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# Agricultural Sector Development and Unemployment in Nigeria

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***Abstract***
*This study examined the relationship between agricultural sector development and unemployment in Nigeria. Time series data were sourced from Central Bank of Nigeria Statistical Bulletin from 1990-2023. Four hypotheses were formulated to explore the relationship between agricultural sector development and unemployment in Nigeria. The study modeled unemployment rate as the function of agricultural productivity proxy agaric sector gross domestic product to total gross domestic product, agricultural sector finance proxy by agricultural credit grantee scheme to gross domestic product , agricultural fiscal budget as percentage of gross domestic product and agricultural sector export as percentage of gross domestic product. The study employed panel data Ordinary Least Square Methods, unit root test, cointegration test, granger causality test and vector error correction were used as data analysis methods. The unit root test results, using the ADF unit root test suggest found that the variables are stationary at difference and integrated in order I (1). The cointegration test found a long-run relationship between agricultural sector development and unemployment. The granger causality test found unidirectional causality from agricultural productivity to unemployment rate while other variables have no causality. Vector error correction found that positive and significant relationship while agricultural financing, fiscal budget and export has negative relationship with unemployment. 73 percent changes on unemployment rate in Nigeria were explained by agricultural variables. From the findings, the study concludes significant relationship between agricultural sector development and unemployment in Nigeria and recommends that the government should remove every constraint to agricultural policy effectiveness, such as policy instability, policy inconsistencies, narrow-based policy formulation, poor policy implementation and weak institutional framework for policy coordination. The government of Nigeria should develop policies that could improve agricultural activities in Nigeria. These policies could increase credit policies for agricultural purposes, strengthening of the agricultural product marketing board to encourage farmers. This study identified the agricultural fiscal budget as a determinant of employment. Therefore, government should intensify more effort in creating an enabling environment for increase in budget to*

*agricultural sector in Nigeria and the stringent conditions and prerequisite required to be met by farmers to participate on the agricultural credits should be reviewed and made accessible to farmers.*

***Keywords: Agricultural Sector, Development, Unemployment, Nigeria***

## INTRODUCTION

For series of decades, unemployment situation has proven to be a chronic alien bedeviling any economic development efforts of the government in Nigeria. The upward rise in unemployment index denotes a sharp divergent between the expected outcome of modelled economic development plan (blue print) of the government, and the reality. Studies conducted by the World Bank (2017) revealed that one in every two Nigerians that constitute the hub of labour force is either unemployed or underemployed. Moreover, report published by Nigeria Bureau of Statistics (2020) revealed that unemployment has increased to 27.1% in the first quarter of 2020, from 23.1% as at third quarter of 2018. The report also showed the underemployment status of those working below 40 hours per week or in jobs that underutilize a person's skills, time, and or education, rose to 28.6%. Consequently, with an estimated labour force of about 80.2 million in Nigeria, 21.7 million are said to be unemployed. The unemployment rate of young Nigerian labour force between the age of 25 and 34 constituting the hub of labour force rose to higher than 30.7%. Regrettably, as the population index of Nigeria increases, unemployment also rises proportionately. Whereas in 2012, the data index of unemployment in Nigeria was 11.1 million, it has increased exponentially to 23.1% in 2018, and 27.1% as at the first quarter of 2020 (National Bureau of Statistics, 2012).

Though various governments, both past and present, have made impressive efforts by instituting policies with the hope of unravelling the unemployment situation in the country, however, it is difficult to ascertain policies that have yielded desired results in addressing unemployment in Nigeria, with respect to rising unemployment index. One of such programme is Structural Adjustment Programme (SAP). At a time in the military regime, youths were considered the focus of social policy. The then government responded by enlisting unemployed Nigerians into programmes like OFN (Operation Feed the Nation) and DIFRRI (Directorate of Food, Road and Rural Infrastructure) which provided instantaneous employment to those who wanted to venture into agriculture.

