Agricultural Sector Performance and Unemployment rate: evidence from Nigeria

Momodu, A.A, Ewubare D.B, Chukwu, S.N and Gbaranen, R.K.
Department of Economics, Faculty of Social Sciences, Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Rivers State, Nigeria.
Corresponding Author: robinson.gbaranen@ust.edu.ng Tel: 07030173456
DOI: 10.56201/jbae.vol.11.no4.2025.pg56.75

Abstract
This study examined the effect of agricultural sector performance on unemployment rate in Nigeria over the period of forty-three (43) years (1981 to 2023). Agricultural sector performance was proxied by crop production, livestock production, forestry production and fishing production while unemployment rate was the dependent variable. The study utilized time series data and the data were sourced from World Bank Indicators (WDI) of the World Bank, Central Bank of Nigeria (CBN) statistical bulletin and National Bureau of Statistics (NBS) reports. The technique of data analysis adopted include: descriptive statistical technique, Augmented Dickey-Fuller (ADF) of unit root test, correlation matrix of multicollinearity test, and Autoregressive Distributive Lag (ARDL) approach. The findings of the study showed that crop production, livestock production and fishing production have negative and significant effect on unemployment rate in Nigeria. Also, forestry production has a negative and non-significant effect on unemployment rate in Nigeria. Premised on the findings, the study concluded that agricultural sector performance significantly influences unemployment rate in Nigeria. The study therefore, recommends that the government and private sector should prioritize investments in agricultural infrastructure, including irrigation systems, rural roads, storage facilities, and processing plants to boast production capacities thereby reducing unemployment in the country.

Key words: *Unemployment rate, crop production, livestock production, forestry production, fishing production*

1. INTRODUCTION

The agricultural sector has long been a cornerstone of the Nigeria economy, contributing significantly to GDP, foreign exchange earnings, and livelihoods for a substantial portion of the population. Despite the structural shifts in towards oil ad services, agriculture remains vital for inclusive growth and development. With rising unemployment rates posing a major socio – economic challenge, especially among youth and rural populations, the potential of agriculture as a vehicle for job creation has gained increasing attention
. Despite the use of crude implements, enough food was produced to feed the population and cash crops were produced and used for a barter trade system. Given the country's abundant agricultural resources, a wide area of arable land, evenly distributed rainfall, and consistently warm weather, agriculture has gradually become the main source of income for the majority of the population in Nigeria. The period of the Colonial Administration (1861-1960) was characterized by considerable emphasis on research and extension services. In the post-independence era, new policies were developed to achieve more equitable growth in agriculture. Before the discovery of crude oil in Nigeria, the agricultural sector was the

dominant sector as it accounted for over 90 per cent of foreign exchange earnings and overall Federal government revenue (Central Bank of Nigeria, 2010).

Basically, the agricultural sector provides employment opportunities for the teeming population, eradicates poverty and contributes to the growth of the economy. In Nigeria also, because 70% of the population is employed in the agriculture sector, economic growth will be almost impossible to achieve without developing the sector. Furthermore, the importance of agriculture to the Nigerian economy is evident in the nation's natural endowments in production sectors – extensive arable land, water, human resources, and capital. Exploring the nation's productive advantage in this sector is the fastest way to stimulate growth in the economy (Idoko & Jatto, 2018). Furthermore, the important benefits of the agricultural sector to Nigerian economy include: the provision of food, contribution to the Gross Domestic Product (GDP), provision of employment, the provision of raw materials for agro-allied industries, generation of foreign earnings labour and improvement of entrepreneurship through capacity building. The realization of this fact led Nigerian government to embark on several agricultural development programmes in order to develop agricultural sector (Ogbonna & Osondu, 2015). It follows that agriculture financing is one of the most important instruments of economic policy for Nigeria, in her effort to stimulate development in all directions. Finance is required by agricultural sector for the purchase of land, construction of buildings, acquisition of machinery and equipment, hiring of labour and irrigation facilities. In certain cases, such finance may also be needed to purchase new and appropriate technologies. Not only can finance remove financial constraints, but it may also accelerate the adoption of new technologies which will lead to improvement of agricultural output and consequently economic growth (Obansa & Maduekwe, 2013).

However, the Federal Government of Nigeria in the past had initiated various agricultural credit related policies and programmes in attempt to enhance economic growth and improve agricultural production through provision of cheap financial resources to farmers at a concessionary interest rate. Agricultural Credit Guarantee Scheme Fund (ACGSF) is one of such schemes enunciated by the federal government of Nigeria. Other programmes and schemes include; Agricultural Credit Support Scheme (ACSS) people Bank of Nigeria (PBN), Nigeria Agricultural and cooperative Bank [NACB), Economic advancement programme (EAP), Nigerian Industrial Devotement Bank (NIDB), and National Economic Reconstruction Fund (NERFUND). The aim is to identify key macroeconomic impact on agricultural financing in Nigeria from (1980-2010) and this has led to improvement in agricultural production and hence, socio-economic development in Nigeria.

According to Gollin (2019), agricultural sector significantly contributes to economic growth by providing raw materials for industries, reducing dependency on food imports, and generating export revenue. Hence, increase in agricultural productivity will results in increase in overall economic growth. This correlation reflects agriculture's role in sustaining industries such as food processing, textiles, and manufacturing. Therefore, economies that invest in agricultural technology and infrastructure witness a surge in productivity, further fueling Gross Domestic Product (GDP) growth. Technological innovations like improved seeds, fertilizers, and mechanized farming techniques have revolutionized agricultural production, enhanced yields and stimulating economic development (World Bank, 2021). Furthermore, the role of agriculture in job creation cannot be overemphasized because agriculture occupies an essential position in the domestic economy. The agriculture sector has been distinguished as a primary driver of growth, a source of wealth creation, a source of employment, and a method of poverty alleviation all at the same time. Hence, agricultural sector is a major source of employment, particularly in rural areas, where most agricultural activities are concentrated. As of 2022, agriculture accounted for approximately 60% of employment in Nigeria, underscoring its role

in livelihood creation (FAO, 2022). The sector provides jobs across various stages, from production and processing to distribution and retailing, creating a ripple effect that benefits entire communities. Furthermore, agricultural employment significantly reduces poverty levels by providing a reliable income source, thus enabling families to afford basic necessities, education, and healthcare (Otsuka & Fan, 2021).

Generally, the contribution of the agricultural sector to the gross domestic product and overall development in Nigeria witnessed a dramatic turnaround due to the discovery of crude in commercial quantities. According to Food and Agriculture Organization (FAO, 2012), agriculture contributes immensely to the economy of countries in many ways through the provision of food, supply of adequate raw materials and provision of the market for the products of a growing industrial sector. Sertoğlu1, Ugural and Bekun (2017) described agricultural sector as an important driver of economic growth, development and poverty eradication in the developing countries including Nigeria. Between January and March 2021, the sector contributed to 22.35 percent of the GDP (World Bank, 2021). This is in support of the assertion of Ehui and Tsigas (2009) that agricultural sector is not only significant in Nigeria because of the ability of the sector to serve as the major employer of labour but also serves as the backbone in providing food to Nigeria's population, and input in the form of raw materials to the industrial sector amongst other benefits.

