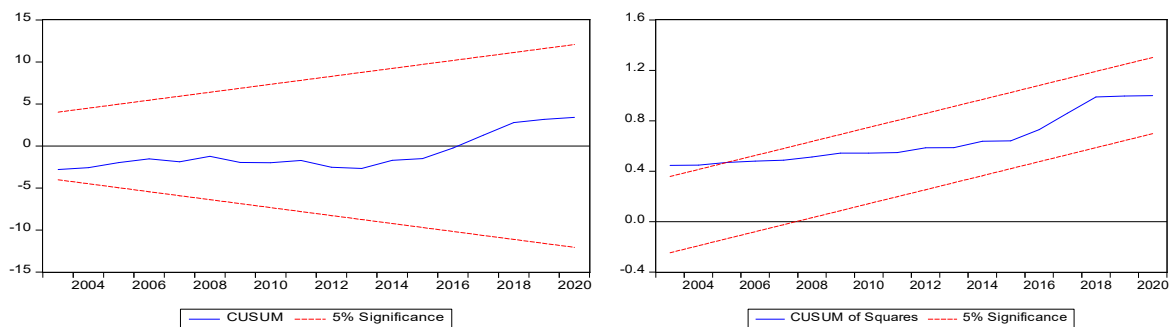

Figure 1. Stability Test of ARDL Model

Source: Author's computation, 2022

The general objective of this study is to determine how impactful Central bank financial intervention fund on the agricultural output in Nigeria. The results from this study show that ACGSF has increased agricultural output in Nigeria. This positive relationship is in line with apriori expectation. This implies that an increase in ACGSF to the agricultural sector lead to an increase in agricultural output in Nigeria. The increased in credit has led to increase in the acquisition and adaptation of new improved quality seeds, fertilizer and machine to increase agricultural output, income, employment generation, potentialities and standard of living in the short run. The null hypothesis that there is no relationship between ACGSF and AO is rejected. This result is consistent with the study of Udoka et al (2016); Abbas, (2021) and Mile et al (2021). However, in the long run ACGSF bring about the decrease in AO because the study reveals negative and insignificant relationship between ACGSF and AO in the long run. The null hypothesis is therefore being accepted while the alternative is rejected in the long run in Nigeria. The coefficient of ACGSF in

the long run is negative and not significant; a unit rise in ACGSF reduces the impact on agricultural output (AO) in the long run in Nigeria. This study is supported by the study of Afolabi et al (2021)

Discussion

The goal of the research was to determine how Nigeria's agricultural output is affected by Central Bank Financial intervention monies. Time series were produced using the WDI and the CBN Statistical Bulletin. In order to observe the impact that explanatory variables have on the dependent variable, The Agricultural Credits Guarantee Scheme Fund (ACGSF) and Employment in Agriculture were employed as the study's two explanatory variables for agricultural. The study's model is determined using the ARDL estimation technique. The goal is to examine how Nigeria's agricultural industry functioned between 1990 and 2020 in relation to the Central Bank intervention fund proxy used by Agricultural Credit Guarantee Scheme Funds (ACGSF). The model for the investigation was based on the endogenous growth theory. In accordance with the study's goal, prior research on credit financing intervention plans and agricultural sector performance was reviewed.

The dependent variable was the output of the agricultural sector, and the explanatory variables were ACGSF and EA. The research design used secondary data as the foundation for the data analysis, and the ARDL bound test method with the indication of short run and long run analysis was used for the analysis. The study's conclusions are as follows: The results show that the short-run impact of ACGSF is statistically significant at the 5 percent level (P-value = 0.007) on agricultural sector output, however the long-run impact of ACGSF on agricultural sector output is unfavorable and statistically negligible at the same level $(\beta = -0.0276; P-value = 0.883)$ on the long run in Nigeria throughout the time of the research.

The consequence is that an increase in the money for the Nigerian agricultural loan guarantee plan led to a short-term boost in agricultural output. A rise in EA has considerably stimulated an increase in AO in Nigeria in the short run, while a decline in EA has diminished the impact of AO on EA in Nigeria in the long run, according to the positive and significant association between agricultural employment and agricultural output. The diagnostic tests completed for all of the model's estimations were proven to be reliable and stable, according to the robustness checks for all of the study's objectives.

According to the regression R-Square and Adjusted R-Square, agricultural factors account for around 68.28% of fluctuations in agricultural output in Nigeria is brought about Fund for the Agricultural Credit Guarantee Scheme and Employment in Agriculture. The other 31.72% of variation in agriculture sector output is not captured by the model. There is no autocorrelation among the residual components in the model, as evidenced by the Durbin Watson statistics of 2.0439, which is within the allowed range, the estimation model is well performed.

Conclusion

This study examines the impact of Central Bank intervention funds on agricultural sector output in Nigeria from 1990 to 2020. This is to determine the extent to which the funds are financed by Agricultural Credit Guarantee Scheme Fund (ACGSF) in the agricultural sector, using autoregressive distributed lag (ARDL) approach. Though there has been much discuss on this study area, it is clear that the agricultural sector is said to be hindered in terms of poor access to funds by farmers to finance their agricultural production in order to promote economic growth.

The findings of the study shows that the ACGSF in the short run has positive significant impact on agricultural sector output, while in the long run, it has unfavorable and negligible impact on agricultural sector output in Nigeria, within the study period. This suggests that the impact of CBN intervention funds is not felt on agricultural output in the long run. Thus, implying that the funds have been diverted for other purposes by the farmers.

In the short term, the outcomes are in line with studies by Udoka et. al. (2016), Abbas, (2021) and Mile et. al. (2021), whereas research by Afolabi et. al. (2021) confirmed the result findings in the long run.

The outcome of this research therefore suggests that the CBN intervention funds should be monitored to achieve its purpose and regulations should be put in place for proper coordination of the funds; whilst the defaulters of the funds should be duly sanctioned.

However, the basic limitation of the study is inaccessibility of data for larger period of time, also, collating data from different CBN journals on time series prove very difficult with cost and time implications.

Implications of the Study

This study has implications on agricultural sector performance, the results show that ACGSF shows a positive and significant relationship of agricultural export growth in the short run, but a negative and insignificant relationship of agricultural export in the long run. The study suggests that the Central Bank should employ dynamic initiative in handling credit funding to the farmers, as the study shows an insignificant short run and long run effect on agricultural sector performance. Also, this study envisaged more on CBN/Government contribution to the agricultural growth contributing to less dependence on the oil sector in boosting economic development.

Recommendations

The following recommendations emerged from the results of the analyses:

1) In order for the ACGSF to have a long-term beneficial effect on Nigeria's agricultural prosperity, the government or monetary authority has to provide additional and sufficient funds for the program.

2) The country's central bank and decision-makers should ensure that credit (loans) are distributed directly to qualified farmers in order to prevent political influence, diversion, and delays in the slow implementation process driven on by deposit money institution.

Conflicts of Interest: The authors declare that no potential conflicts of interest in publishing this work. Furthermore, the authors have witnessed ethical issues such as plagiarism, informed consent, misconduct, data fabrication, double publication or submission, and redundancy.

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