The agricultural sector plays a crucial role in the economic development of countries worldwide. It encompasses a wide range of activities related to the cultivation of crops, livestock, forestry, and fisheries. Not only does agriculture provide food and raw materials for various industries, but it also contributes significantly to job creation and rural development. Because of the vital role the Nigerian agricultural sector plays in the economy, the federal government had embarked on and employed several agricultural programmes and policies, some of which are obsolete or abandoned, and some updated while others are still in place. According to Ugwu and Kanu (2012) and Inegbedion et al (2019), these include the farm settlement scheme, National Accelerated Food

Production (NAFPP), Agricultural Development Projects (ADPs), River Basin Development Authorities (RBDAs), National Seed Service (NSS), National Centre for Agricultural Mechanisation (NCAM), Agricultural and Rural Management Training Institute (ARMTI) and Agricultural Credit Guarantee Scheme Fund (ACGSF). Others were the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB)/agricultural bank, Operation Feed the Nation (OFN), Green Revolution Programme, Directorate of Foods, Roads and Rural Infrastructure (DFFRI), Nigerian agricultural insurance company (NAIC), National Agricultural Land Development Authority (NALDA), Specialised Universities for Agriculture, Root and Tuber Expansion Programme (RTEP) and rural banking scheme, the establishment of The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL). Also, of recent the CBN introduced the Targeted Credit Facility (TCF) where they disbursed ₦50 billion loans to firms in the agricultural value chain and to support households and small and medium enterprises (SME) impacted by the pandemic (Enete & Onyenekwe, 2021).

The poor performance of the agricultural sector in Nigeria, according to Matthew and Mordecai (2016) has been blamed on oil glut and its consequences on several occasions, neglect of the agricultural sector, mismanagement, inconsistent and poorly conceived government policies, lack of government meaningful incentive to farmers, lack of basic infrastructure and a lot of bureaucratic bottlenecks in executing policies and agricultural programmes among government agencies. However, Sanusi (2011), Inegbedion et al (2019) and Enete and Onyenekwe (2021) has also stated that lack of access to adequate funds to invest in the sector and weak infrastructural facilities has been identified as a major hindrance to improved productivity in the agricultural sector. Creation of decent jobs for all in developing economies occupied a strategic position in the Sustainable Development goals (United Nations, 2015; Lucky & Uzah, 2016). Meanwhile, country like Nigeria is bewildered with challenges of unemployment and poverty over a long period of time (Akwara *et al.* 2013). However, in the recent times, the level of unemployment in Nigeria has been worrisome. A critical look at the unemployment data indicates that rate of unemployment was 27% in the latter part of 2020 (NBS, 2020). This scenario has become a subject of concern among the policymakers and scholars. In view of the above, various advocacies have been erupted from different quarters for the country to explore agriculture for the creation of employment in large measures for its teeming population. Because the role of agriculture in creating job opportunities cannot be undermined in Nigeria. The Nigerian economy is dominated by the production of primary products which is the one of the major drivers of economic growth in the country. In the same vein, huge quantum of the population lives in the rural centre whose means of livelihood are purely agricultural related activities. Meanwhile, in the past, especially before crude oil was discovered in Nigeria, the major driver of the Nigerian economy was agriculture. This sector contributed over 71% to the GDP, and at same time provided over 70% of job opportunities in the country (CBN, 1970). The arable land in Nigeria has the capacities to produce various products such as plantain, groundnuts, cocoa, rice, cashew and other products. Despite the huge potentials of agriculture and agribusiness in Nigeria, the level of unemployment remains the issue of concern in the country.

However, few efforts to provide empirical evidence to justify the above subject matter in past studies have not yielded substantial results. For instance, recent studies such as Aderemi *et al*. (2020) and Obanga (2018) could be faulted in the area of the methodology because these studies failed to use holistic approach to measure the contribution of agriculture in the economy. Empirically, it was observed that very studies have been carried out on the effect of agricultural sector productivity on employment generation in Nigeria and of countries. Most of the works reviewed either examined the effect of agricultural financing on agricultural output, economic growth and poverty alleviation in Nigeria (Egwu 2016). Obansa and Maduekwe (2013); Ayeomoni and Aladejana (2016); Ademola (2019); Okunlola, Osuma and Omankhanlen (2019); Adeshina, Tomiwa and Eniola (2020); Angaha and Atong (2020) examine the effect of agricultural financing and economic growth or economic performance. Orji, Ogbuabor, Alisigwe and Anthony-Orji (2021) investigated the relationship between agricultural financing, agricultural output growth and employment generation in Nigeria while Agbada (2015) examined the effect of agricultural financing on optimizing output for sustainable economic development in Nigeria and Ayodeji (2019) studied the impact of agricultural financing on Unemployment in Nigeria. However, the present study examines the effect of agricultural sector development on unemployment rate in Nigeria.