As of 2022, agriculture accounted for approximately 60% of employment in Nigeria, underscoring its role in livelihood creation (FAO, 2022). The sector provides jobs across various stages, from production and processing to distribution and retailing, creating a ripple effect that benefits entire communities. Furthermore, agricultural employment significantly reduces poverty levels by providing a reliable income source, thus enabling families to afford basic necessities, education, and healthcare (Otsuka & Fan, 2021).
Despite its importance, the agricultural sector receives insufficient funding. The Central Bank of Nigeria (CBN) estimates that agriculture accounts for only about 4% of total bank credit. The government's budget allocation to agriculture has consistently fallen below the Maputo Declaration's recommended 10%, hovering around 1-2% annually. Also, poor infrastructure, such as inadequate rural roads, electricity, and irrigation facilities, limits the sector's efficiency. Post-harvest losses, estimated at 20-40% of total output, are significant due to the lack of storage and processing facilities. Moreover, agriculture in Nigeria is largely subsistence-based, with limited use of modern equipment and technology. Mechanization levels are among the lowest in sub-Saharan Africa, with less than 30 tractors per 100 square kilometers of arable land. Land ownership and tenure systems are poorly defined, discouraging large-scale investments. Farmers often operate on fragmented plots, reducing productivity. Moreover, frequent conflicts between farmers and herders, as well as banditry and insurgencies in rural areas, disrupt agricultural activities. Over 70% of farmers in northern Nigeria report that insecurity has reduced their productivity while erratic rainfall, desertification, and soil erosion, driven by climate change further reduce agricultural yields.

As a result, the effect of agricultural sector performance in the Nigerian economy has not really been felt. Specifically, agriculture is Nigeria's largest employer, engaging over 35% of the labor force. However, low productivity and limited mechanization mean that the sector generates insufficient income to sustain livelihoods. Youth unemployment in rural areas remains high due to unattractive farming conditions and insecurity. As a result, rural-urban migration intensifies, further straining urban economies. Consequently, this study raised the following questions; what is the effect of crop production on unemployment rate in Nigeria? how does

livestock production affect unemployment rate in Nigeria? does forestry product affect unemployment rate in Nigeria? how does fishing production affect unemployment rate in Nigeria? The aim of the study was therefore, to examine the effect of agricultural sector performance on unemployment rate in Nigeria within the period 1981-2023

2. LITERATURE REVIEW

Theoretical Framework

Unbalanced Growth Theory

Unbalanced Growth theory was propounded by Hirschman in 1957. Hirschman posited that a deliberate unbalancing of the economy according to a pre-designed strategy is the best way to achieve economic growth in an underdeveloped nation. This deliberate unbalancing of the economy means heavy investment into a strategic sector of the economy and not all the sectors taken simultaneously. The underlying assumption of the theory as noted by Jinghan (2011) is that a strategic sector when fully developed catalyzes the growth of other sectors and the aggregate national output. Furthermore, investment in strategically selected industries or sectors of the economy will lead to new investment opportunities and so pave way for further economic development, thus "growth is being communicated from leading sectors of the economy to the followers, from one industry to another, from one firm to another". Unbalanced Growth Theory emphasizes that agriculture can serve as a driver of economic growth by channeling resources into enhancing agricultural productivity. In Nigeria, where agriculture contributes significantly to Gross Domestic Product, strategic investment in agricultural infrastructure, mechanization, and improved crop varieties could increase productivity. This, in turn, raises agricultural output, which has direct implications for Gross Domestic Product growth. Forward linkages to agro-processing and food distribution enhance Gross Domestic Product by creating value-added products from raw agricultural output, boosting national income and output.

Lewis Two-Sector Model

The Lewis Two-Sector Model, also known as the Dual Sector Model, was developed by W. Arthur Lewis in 1954. This groundbreaking framework laid the foundation for understanding the process of economic development in labor-surplus economies, particularly in developing countries (Lewis, 1954). Lewis's work, titled "Economic Development with Unlimited Supplies of Labour", earned him the Nobel Prize in Economics in 1979, making him the first economist of African descent to receive this honor. The model examines the dynamics of labor transfer and structural change, focusing on the relationship between the traditional agricultural sector and the modern industrial sector. It underscores how surplus labor from agriculture can fuel industrial growth, thus driving overall economic development (Diao, Hazell & Thurlow, 2010). The Lewis Two-Sector Model provides a conceptual framework to understand the dynamics between the agricultural sector and overall economic performance. The model establishes a pathway for economic transformation in labor-surplus economies by highlighting the transfer of surplus labor from the traditional agricultural sector to the industrial sector. This relationship becomes particularly relevant given Nigeria's significant reliance on agriculture and its potential to drive structural changes (Echebiri & Mbanasor, 2020).

Lewis emphasized that agricultural surplus can fund industrial growth. In Nigeria, agricultural exports such as cocoa, cassava, and palm oil generate foreign exchange earnings. The reinvestment of these earnings into industrialization could spur economic diversification. Also, the agricultural sector's primary role is to provide food for the growing industrial workforce. A robust agricultural performance ensures food security and stabilizes labor costs in the industrial

sector by maintaining affordable food prices. While the Lewis Model assumes static agricultural productivity, real-world dynamics show that advancements in agricultural technology can significantly enhance productivity and employment creation. In Nigeria, investment in mechanization and improved seedlings could unlock surplus labor for industrial use while maintaining high agricultural output.

Staple Theory

Staple Theory, also known as the Staples Thesis, was developed by Canadian economist Harold A. Innis in the 1930s. The theory provides a framework for analyzing the economic development of regions heavily dependent on primary commodities, referred to as "staples," such as agricultural products, forestry, and minerals. Initially designed to explain Canada's economic development, the theory has been extended to study other resource-rich economies. The central idea of Staple Theory is that the export of staple products acts as a driver of economic growth by fostering backward and forward linkages within the economy. These linkages encourage diversification and industrialization, although dependency on staples can also create vulnerabilities. Staple Theory posits that the economic trajectory of a country is shaped by its resource endowment and the export of primary commodities. The export of these staples leads to the development of other sectors in the economy through three primary linkages: Backward Linkages (Development of industries that supply inputs to the staple production process, such as machinery and labor), Forward Linkages (Processing and transformation of raw staples into finished goods) and Final Demand Linkages (Increased income from staple exports boosts domestic demand for goods and services, stimulating the economy). The theory emphasizes the transformative potential of staple exports while acknowledging the risks of economic over-reliance on these commodities.