## LITERATURE REVIEW

### Concept of Agriculture

Agriculture refers to the production of crops, animals, fisheries and forestry and wildlife products. However agribusiness/farm business refers to the production and distribution of farm supplies, physical production and processing and distribution of food and fiber, (Olayide et al, 2022). Farm business provides food, employment opportunities, income, foreign exchange, raw materials for the local industries, enhances rural development etc. History has it that the early man started agriculture when he discovered that the seeds he discarded away germinated and grew into maturity. He then became conscious of farming, producing for himself and family (subsistence). Since then, farming has passed through stages in terms of development. Initially development was slow probably due to low technology and more operating in a non-monitised economy referred to as trade by barter it moved to the level of subsistence, plus a small traded surplus and there after got to the level of subsistence, plus a regular marketed surplus or plus part-time employment in industries. It has gotten to the stage of commercialization and modernization. Nigerian agriculture (farming), are incidentally in the hands of small-scale farmer. Basically labour-intensive and ultimately giving low output far not enough to satisfy the ever increasing population.

Definition and measures of agricultural productivity Agricultural productivity refers to the output produced by a given level of input(s) in the agricultural sector of a given economy (Fulginiti and Perrin, 1998). More formally, it can be defined as the ratio of the value of total farm outputs to the value of total inputs used in farm production. Agricultural productivity is measured as the ratio of final output, in appropriate units, to some measure of inputs. However, measures of productivity can be divided into partial or total measures depending on the number of inputs under consideration. 38 Total output as a ratio of some measure of labor quantity, usually man days in

developing countries, is called labor productivity (LP) and provides some notion of output per worker, while output per area of land planted is land productivity (Wiebe 2003; Zepeda, 2001).

Despite worrying accounts about the lack of youth interest in agriculture and the high rate of youth unemployment, there is a dearth of empirical evidence on determinants of youth participation in agribusiness. Hence, this study was designed to fill the existing research gap by identifying the factors influencing youth participation in agribusiness activities with a view to reducing ever-increasing youth unemployment among youths in Osun State Nigeria. The study profiled socio-economic characteristics of youths that are participating in agribusiness activities in the study area; identified the types of agribusiness activities; examined their attitude towards agribusiness activities; determined the level of youth participation in agribusiness activities; and identified the constraints limiting youth participation in agribusiness activities.

According to Oluwasegun, Taiwo and Opeyemi (2016) the importance of agriculture in reducing poverty in Nigeria is derived from the following facts:

(a) The incidence of poverty is disproportionately high in Nigeria, in which the country still relies heavily on agriculture for employment and income generation.

(b) The poorest households typically rely more on agriculture as source of income and employment.

(c) Nigeria today is reported to be largest importer of food items globally; the proper mobilization of the country's natural resources can guarantee domestic production of all the imported food items.

(d) Because most of the poor people have no skill other than manual labour to sell, they generally face many obstacles in connecting with non-agricultural economy, whereas, agricultural growth can provide them jobs where they live.

(e) Social and economic factors further exclude the larger population of the youth and women from other white collar job opportunities in the country; this is a gap in which agricultural growth can fill. The direct impact of agriculture on poverty reduction depends on the interaction of several effects.

**Agricultural Productivity**

The issues that determine the levels of agricultural productivity attained by farm households in developing countries are multidimensional and complex. Following the categorizations devised by Hussain and Perera (2004), the constraints and opportunities for agricultural productivity in Nigeria are identified below:

**Land and water related factors**: For many farmers in the South-South region of the country, pollution due to petroleum exploration is a major issue that has important implications for the quality of land and water (Idumah, 2006). Farmers in this region frequently have to increase their

input use, particularly fertilizer, while having to settle for suboptimal output levels and lower revenues despite the higher input costs (Idumah, 2006). Idumah (2006) in a study of food crop farmers in two States of the South-South revealed that soil degradation effects arising from the combined effects of oil pollution and other soil related issues like flooding accounted for about 21 percent of the difference in farm revenue between polluted and non-polluted farms. There are problems with soil quality in other regions of the country as well. Farmers in the Northern states of the country have to contend with the threat of desert encroachment (Akinyosoye, 2000) while Southern soils are often low in nutrients arising from long exposure to sunshine and rain, leading to erosion problems (Akinyosoye, 2000; Adejoh, 2009).