Staple Theory provides valuable insights into the role of agriculture in driving Nigeria's economic growth. By emphasizing the importance of backward and forward linkages, the theory underscores the transformative potential of agricultural exports. However, it also highlights vulnerabilities associated with over-reliance on primary commodities. For Nigeria, leveraging agricultural performance to foster diversification, value addition, and rural development can unlock sustainable growth. The agricultural sector stimulates the development of industries that supply inputs like fertilizers, seeds, and machinery. These backward linkages create jobs and foster the growth of related industries, contributing to overall economic growth. For instance, the demand for agro-inputs like fertilizers has led to the establishment of local production facilities, such as the Dangote Fertilizer Plant, which boosts industrial activity. Also, Staple Theory highlights the importance of processing staples for greater value addition. In Nigeria, processing agricultural commodities such as cassava into starch or palm oil into consumer goods enhances industrial output. Hence, the rise of agro-processing zones aims to transform Nigeria's raw agricultural outputs into exportable finished goods, increasing foreign exchange earnings and Gross Domestic Product. In addition, income from agricultural exports increases domestic demand for goods and services, creating a multiplier effect in the economy. As rural incomes rise, consumption patterns shift, fostering growth in other sectors. Lastly, Staple Theory argues that resource wealth can fund diversification and structural transformation. Nigeria’s agriculture, if well managed, could serve as a platform for transitioning from a primary commodity-based economy to a diversified industrial economy.

Conceptual Review

Concept of Agriculture

There are numerous other definitions of agriculture propounded by scholars of both economics and agriculture. Some of these definitions will be highlighted as follows. According to Ogunbadejo and Oladipo (2017) agriculture is the form of agriculture which farmers use their small land holdings to produce enough for their own consumption, and the little remaining is used for exchange against other goods. Other scholars tried to define other aspects or types of agriculture such as sustainable agriculture, shifting cultivation, conservation agriculture among others. Igben and Eyo (2012) defined agriculture as the science of making use of the land to raise plants and animals. It is the simplification of nature's food webs and the rechanneling of energy for human planting and animal industries. Kenny (2019) states that from the standpoint of occupational distribution and contribution to the Gross Domestic Product, agriculture was the leading sector in the 1960s. Also, the Nigerian economy, like that of Brazil, could reasonably be described as an agricultural economy during the first decade after independence. This is because agriculture served as the engine of growth of the overall economy of the two countries. Agriculture is the economic mainstay of the majority of households in Nigeria and is a vital sector for the economy. The important benefits of the agricultural sector to Nigeria's economy include: the provision of food, contribution to the gross domestic product, provision of employment, provision of raw materials for agro-allied industries and foreign exchange earnings during the period of 1960s, Nigeria was the world's second-largest producer of cocoa, the largest exporter of palm kernel and the largest producer and exporter of palm oil. It was also a leading exporter of other major commodities such as cotton, groundnut, rubber, as well as hides and skins. Despite the reliance of Nigerian peasant farmers on traditional tools and indigenous farming methods, these farmers produced 70% of Nigeria's exports and 95% of its food needs. The agricultural sector however suffered neglected during the hey-days of the oil boom in the 1970s.

Agriculture is broadly defined as covering crop production, livestock, **forestry and fisheries** for food, raw materials and exports, among others. Tolulope and Etumnu (2013) opine that crops mainly cultivated in Nigeria range from cassava, yam, millet, maize, rice, sweet potatoes, beans to groundnut. These indicate that crop production integrates both food and cash crops. The food crops have remained outstanding in meeting the needs of the domestic economy and helping in promoting food security. Also, the cash crops have provided the basis for foreign exchange earnings and promotion of balance of payment surplus. Livestock production has remained the second largest agricultural subsector in Nigeria given its share of the agricultural gross domestic product and the overall output in Nigeria. Notably, the fishery has been identified as a key subsector in the Nigerian economy given the exclusive rights enjoyed by Nigeria on 256,00km^2 of the adjourning Atlantic Ocean. This is popularly known as the Exclusive Economic Zone (EEZ) which helps expand the fishing activities in the country. Additionally, the perennial rivers of Niger and Benue among others allow the country to exploit the abundant resources in the fishing subsector. More broadly, the activities in the fishing subsector in Nigeria are segmented into artisanal fishery and industrial fishery. The latter mostly takes place in coastal and brackish waters, rivers and lakes while the former is undertaken in deep coastal water and deep seawater. The contribution of the fishing subsector to the aggregate growth of the economy has been viewed through the lens of food security and improved standard of living for smallholder fish farmers among others (Essien and Effiong, 2010).

Sustainable agriculture produces abundant food without depleting the earth's resources or polluting its environment. It is agriculture that follows the principles of nature to form systems for raising crops and livestock that are, like nature, self-sustaining. Sustainable agriculture is

also the agriculture of social values, one whose success is indistinguishable from vibrant rural communities, rich lives for families on the farm, and wholesome food for everyone. The sustainability concept has prompted major adjustments in conventional agriculture to make it more environmentally, socially and economically viable. The School of Natural Resources and Environment is involved in a collaborative effort in land and water management to find ways that agriculture and natural environmental systems can support each other. According to Tonuchi & Onyebuchi (2019), the agricultural sector in Nigeria plays a crucial role in the country's economic development and diversification. It has the potential to generate employment, promote technological advancement, and contribute significantly to export earnings. However, despite its importance, the sector has faced numerous challenges that have impeded its growth and competitiveness.

Empirical Review

Olanma (2023) investigated the role of agricultural development in driving employment generation in Nigeria in an attempt to provide current empirical evidence for Nigeria's lingering unemployment situation. Based on the Keynesian theory of employment, interest and money, the study estimated a dynamic multivariate autoregressive distributed lag (ARDL) model using Nigeria's annual time series data for the period 1986 to 2020. The results obtained show that agricultural value addition and government expenditure on agriculture exerts a significant positive effect on employment generation both in the long and short-run while annual growth rate of the population exerts a significant positive effect on employment generation in the short-run in Nigeria. Nevertheless, human capital development and lending rate had a positive and insignificant effect on employment generation in the short-run. Furthermore, the causality results showed that a bi-directional causality existed between the selected agricultural development indices such as agricultural value addition, government expenditure on agriculture, gross fixed capital formation, annual growth rate of the population and employment generation. The study therefore recommends that the Nigerian government should embark on massive investment in agriculture as this builds an end-to-end integrated agriculture value chain which invariably boosts production and as such creates decent job which in turn, ends poverty in the long-run.

Ebere, Ajibola and Onakoya (2022) in their study made investigation regarding the nexus between agriculture and generated employment in Nigeria from 1990 to 2019, utilizing Dynamic Ordinary Least Squares. The summary of findings in their study could be stated as follows; agricultural value added (AVA) and rate of unemployment had a positive relationship which is significant at 10% level of significance in Nigeria. Government expenditure on agriculture and rate of unemployment had a significant positive relationship in Nigeria. Inflation rate (INF) and exchange rate (EXR) showed a positive and significant impact on unemployment except foreign direct. By and large, it could be submitted that agriculture did not contribute to employment generation in Nigeria. In view of the above findings, this recommendation is made for the Nigerian policy makers, revamping of agriculture via massive investment in this sub sector of the economy is urgently needed in Nigeria before it could ensure employment generation in the country.