**Climatic factors:** The implications of climate change for agriculture are also a major concern in Nigeria. Desert encroachment due to unpredictable and extreme weather associated with climate change reduces the production possibilities of rural farmers by drastically reducing the available cultivable land. Currently, desert encroachment threatens about 35 percent of Nigeria's landmass (NISER 2010; Lucky & Nwosi, 2016). Consequently, farmers in northern Nigeria are facing accelerated desertification due to limited rains and shrinking water sources. For instance, from a peak of 25,000km2 in the 1960s, Lake Chad has shrunk to approximately 1,000km2 today, due to drastically reduced precipitation and an increase in irrigation demands by surrounding farmers (Coe & Foley, 2001). Similarly, farmers in southern Nigeria face several challenges. While some face the late onset of rains, early cessation of rain, shortened length of the rainy season, and reduced annual amount of rain (Adewuyi, 2002), others experience increased flooding due to excessive precipitation (Egwuda, 2001).

**Agronomic factors:** A large variety of studies in different regions of the country have identified the scarcity and high cost of inputs (labor, agrochemicals, and fertilizer) as major impediments to raising the productivity of smallholder farmers (Egwuda, 2001; Ojo, 2005; Adejoh, 2009; Peke, 2008). Other related problems include the difficulty in maintaining seed quality due to susceptibility to disease, perishability, and the low multiplication rate of seeds (Ojo, 2005; Adejoh, 2009). In addition, low skilled and poorly educated family labor is the primary factor of production, often supplemented by hired labor is also combined with mostly rudimentary tools such as hoes and cutlasses and ox-drawn ploughs in some parts of Northern Nigeria (Baiyegunhi, 2003). Farming methods are also basic (Ogunsanya, 2009; Ajani, 2000; Akintayo, 2011; Oladeebo, 2006; Fasoranti, 2006; Ajibolade, 2005; Peke, 2008; Fanegan, 2010; Oviasogie, 2005), as mechanization of farm processes is rare (Ogunsanya, 2009; Adeyemo, Oke and Akinola, 2010; Ajani, 2000).

**Farm management factors:** In addition to crude farm implements, production technologies in Nigeria are often substandard and farming methods outdated. Also, common practices like bush burning tend to destroy soil and plant quality (Adewuyi, 2002; Oseni, 2001). Mixed cropping is commonly practiced in many regions of the country (Ajibolade, 2005; Ajibefun, 1998; Akintayo, 2011; Adejoh, 2009; Idumah, 46 2006). Adewuyi's 2002 study of food crop farming in Kwara State revealed the dominance of sole cropping (68% of cultivated area) in the region covered by the study. Deriving optimal productivity from a crop often depends on the cropping pattern utilized. For instance, mixed cropping was more productive than sole cropping for maize farmers

in Niger State where the Yam/maize mix yielded better returns than sole maize (Amos, Chikwendu, and Nmadu, 2004). Similar results were found for yam farmers in Edo State (Oviasogie, 2005).

**Poor supporting infrastructure:** These include inadequate storage and marketing facilities, inadequate extension services, poorly organized rural input, output and financial markets, and substandard rural infrastructure. Many farmers report limited contact with extension agents and consequently receive no information on improved production technologies and practices (Adejoh, 2009). For instance Egwuda's 2001 study of Lowland rice production in Kogi State revealed the complete absence of extension services in the region. Other challenges include poor feeder roads and limited access to clean potable water, good health services, electricity, telephone and educational facilities. These are factors of productivity incentives for farmers (Fasoranti, 2006; Okafor, 2004; Adewuyi and Okunmadewa, 2001; Yusuf, 2009; 2008; Adewuyi, 2006; Adejoh, 2009).

**Socio-economic factors:** In Nigeria, small-scale, resource-poor farmers, the majority of who are engaged in subsistence or near subsistence farming, produce the majority of aggregate agricultural output via rudimentary farming systems (Oviasogie, 2005; Ajibolade, 2005). Farm holdings across Nigeria are generally small with less than 5 hectares on average and are often inherited rather than purchased (Adeyemo, Oke and Akinola 2010; Akintayo 2011; Oladeebo 2006; Adewuyi 2002; Egwuda 2001; Ojo, 2005; Ekunwe, Orewa, and Emokaro, 2008; Adejoh, 2009; Oviasogie, 2005, Haruna, 2009, David et al. 2009; Yaro, 1999). However, Baiyegunhi(2003) found that Sorghum farmers in Kaduna State resorted to buying or renting more land to augment their farm holdings. Fragmentation of farm holdings is also an issue, as farmers often have more than one location for their farms due to factors like variation in soil fertility and accessibility to land (Abubakar, 2006; Adewuyi, 2002; Okafor, 2004, Akinyosoy, 2000). While a study of small-scale food crop farmers in the SouthSouth (Idumah 2006) also revealed small land holdings with an average of 1.56 (hectares), most respondents farmed on communal land and leased land. Incomes from farming are generally low.