Obiora (2022) investigated the impact which citing agriculture value chain cluster has on Job creation in Nigeria. The study adopted a systematic literature review of prior studies and policies. The findings are that agribased value chain cluster are cost effective and efficient, competitive and enhances employment generation. The study concluded that its establishment is a panacea for accelerated job creation; clusters will create necessary healthy competition amongst interacting components and guarantee, effortless and organised revenue collection.

The study recommends that state and local governments should create agribased value chain cluster in their domain by providing land, security, financial enablers and environment, regulatory framework, while the interacting economic units provide transport, supplies, catering and sanitary services.

Eche, Pam, Pam and Tunde (2020) examined the effect of agricultural development on unemployment reduction in Nigeria. The study adopted an ex-post research design, utilizing Error Correction Mechanism (ECM), and Error Correction Mechanism Granger causality test. The annual time series data utilized in the study were verified for unit root test using Augmented Dickey-Fuller test (ADF). The variables (Unemployment rate [UEMP], Public Expenditure on Agriculture [PEA], Bank Lending to Agriculture [BLA], Inflation Rate [INF], Exchange rate [EXR] and Share of Agriculture to Gross Domestic Product [SAG]) were found to be stationary at the same order of integration 1(1). This finding gives credence to the adoption of ECM approach. The parsimonious ECM result showed that PEA, INF and EXR exert negative effects on UEMP. Hence, the negative dimension of INF and EXR conforms to the a priori expectation, while PEA did not conform to the a priori expectations. On the other hand, the study also found that BLA and SAG exert positive effect on UEMP. The Granger causality result showed a bi-directional causation between UEMP and SAG. The study has established that the selected agricultural development indices (PEA, BLA, INF, & EXR) impact significantly on unemployment reduction in Nigeria. The study concluded that current unemployment rate can be reduced through agricultural development in Nigeria.

Aderemi, Wahid, Ayodeji, Hassan, Osabohien and Azuh (2020) appraised the impact of agriculture on employment generation in Nigeria; post SAP era from 1990-2017. The research data was sourced from CBN statistical bulletin ad employed dynamic ordinary least square and granger causality as a method of analysis. The findings showed that agriculture has an insignificant impact on employment generation in the post SAP era. Also, inflation rate has a positive impact on employment generation in the economy. However, the impact of agricultural expenditure to the employment generation was negative in the country. Furthermore, one-way causality flows from employment to agricultural expenditure and expenditure on agriculture granger causes inflation rate in the economy. The following recommendations were made based on the findings of this research. They are, agriculture has the ability to reduce the issue of unemployment among the youth and government should provide proper funding for the agricultural sector.

Ochada and Ogunniyi (2020) focused on agricultural sector performance, employment generation and per capita income in Nigeria from 1981-2016. The study employed vector auto-regressive (VAR) as a method of analysis and sourced its data from CBN bulletin and world bank development indicators. The study found that there is a positive dynamic interaction between agricultural performance, employment generation and per capita income in Nigeria. It recommended that more attention should be given to the agricultural sector as it helps to cause an improvement in the living standard of people and also create employment opportunities.

Aymen, Ali, Khondoker, Daniel and Boubaker (2020) assessed the medium and long-term effects of alternative agricultural research and development investment scenarios on male and female employment in 14 African countries. They first estimated the effects of agricultural investment scenarios on the overall GDP growth of a given country using partial and general equilibrium models. Secondly, using employment elasticities to GDP growth, they estimated the impact of GDP growth on overall employment in the economy. Results show that, increased investments in agriculture could generate higher overall employment and reduce gender disparities in labor participation. In 8 out of 14 sampled countries, female employment increased more than male employment in response to agricultural investments. Investment in

infrastructure had higher impact on female employment growth compared to productivity scenarios.

Oluwafemi, Saidi and Onyeka (2019) examined the impact of agricultural sector growth on unemployment level in Nigeria. Annual time series data ranging from 1981 to 2016 were utilized for the study. The data were obtained from Central Bank of Nigeria statistical bulletin and World Bank data bank. The data were verified for unit root using Augmented Dickey Fuller test (ADF) while Autoregressive distributed lag (ARDL), Bounds cointegration test, ARDL-ECM (Error Correction Mechanism) estimation, and Granger causality test were utilized in the study. The study outcome showed that current time variation in agricultural output is negative and significant for current unemployment stage while variation in one lagged agricultural output time was positive and significant for current unemployment stage in Nigeria. Whereas the ECM revealed that about 74.10% of the disequilibrium in the system in the previous year would be corrected in the current, the Granger causality test results showed a bi-directional causality between agriculture output and unemployment level.

Gap in Literature/Value addition

This paper examined the theoretical, conceptual and empirical literature on the agricultural sector performance and unemployment rate in Nigeria. The results from the review showed conflicting results because while some showed evidence of negaitive relationship (Kenny, 2019; Oluwafemi, Saidi and Onyeka 2019; Aymen, Ali, Khondoker, Daniel and Boubaker 2020; Aderemi, Wahid, Ayodeji, Hassan, Osabohien and Azuh 2020; Eche, Pam, Pam and Tunde 2020) others showed a positive relationship between agricultural sector performance and unemployment rate in Nigeria (Olanma 2023; Ochada and Ogunniyi 2020; Ebere, Ajibola and Onakoya 2022) related studies some) on agricultural sector performance and unemployment rate in Nigerian found a negative relationship. In addition, these results were obtained using different data sets to proxy agricultural sector performance, creating a gap in literature. This study bridged the gap and add to existing literature by examining agricultural sector performance on unemployment rate in Nigeria using different data set thereby increasing knowledge around the proxies of agricultural sector performance. This study achieved this by proxying agricultural sector performance using crop production, livestock production, forestry production and fishing production to study its effect on unemployment rate in Nigeria. The study also employed additional pre-estimation test such as multicollinearity test to ensure the validity of the results.

.

3. METHODOLOGY

Research Design

This study adopted the *ex-post-facto* research design as it is non-experimental in nature, and investigated effects of the independent variables (measures of agricultural sector performance) on the dependent variable (unemployment rate) by using existing annual time series data spanning a period of forty-three (43) years 1981 to 2023, which were sourced from the Central Bank of Nigeria (CBN) statistical bulletin and the World Bank's development indicators (WDI) and the national Bureau of statistics (NBS) report..

Model Specification

The analytical framework of this study was anchored on Unbalanced Growth theory because of its relevance to this study. Empirically, this study employed four models to measure the link between agricultural sector performance and Nigerian economy. The model closely follows the works of Tochukwu *et al.* (2021). However, the model was modified and improved upon.