**Policy-related factors:** There have been several attempts by the Federal Government to create programs to improve agricultural productivity in Nigeria; many of which are developed with the aid and inputs of international organizations. Agriculture specific programs that have been implemented include Agricultural and Cooperative Bank (1973); National Accelerated Food Rural Development Authorities (1976); Operation Feed the Nation (OFN) (1976); Agricultural Rural Programme (ARP), (1979/1980); and the Cassava Multiplication Program (1985 - 1999). Several institutions were also set up in order to facilitate these programs including the Agricultural Credit Gaurantee Scheme (ACGS); Rural Banking Scheme (RBS); Nigeria Agricultural Insurance Company (1984); Directorate for Food, Roads and Rural Infrastructure (DFRRI) (1986); Nigerian Agricultural Development Bank (NADB); and the National Agricultural Land Development Authority (NALDA) (1991) (Adewuyi, 2002; Okafor, 2004). Many of these initiatives were not successful because they were ad hoc programs that lacked focus. They were poorly conceived and

implemented and were duplicates of already existing programs and organizations (Fasoranti, 2006). In addition, government policy was inconsistent and projects were improperly monitored and implemented (Okafor, 2004; Adewuyi, 2002). Also in existence was an unfriendly macroeconomic policy environment characterized by an overvalued exchange rate, a mismanaged subsidy regime and bad export crop pricing schedules (Adewuyi and Okunmadewa, 2001).

This environment encouraged imports at the expense of local crops, which led to crowding out of local production (Yusuf, 2009, Adewuyi, 2002; Zakari, 1997, Muhammad-Lawal and Atte, 2006). Several food crops (particularly tubers) were also neglected in favor of cash crops, while government invested very little funding in support of agricultural-related research. More recent programs created to improve agricultural productivity include several presidential initiatives on selected crops (rice, cassava, vegetable oil); Root and Tuber Expansion Program (RTEP); the National Special Program on food security (NSPFS); Community-Based Agriculture and Rural Development Project (CBARDP); various phases of the National Fadama Development Program (NFDP), amongst several other efforts. There is preliminary evidence that some of these programs are improving productivity of farmers by encouraging technology adoption and expanding farmer access to inputs, credit, and extension services (Olawepo, 2010; Abubakar, 2010). Assessment of the impact of these programs is ongoing (Oruonye, 2011; IFAD, 2009).

**Agricultural Financing**

Finance is pivotal in the commercialization of innovations. In agriculture, finance remains the bedrock for mechanization the purchase of machinery, the training to use machinery, the transportation of equipment and produce, the marketing of produce so that it could be taken for granted the positive correlation between agricultural finance and actual agricultural production. Therefore, since the size of agricultural production theoretically a positive function of finance, the coefficient of association between finance and food security must also be positive. Agricultural production also depends on the vagaries of weather.

Rainfall in the right volumes would boost output through aiding the decomposition of nutrients and providing fluidity. Sunshine is important for many reasons, including photosynthesis. These dependencies on weather do not diminish the importance of finance for modern farming. The rain would need to be harvested and supplied across the season and channeled appropriately in irrigation facilities and ditto sunshine. However, in economies dominated by traditional agriculture, output is essentially seasonal depending wholly on the clemency of weather and crude farm equipment.

Finance is a key component in every business endeavour required for the establishment and running of the business. It is the life blood of any business. Funds are required for the purchase of capital equipment such as land and building, machinery and other fixed assets as well as working capital. It is worthy of note that with growth in activities in any business, comes increased financial needs and increased access to funding would facilitate expansion. The agric-business involving primarily food production, distribution, processing, marketing is not an exception. Zhang (2007) suggested that deepening financial intermediation may promote economic growth by mobilising

more investments, and lifting returns to financial resources, which raises productivity. Agricultural finance is the acquisition and use of capital in agriculture. It deals basically with the supply of and the demand for funds in the agricultural sector of the economy.

**Agricultural Credit Guarantee Scheme Fund (ACGSF)**

This scheme was established by the Federal Military Government under the Agricultural the Credit Guarantee Scheme Fund Decree 1977 (Decree No. 20) and as amended on 13 June, 1988. Thus, the Agricultural Credit Guarantee Scheme Fund formally started operations in 1978. The Fund is managed by the ACGSF management board and the Central Bank of Nigeria. The purpose of the Fund is to provide guarantee in respect of loans granted by any bank for agricultural purposes (including establishment or management of plantation for the production of cash crops, cultivation or production of various crops, animal husbandry, processing of agricultural products as well as farm machinery and hire services) with the aim of increasing the level of bank credit to the agricultural sector. Loans under the scheme include advances, overdrafts and any credit facility.

A CBN internal survey in April 2012, noted that a total of 3,561 loans valued at N502.68 million was guaranteed by six (6) DMBs and some Microfinance banks. This brought the number and value of loans guaranteed in the year to 6,108 valued N1.34 billion. Cumulatively from inception in 1978, the figure stood at 760, 636 loans valued at N53.68 billion. The distribution of number of loans guaranteed by purpose indicated that food crops accounted for 3,384 loans (95.0 per cent), followed by livestock and cash crops which recorded 123 loans (3.5 per cent) and 24 loans (0.7 per cent), respectively. Fisheries, mixed farming and others recorded 15, 1 and 14 loans, respectively.

**Agricultural Credit Support Scheme (ACSS)**

The Agricultural Credit Support Scheme was established through the initiative of the Federal Government and the Central Bank of Nigeria with the support and participation of the Bankers Committee to finance large ticket agricultural projects with an interest rebate of 6.0 per cent upon timely repayment of the facility. The agricultural processes covered under the ACSS include: (a) Establishment or management of plantations; (b) The cultivation or production of crops; (c) Livestock (animal husbandry, poultry, fishery etc.); and (d) Farm machinery and hire services. The purpose of the ACSS is to develop the agricultural sector of the Nigerian economy by providing credit facilities to farmers at single digit interest rate. This is to enable farmers exploit the untapped potentials of the sector with a view to reducing the cost of agricultural production, and increase output on a sustainable basis. The expected outcome is a fall in prices of agricultural produce, especially food items, thereby leading to reduction in inflation rate, generate surplus for export, diversify the revenue base and thus, increase foreign exchange earnings for the country. At end-April 2012, no rebate was paid. However, the total rebate paid from inception to end-April 2012 stood at 43 projects valued at N872.45 million.

**The Commercial Agricultural Credit Scheme**

The CACS was established by the CBN in collaboration with the Federal Ministry of Agriculture and Rural Development as part of the developmental role of the CBN. It was funded through the issuance of FGN Bond worth N200 billion. The essence of the scheme was to promote commercial agricultural enterprises in Nigeria. The fund was released to the Bank of Industry and made available to DMBs for on-lending to farmers/state governments at single digit interest rate. State Governments could borrow up to N1.0billion for on-lending to farmers' cooperative societies and other areas of agricultural development provided such initiatives/interventions were in line with the set objectives.

So far twenty nine (29) states participated in the scheme. In April 2012, the sum of N2.938 billion was released to 3 banks with respect to 3 projects bringing the total to N178.269 billion with respect to 227 projects (198 private promoters and 29 State Governments). By value chain 47 per cent of the private projects were for production activities, while 38 per cent were for processing activities. Marketing and storage accounted for 9 per cent and 6 per cent, respectively. For the state sponsored projects, processing accounted for 51 per cent followed by production which accounted for 33 per cent. Other activities shared the remaining 16 per cent.

**Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL)**

Available statistics revealed that the CBN had approved N75 billion for the take-off of Nigerian Incentive-Based Risk Sharing in Agricultural Lending (NIRSAL). It had also guaranteed 75.0 per cent loans provided by DMBs to farmers across the 36 states of the Federation and the Federal Capital Territory as part of concerted efforts to transform the agricultural sector. The guarantee would be issued by the NIRSAL to the farmers in the states and the FCT through commercial banks and other financial institutions. The initiative (NIRSAL) mobilised financing for Nigerian agribusiness through the use of credit guarantees to address the risks associated with default. It was targeted at encouraging financial institutions to be more receptive to doing business with agribusinesses. It was aimed at creating greater access to finance through integration of end-to-end agriculture value chains such as input producers, farmers, agro dealers, agro processors and industrial manufacturers with agricultural financing value chains – loan product development, credit distribution, loan origination, managing and pricing for risk, and loan disbursement. The integration was driven by the NIRSAL's 5 pillars, particularly the Risk Sharing Pillar and the Technical Assistance pillars such as Risk Sharing Facility, N45 billion; Insurance Facility, N4.5 billion; Technical Assistance Facility, N9 billion; Agricultural Bank Rating, N1.5 billion; and the Bank Incentive Mechanism, N15 billion (CBN, 2011).