The functional specifications of the models were provided as follows:

UMR = *f*(CRP, LVS, FOR, FIS) (3.2)

The mathematical specifications of the models were provided as follows:

$UMR_t = \beta_0 + \beta_1 CRP_t + \beta_2 LVP_t + \beta_3 FOR_t + \beta_4 FIS_t$ (3.6)

The econometrical specifications of the models were provided as follows:

$UMR_t = \beta_0 + \beta_1 CRP_t + \beta_2 LVP_t + \beta_3 FOR_t + \beta_4 FIS_t + U_{it}$ (3.10)

$$\Delta(UMR_t) = \beta_0 + \beta_{1i}\Delta(UMR_{t-1}) + \beta_{2i}\Delta(CRP_{t-1}) + \beta_{3i}\Delta(LVS_{t-1}) + \beta_{4i}\Delta\ln(FOR_{t-1}) + \beta_{5i}\Delta\ln(FIS_{t-1}) + \sum_{t=1}^{p}\alpha_{1i}\Delta(UMR_{t-1}) + \sum_{t=1}^{q}\alpha_{2i}\Delta(CRP_{t-1}) + \sum_{t=1}^{p}\alpha_{3i}\Delta(LVS_{t-1}) + \sum_{t=1}^{q}\alpha_{4i}\Delta(FOR_{t-1}) \sum_{t=1}^{q}\alpha_{5i}\Delta(FIS_{t-1}) + \varepsilon_{1i} \quad (3.14)$$

ΔIn furtherance, the short run dynamic parameters are arrived at by the estimation of an error correction model linked with the long-run estimates. The models are stated below:

$$\Delta\ln(UMR_t) = \alpha_0 + \sum_{t=1}^{p}\alpha_{1i}\Delta(UMR_{t-1}) + \sum_{t=1}^{q}\alpha_{2i}\Delta(CRP_{t-1}) + \sum_{t=1}^{p}\alpha_{3i}\Delta(LVS_{t-1}) + \sum_{t=1}^{q}\alpha_{4i}\Delta(FOR_{t-1}) \sum_{t=1}^{q}\alpha_{5i}\Delta(FIS_{t-1}) + \lambda ECMT_{t-1} + \varepsilon_{14i} \quad (3.18)$$

Where: UMR = Unemployment Rate CRP = Crop Production, LVS = Livestock Production, FOR = Forestry Production, FIS = Fishing Production, f = Functional Relationship, β_0 = Regression intercept in UMR, model, β_1 = Parameter or Coefficient of Crop Production, β_2 = Parameter or Coefficient of Livestock Production, β_3 = Parameter or Coefficient of Forestry Production, β_4 = Parameter or Coefficient of Fishing Production, U_i = Error term, Δ = Difference operator and indicates the optimum lag t = Time lag

A Priori Expectation

This is used to examine the economic usefulness of the equation with regard to meeting the a priori expected sign of the parameters. Generally, agricultural sector performance was expected to contribute positively to the gross domestic product in Nigeria. Specifically, the expected nature of relationship is stated thus: $\beta_1 - \beta_4 < 0$.

4. RESULT ANALYSIS AND DISCUSSION OF FINDINGS

Unit Root Test

Table 1: Augmented Dickey-Fuller (ADF) Test Results

ADF Variables	Level	Critical Value @ 5%	1st Difference	Critical Value @ 5%	I(d)	Stationary @
$InUMR_t$	-3.047512**	-2.933158	-	-	I(0)	Level
$lnCRP_t$	-0.576461	-2.933158	-6.157169***	-2.935001	I(1)	1st Difference
$lnLVS_t$	-1.133567	-2.935001	-9.509613***	-2.935001	I(1)	1st Difference
$lnFOR_t$	-6.603098***	-2.936942	-	-	I(0)	Level
$lnFIS_t$	-0.797813	-2.941145	-9.464388	-2.941145	I(1)	1st Difference

Note: *, **, and * denote significance at 10%, 5% and 1%, respectively**
Source: Author's Computation, 2024 (E Views 12 Output).

Table 1 presents the summary results of the ADF Unit root tests carried out on all the variables in our model. The unit root test results showed that unemployment rate (UMR),) and forestry production (FOR) attained stability at levels. This is because the test statistic values of unemployment rate (UMR), and forestry production (FOR)are individually greater than the Mackinnon critical value at 5% level of significance at level. This further indicates that unemployment rate (UMR), and forestry production (FOR) were stationary at order zero [i.e., I(0)]. On the other hand, crop production (CRP), livestock production (LVS) and fishing production (FIS) attained stability after first differencing. This is because their test statistic values are greater than the Mackinnon critical value at 5% level of significance at first difference. This further indicates that crop production (CRP), livestock production (LVS) and fishing production (FIS) were integrated at order one [i.e., I(1)].
Conclusively, the attainment of mixed stationarity in the variables (that is stationary at order zero and stationary at order one) necessitated the use of ARDL in the estimation of the long run relationship among the variables and the error correction model.

Correlation Analysis

The correlation matrix involves examination of correlation coefficients between pairs of dependent and independent variables. The results of the correlation are presented in Table 2:

Table 2: Correlation Matrix

	UMR	CRP	LVS	FOR	FIS
UMR	1				
CRP	-0.232248	0.972191			
LVS	0.159767	0.291265	1		
FOR	0.333633	0.174001	0.377163	1	
FIS	-0.263973	0.285733	0.485867	0.97219	1

Source: Author's Computation, 2024 (E Views 12 Output).

The result of the correlation matrix in Table 4.8 indicated that crop production, livestock production, forestry production and fishing production) all have weak negative and negative relationships with unemployment rate (UMR). Hence, there is sufficient statistical evidence to conclude that there is absence of multicollinearity problem among the independent variables.

ARDL Bound Cointegration Test

Table 3: ARDL Bounds Cointegration Test

	Critical Value Bound		**F-Statistics**
F_{UMR}(CRP/CRP, LVS, FOR, FIS) K = 5			7.640609***
Significance	I(0) Bound	I(1) Bound	
10%	2.2	3.09	
5%	2.56	3.49	
2.5%	2.88	3.87	
1%	3.29	4.37	

Note: Null hypothesis: No level relationship; K = number of regressors; *, ** and *** denote significance at 10%, 5% and 1% level, respectively.

Source: Author's Computation, 2024 (E Views 12 Output).

In order determine if there is cointegration among unemployment rate (UMR), crop production (CRP), livestock production (LVS),forestry production (FOR) and fishing production (FIS), bounds test was conducted. The result of ARDL Bounds correlation test in Table 4.9 showed that bound test indicates presence of long run relationship among unemployment rate (UMR), crop production (CRP), livestock production (LVS), forestry production (FOR) and fishing production (FIS) given that the F-statistics value of 7.640609is higher than the 5% upper bound critical value of 3.49. By this, the null hypothesis is rejected, which leads to the study concluding that there is cointegrating relationship among the variables. The confirmation of long run dynamics among the variables further necessitated the estimation of the extent of the relationship between the dependent and independent variables through estimation of Autoregressive Distributed Lag (ARDL) model.

Model estimation

The results of the estimation are presented in Table 4:

Table 4: Estimated Long-Run and Short-Run Coefficients of ARDL

Dependent Variable = $lnUMR_t$

Short-Run Results

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
Short-Run Results				
D(UMR(-1))	0.150742	0.134285	1.122556	0.2708
DLOG(CRP)	-2.386568	0.823452	-2.898247	0.0071
DLOG(CRP(-1))	3.770967	1.695346	2.224305	0.0341
DLOG(LVS)	-17.19591	3.646644	-4.715544	0.0001
DLOG(FOR)	-0.895047	1.445369	-0.619252	0.5406
DLOG(FIS)	-2.765253	0.812624	-3.402869	0.0020
CointEq(-1)*	-0.288487	0.057006	-5.060613	0.0000

R^2 = 0.669693

Adjusted R^2 = 0.593756				
Durbin-Watson stat = 1.772146				
Long-Run Results				
LOG(CRP)	-17.87161	8.096826	-2.207237	0.0354
LOG(LVS)	-2.386568	1.118568	-2.133593	0.0415
LOG(FOR)	-1.393155	11.02955	-0.126311	0.9004
LOG(FIS)	-5.155724	1.507423	-3.420223	0.0019
C	-55.86484	33.43488	-1.670855	0.1055
*EC = UMR - (-17.8716*LOG(CRP) -2.3866*LOG(LVS) -1.3932*LOG(FOR) - 5.1557*LOG(FIS) - 55.8648))*				

Source: Author's Computation, 2024 (E Views 12 Output).

Interpretation of Short-Run and Long-Run Autoregressive Distributive Lag (ARDL) Estimation Model Results

Crop Production (CRP) and Unemployment Rate (UMR)

The short-run estimates of the ARDL model are shown in Table 4.10. The results revealed that crop production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-2.386568) of crop production at initial level and its p-value (0.0071) which is less than 0.05. This implies that an increase in the crop production by a unit will lead to 2.386568significant decrease in unemployment rate in the short-run. Also, the long-run estimates of the ARDL model results revealed that crop production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-17.87161) of crop production and its p-value (0.0354) which is less than 0.05. This implies that an increase in crop production by a unit will lead to 17.87161significant decrease in unemployment rate in the long-run.

Livestock Production (LVS) and Unemployment Rate (UMR)

Furthermore, the short-run estimates of the ARDL model are shown in Table 4.10. The results revealed that livestock production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-17.19591) of livestock production at initial level and its p-value (0.0001) which is less than 0.05. This implies that an increase in the livestock production by a unit will lead to 17.19591significant decrease in unemployment rate in the short-run. Also, the long-run estimates of the ARDL model results revealed that livestock production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-2.386568) of livestock production and its p-value (0.0415) which is less than 0.05. This implies that an increase in livestock production by a unit will lead to 2.386568significant decrease in unemployment rate in the long-run.

Forestry Production (FOR) and Unemployment Rate (UMR)

Moreover, the short-run estimates of the ARDL model are shown in Table 4.10. The results revealed that forestry production has a negative and non-significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-0.895047) of forestry production at initial level and its p-value (0.0107) which is greater than 0.05. This implies that an increase in the forestry production by a unit will lead to 0.895047 insignificant decrease in unemployment rate in the short-run. Also, the long-run estimates of the ARDL model results revealed that forestry production has a negative and non-significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-1.393155) of forestry

production and its p-value (0.9004) which is greater than 0.05. This implies that an increase in forestry production by a unit will lead to 1.393155 insignificant decrease in unemployment rate in the long-run.

Fishing Production (FIS) and Unemployment Rate (UMR)

Moreover, the short-run estimates of the ARDL model are shown in Table 4.10. The results revealed that fishing production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-2.765253) of fishing production at initial level and its p-value (0.0020) which is less than 0.05. This implies that an increase in the fishing production by a unit will lead to 2.765253significant decrease in unemployment rate in the short-run. Also, the long-run estimates of the ARDL model results revealed that fishing production has a negative and significant effect on unemployment rate in Nigeria. This is evidenced by the negative coefficient value (-5.155724) of fishing production and its p-value (0.0019) which is less than 0.05. This implies that an increase in fishing production by a unit will lead to 5.155724significant decrease in unemployment rate in the long-run

Interpretation of Coint Eq (-1) Result

The results of the short run dynamic coefficients associated with the long-run relationships obtained from the error correction model are given in Table 4.10. The signs of the short-run dynamic interactions are consistent with that of the long run relationship. The estimated error correction coefficient of -0.288487(with p-value of 0.0000) is highly significant, has the correct sign, and imply a low speed of adjustment to equilibrium after a shock. This implies that approximately 29% of disequilibria from the previous year's shock converge back to the long run equilibrium in the current year.

Interpretation of Adjusted R-Squared (Adj. R^2) Value

The Adjusted R-squared value of 0.593756from the results of the short-run estimates of the ARDL model in Table 4.10 indicated that the estimated model is well fitted as the systematic changes in explanatory variables (crop production, livestock production, forestry production and fishing production) explained approximately 59 percent (R-squared) variation in unemployment rate while the remaining 41% is explained by other variables of factors outside the model.

Interpretation of Durbin-Watson Statistic Value

Lastly, Durbin-Watson statistic of 1.772146which is close to 2 indicates the absence of serial autocorrelation.

Post-Estimation Tests of Unemployment Rate (UMR)Model

The results of the diagnostic tests are presented and discussed below:

Table 5: Post-Estimation Test Results

Test	Null Hypothesis	X^2 Value	X^2 Prob	Remark
Jarque-Bera	Normal distribution exists	1.312652	0.518754	Normal residuals
Breusch-Godfrey LM	Serial correlation does not exist	1.304145	0.2880	Serial independence
Breusch-Pagan-Godfrey	Homoscedasticity exists	0.704669	0.7240	Constant Variance
Ramsey RESET	Model is stable	1.057410	0.1030	correctly specified model

Source: Author's Computation, 2024 (E Views 12 Output).

The Jarque Bera (Normality) test result in Table 5 shows that the model is normally distributed, the Breusch-Godfrey Serial Correlation LM test result in Table 4.7 shows that the model has no serial correlation problem. Also, the Breusch-Pagan-Godfrey heteroskedasticity test result in Table 5 shows that the model has homoscedasticity. This implies that relevant variables were not omitted. Lastly, the Ramsey RESET test result in Table 5 shows that the model is correctly specified. This implies that the functional form of the model is correct.