**Agricultural Fiscal Year Budget**

Nevertheless, part of the effort by the government to sustain the country’s agricultural sector is evidenced by its various allocations to the sector in terms of lending and budgetary provisions. Budgetary provisions are often made for specific programmes or projects in agriculture, under numerous sub-sectors mainly; crops, livestock, fisheries, and forestry (CBN, 2023). these

allocations are often expended either on physical structures, grants and other inputs distributed to farmers or funding to agencies that perform agriculture-related services. The allocation is normally specified in the government budget. A budget is a financial plan of action to a firm, which provides details of projected inflows and outflows within a stated period of time, and becomes a critical element for effective management decisions (Petershie, 2008). Budgetary allocation is the finances allocated to plan for growth and development of a sector. Budgetary analysis is thus an important tool that helps to promote economic assessment of all sectors of the economy including the agricultural sector, and it is useful for planning and management at the farm level (Abang, Agom, Enyenihi, & Ele, 2008). Government budgetary allocations make capital available for agricultural production by helping to secure inputs, technology and management, hence promoting increased agricultural production. Government contributions to the agricultural sector therefore enable capital investments that help in the development and growth of the sector (Douillet & Grandval, 2011).

**Agricultural Export**

Prior to the 1970s, agricultural exports were Nigeria's main sources of foreign exchange earnings. During this period, Nigeria was a major exporter of cocoa, cotton, palm oil, groundnuts and rubber. Government revenues also depended heavily on taxes on non-oil exports. Thus, during the period; the current account and fiscal balances depended on agricultural export. However, between 1970 and 1974, agricultural exports as a percentage of total exports declined from about 43 percent to slightly over 7 percent. From mid 1970s to date, the share of agricultural export as a percentage of total export is below 5 percent for most years since the introduction of Structural Adjustment Programme (Ebi, 2013). The major cause of this development was the oil price shocks of 1973 – 1974 and 1979, which resulted in large receipts of foreign exchange by Nigeria and the neglect of agriculture. The oil boom afflicted the Nigerian economy with the so-called "Dutch disease" effects (Ayodele, 1997; and Osuntogun, Edordu, and Orumah, 1997). By 1986, the situation had become a crisis, dramatizing the ineffectiveness of the prevailing external sector policy of import substitution industrialization (ISI). The failure of this policy regime to cope with the negative oil price shock was the reason for its substitution with an outward looking external policy under Structural Adjustment Programme (SAP) introduced in 1986. Under SAP, emphasis was on diversifying Nigeria's export base away from oil and increasing non-oil foreign exchange earnings.

**Unemployment**

Unemployment arises in a situation where people who belong to the age bracket of working population, who are motivated, skillful, and able to work, are unable to find work. Unemployment can also occur in a situation where labour force takes up job that is below his skills and or specialization. Such situation is often referred to as under-employment. Nevertheless, the concept of unemployment has attracted various definitions from scholars in the field of economics. According to Udu and Agu (2005), unemployment is a state where capable persons that are disposed to work are not able to secure job.

International Labour Organization (ILO, 2007) defined unemployment as a set of labour force who is not economically absorbed, though they are able and longing for job. Tejvan (2019) defined

unemployment as a state in which a person who is of working age, is willing to be on full time job, but could not secure a job. According to Organization for Economic Cooperation and Development (OECD, 2020), unemployment is a situation where people who are enthusiastically and presently available to start work could not find job. Amongst the different types of unemployment, the one that is consistent with agricultural sector is Seasonal Unemployment; the reason is because farming activities is usually high during raining season as against dry season. As such, more labourers are required during such time to boost output in contrast with fewer workforces during dry season.

Whereas mobility of labour increases structural unemployment, structural unemployment arises in a situation where certain industries decline due to market conditions (Tejvan, 2019). Consequently, agricultural sector in Nigeria has witnessed severe changes due to lack of attention by government and stakeholders; as well as insecurity (which is attributed to unemployment) occasioned by banditry and kidnapping, thereby causing decline in the ability of the sector to engage more labour force. As a result of this, unemployment has increased significantly due to labour immobility.