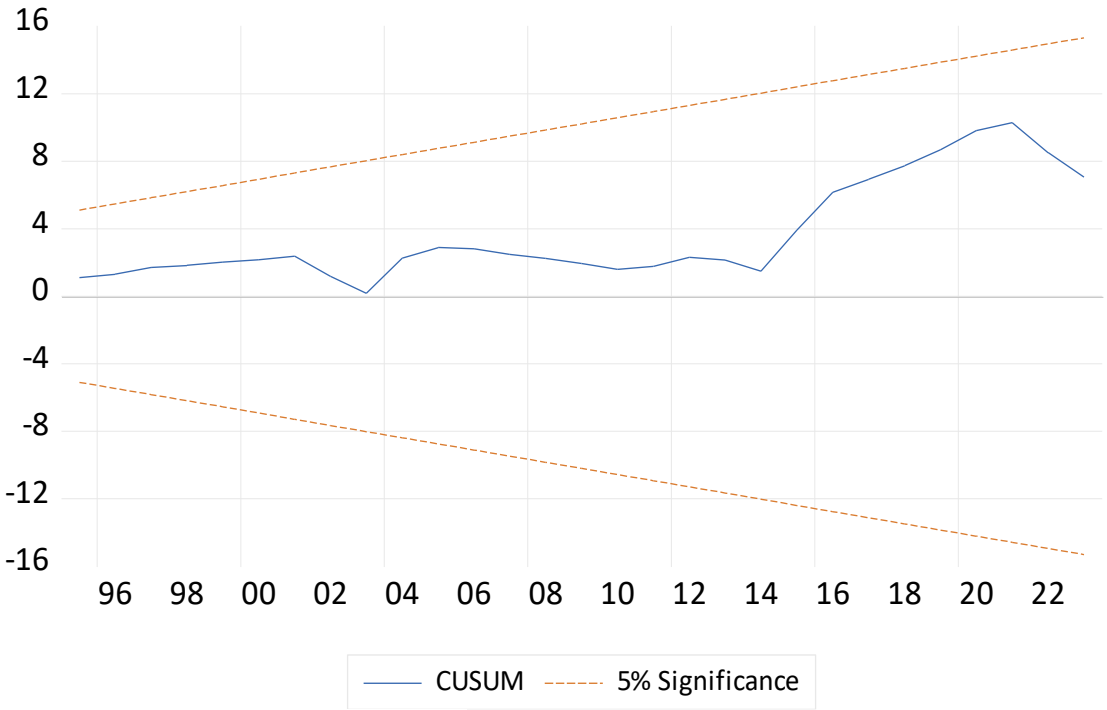

Figure 4.10: Stability Cusum Test

The cumulative sum (CUSUM) indicates that the CUSUM line stayed within the 5 percent critical bound while neither did CUSUM plot crosses the 5 percent critical lines. The implication of this is that there is stability of the long-run coefficients of the study variables.

Discussion of Findings

Secondly, the results of the short-run and long-run estimates revealed that crop production, livestock production and fishing production have a negative and significant effect on unemployment rate in Nigeria while forestry production has a negative and non-significant effect on unemployment rate in Nigeria. This implies that an increase in crop production, livestock production, forestry production and fishing production will lead to significant decrease in unemployment rate in the short-run and long-run. This finding conforms to the finding of Aymen, Ali, Khondoker, Daniel and Boubaker (2020) who found that increased investments in agriculture could generate higher overall employment. In addition, Oluwafemi, Saidi and Onyeka (2019) ascertained that outcome showed that current time variation in agricultural output is negative and significant for current unemployment stage. Also, Eche, Pam, Pam and Tunde (2020) also established that agricultural development had significant impact on unemployment reduction in Nigeria.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

The agricultural sector serves as the cornerstone of Nigeria's economy, historically contributing substantially to employment, food security, and export revenue. Despite the advent of crude oil as the primary foreign exchange earner, agriculture remains vital, engaging over 70% of the population either directly or indirectly. This sector encompasses a diverse range of activities, including crop production, livestock farming, forestry, and fisheries, each with a unique contribution to national development. However, its performance in recent years has been hindered by structural challenges, policy inconsistencies, and environmental factors, limiting its potential to drive economic growth and development in Nigeria. Drawing from the foregoing, this study empirically examined the effect of agricultural sector performance on the Nigerian economy. The findings of the study indicated that crop production, livestock production and fishing production as indicators of agricultural sector performance have significant effect on Gross Domestic Product, unemployment rate, inflation rate and balance of payment in Nigeria. Premised on the findings, the study concluded that agricultural sector performance significantly contributes to the Nigerian economy.

Recommendations

The following recommendations are proffered based on the findings of this study:

1. The government and private sector should prioritize investments in agricultural infrastructure, including irrigation systems, rural roads, storage facilities, and processing plants. For instance, enhanced irrigation can boost crop yields, while improved roads reduce transportation costs and waste, making Nigerian agricultural products more competitive domestically and internationally. Such infrastructure investments will reduce post-harvest losses, enhance market access for farmers, and improve productivity across crop production, livestock, forestry, and fisheries sectors.
2. Access to affordable credit is vital for agricultural growth. Hence, government should expand funding initiatives like Agricultural Fund Guarantee Scheme and incentivize commercial banks to offer low-interest loans to farmers. Also, there should be establishment of cooperatives or farmer-based organizations which can also help small-

scale farmers access financial services and inputs such as seeds, fertilizers, and technology.

3. The government should enforce policies promoting sustainable farming practices, forestation programs, and climate-resilient techniques. Providing farmers with training and tools for sustainable crop rotation, livestock rearing, and efficient water usage can mitigate the adverse effects of climate change and environmental degradation. Also, programs encouraging sustainable fishing and forestry practices should also be implemented to preserve these resources for future generations.
4. To maximize the agricultural sector's contribution to the economy, Nigeria should focus on agro-processing industries. This should include creating incentives for establishing facilities that process raw agricultural products into finished goods. Value addition will not only enhance the export potential of agricultural products but will also create jobs, increase incomes, and reduce Nigeria's dependence on imported goods.

REFERENCES

Aderemi, T. A., Wahid D. O., Ayodeji, G. B., Hassan, C. O., Osabohien., R., & Azuh, D. E. (2021). Role of Agriculture in Poverty Reduction in Nigeria: An Implication for Sustainable Development Goals (SDGs). *African Journal of Business and Economic Research (AJBER*), Special Edition: Perspectives on Demographic Dividend, and Economic Growth for Sustainable Development, 267-280.

Ali, I., Khan, I., Ali, H., Baz, K., Zhang, O., Khan, A., & Huo, X. (2020). The impact of agriculture trade and exchange rate on economic growth of Pakistan: an NARDL and asymmetric analysis approach. *Ciência Rural, Santa Maria*, 50(4), 1-15.

Amaefula, C. G. (2019). Impact of Agricultural Sector on Nigeria's Economic Growth Using Regression and Percentage Ratio Measure. *International Journal of Research and Innovation in Applied Science (IJRIAS)*, 4(9), 72-77.

Anderson, B., & Greene, J. (2019). *agricultural sustainability and resource management*. Oxford University Press.

Asogwa, I. S., & Onyegbulam, L. A. (2021). Contributions of The Agricultural Value-Added Output to Employment Creation and Regional Trade Integration in Sub-Saharan Africa. *Nigerian Agricultural Journal*, 52(1), 45-52.

Awolaja, O. G., & Okedina, I. M. (2020). Investigating the Asymmetric Effect of Exchange Rate on Agricultural Output in Nigeria,1981-2017. *Central Bank of Nigeria Economic and Financial Review*, 58(4), 41-62.

Awoyemi, B. O., Afolabi, B., & Akomolafe, K. J. (2017). Agricultural Productivity and Economic Growth: Impact Analysis from Nigeria. *Scientific Research Journal (SCIRJ)*, 5(10), 1-7.

Aymen, F., Ali, C., Khondoker, A. M., Daniel, M., & Boubaker, D. (2020). Agricultural growth and sex-disaggregated employment in Africa: Future perspectives under different investment scenarios. *Global Food Security*, 24(2020), 1-10. https://doi.org/10.1016/j.gfs.2020.100353

Chukwu, C. B. (2023). Impact of Agricultural Sector on Economic Growth in Nigeria. Available at SSRN: https://ssrn.com/abstract=4432800 or http://dx.doi.org/10.2139/ssrn.4432800

Clement, K. (2021). Agricultural sector performance and job creation in Nigeria. *International Journal of Multidisciplinary Research and Development*, 8(5), 01-08.

Cletus, U. I., & Sunday, M. J. (2018). Government Expenditure On Agriculture and Economic Growth in Nigeria (1985-2015). *International Journal of Academic Research and Reflection*, 6(4), 24-39.

Diao, X., Hazell, P., & Thurlow, J. (2010). The role of agriculture in African development. *World development*, *38*(10), 1375-1383.

Diebold, F. X., & Yilmaz, K. (2012). Better to give than to receive: predictive directional measurement of volatility spillovers. *Int J Forecast*, 28(1), 57–66.

Dkhar, D. S. & De, U. K. (2018). Public expenditure on agriculture and economic growth: a casestudy of Meghalaya. *Agricultural Economics Research Review*, *31*(2), 271-279.https://doi.org/10.5958/0974-0279.2018.00044.7

Ebere, C. E., Ajibola, J. O., & Onakoya, A. B. (2022). Agriculture and Employment Creation: Evidence from Nigeria. *Euro Economica*, 2(41), 58-88

Eche, N. A., Pam, B. J., Pam, D. F., & Tunde, F. (2020). Effect of agricultural development on unemployment reduction in Nigeria: An error correction mechanism m approach. *Ianna Journal of Interdisciplinary Studies*, 2(1), 95-107.

Ehui, S. K., &Tsigas, M. E. (2009). *The role of agriculture in Nigeria's economic growth: A general equilibrium analysis* (No. 1005-2016-79207).

Etea, I., & Obodoechi, D. N. (2019). Agricultural Output and Economic Growth: The Case of Nigeria. *DBN Journal of Economics and Sustainable Growth,* 2(10, 1-19.

Ewubare, D.B. & Obayori, J.B. (2015). The real sector performance and unemployment rate in Nigeria. *British Journal of Economics, Finance and Management Sciences, 10 (2), 183-194*

Fan, S., & Rao, N. (2008). Public spending in agriculture: Trends and impacts. *IFPRI Discussion Papers*.

FAO (2020). *State of food and agriculture: Sustainability in Action*.

FAO. (2022). *State of Food and Agriculture 2022: Investing in Rural Infrastructure for Inclusive Agricultural Development*. Food and Agriculture Organization of the United Nations.

Festus, V. B. (2015). The Contribution of Agricultural Sector on the Economic Growth of Nigeria. MSc Thesis, Eastern Mediterranean University.

Godwin, U. N., Alwell, N., Monday, R., & Kalu, I. (2021). Government Agricultural Support Projects: Implications on Job Creation in Rivers State. *International Journal of Research and Innovation in Social Science (IJRISS)*, 5(13), 165-173.

Gollin, D. (2010). Agricultural productivity and economic growth. *Handbook of agricultural economics*, *4*, 3825-3866.

Gollin, D. (2019). Agricultural productivity and economic growth. *Handbook of Agricultural Economics*, 18, 205-245.

Idoko, C. U., & Jatto, S. M. (2018). Government expenditure on agriculture and economic growth in Nigeria (1985-2015). *International Journal of Academic Research and Reflection*, *6*(4), 24-39.

Igben, M. S., &Eyo, E. O. (2012). *Agricultural economics: An introduction to basic concepts and principles.* Bestprints Business Press, Uyo, Akwa Ibom State, Nigeria.

Kenny, S. V. (2019). The role of agricultural sector performance on economic growth in Nigeria. *Munich Personal RePEc Archive*. https://mpra.ub.uni-muenchen.de/93132/

Megbowon, E., Ngarava, S., Etim, N. A. & Popoola, o. (2019). Impact of Government Expenditure on Agricultural Productivity in South Africa. *The Journal of Social Sciences Research, 5(12),* 1734-1742. https://doi.org/10.32861/jssr.512.1734.1742

Obansa, S. A. J., & Maduekwe, I. M. (2013). Agriculture financing and economic growth in Nigeria. *European Scientific Journal*, *9*(1), 168-204.

Obasaju, B.O., & Baiyegunhi, L.S., (2019). Agricultural output and macroeconomic policy: examining the delicate linkage in Nigeria. *The Journal of Developing Areas,* 53(1), 18-33.

Obiora Peters Emeka. (2022). Agriculture value chain cluster and job creation in Nigeria. *International Journal of Advanced Multidisciplinary Research,* 9(3), 177-194. DOI: http://dx.doi.org/10.22192/ijamr.2022.09.03.015

Ochada, I. M., & Ogunniyi, M. B. (2020). Agricultural output performance, employment generation and per capita income in Nigeria. *Biz Econs Quarterly*, 11, 15–26.

Olanma, O. I. (2023). The Nexus between Agricultural Development and Employment Generation in Nigeria. *Asian Journal of Economics, Business and Accounting*, *23*(19), 66–83. https://doi.org/10.9734/ajeba/2023/v23i191073

Oluwafemi, S.E, Saidi, A.M & Onyeka, P.I., (2019). Impact of agriculture sector growth on unemployment level in Nigeria. *Journal of Economics, Management and Trade*, 22(5), 1- 13.

Otsuka, K., & Fan, S. (2021). *Agriculture and Economic Transformation in Developing Economies*. Springer.

Tochukwu, O. R., Samuel, O. O., Olanipekun, W. D., & Aderemi, T. A. (2021). Is Agriculture still a Strong Force in Employment Generation in Nigeria? An Empirical Investigation. *Euro Economica*, (2 (40), 90-100.

World Bank (2021). *Agricultural Sector at a Crossroads: Pathways for Transformation in Developing Economies*. Washington, D.C.

World Bank. (2019). *Global financial development report 2019/2020: Bank regulation and supervision a decade after the global financial crisis*. The World Bank.