Unemployment according to Lipsey (1963) brings about economic waste and causes human suffering. The contribution and attitude of this economic waste were emphasized by the fact that the factor services are the least durable economic commodity. Unemployment is a result of the inability to develop and utilize the nation's manpower resources effectively especially in the rural sector (Fadayomi, 1992; Osinubi, 2006). The negative consequences include poverty, psychological problems of frustration, depression, hostility, suspiciousness of people, food insecurity, all manner of crimi-nal behaviour and general insecurity of life and property (Adebayo, 1999; Egbuna, 2001; Alanana, 2003; Okonkwo, 2005). Although Nigeria is known to be rich in manpower; however, all these problems are not left out in the country. Unemployment is measured among people in the labour force. Labour force of a country as defined by Feyisetan (1991) is a set of people or citizens of a country who are willing and are able to make available at any given point in time their efforts for gainful employment. The unemployed are the individuals with no work but are looking for work at the time of survey.

**Keynesian Theory of Employment**

The logical underpin of Keynesian theory of employment is anchored on the concept of aggregate demand. Though, Keynesian theory is traditionally a demand side economics, the theory showed that in a capitalist economy, the level of employment is a function of the level of aggregate demand. As unemployment is a consequence of deficiency in effective demand, the level of employment can be raised by increasing the level of effective demand; suggesting that as effective demand rises, investment will increase to bring about increase in employment and profit. Keynes denoted total demand for goods and services at several stages of employment as effective demand (Jhingan, 2003). Hence, divers' stages of employment epitomize different stages of aggregate demand (Marglin, 2018).

Keynes inferred that levels of employment are a determinant of effective demand which through multiplier effects determines aggregate demand price and aggregate supply price (Marglin, 2018). The total sum of money income a firm expects to acquire from trading the output produced by the

number of labour employed represents the aggregate demand price for the output of any volume of employment. Moreover, the Keynesian theory of unemployment is regarded as cyclical or deficient demand unemployment. The Keynesian holds that unemployment occurs once there is deficient demand in the economy to fuel employment. The Keynesian believed that capitalists engaged workers and invest to drive output when opportunities about the economy and profits are favourable (Mouhammed 2010). Hence, investment and employment will increase when anticipated favourable economy and expected profit are supported by reality.

**Phillips Curve Theorem**

The Phillips curve theorem is based on the nexus amongst unemployment rate and inflation rate or money wage changes. The theory expressed a transposed correlation between the rate of unemployment and increase in money wages or inflation (Chaido & Melina, 2013). According to Phillip empirical relationship, a rise in unemployment is a decreasing function of money wage rates. That is, as unemployment is rising, increase in money wage decreases. This is because wage is seen as an inducement for productivity. Hence, at a lower wage rate, labour will be unwilling to lend their services at any wage lesser than the base (or minimum) wage rate.

Consequently, at a lower unemployment rate, wage rate increases because the demand for labour is high with infinitesimal number of unemployed labour. As a result, the entrepreneurs will bid wage rate up above the minimum wage rate very quickly. More also, business activity is another factor that informs the inverse correlation between unemployment and wage rate. Chaido and Melina (2013) opined that in a period of booming business activity, demand for labour increases as a result of fall in unemployment and thus, in a quest to woo labour, employers will drive up the wage rate above the minimum wage rate. Equally, in a period of down turn in business activity, unemployment increases due to fall in demand for labour such that employers become hesitant to give wage increase and workers will be in an awkward position to demand for wage increase.

**Conservation theory of Agricultural Development**

The conservation model of agricultural development evolved from the advances in crop and livestock husbandry associated with the English agricultural revolution and the concepts of soil exhaustion suggested by the early German chemists and soil scientists. The conservation model emphasized the evolution of a sequence of increasingly complex land and labour-intensive cropping system, the production and use of organic manures and labour-intensive capital formation in the form of physical facilities to more effectively use land and water resources. This model was the only approaches to intensification of agricultural production that was available to most of the world's farmers. Agricultural development within the ambit of the conservation model clearly was capable in many areas of the world of sustaining rate of growth in agricultural production around 1.0% per year over relatively long periods of time. This rate is not compatible with modern rates of growth in the demand for agricultural output which typically fall between 3-5% in the developing countries.

**Empirical Review**

Oluwafemi, et al., (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 Ianna 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.

Ogbanga (2018) examined the relationship between agricultural development and employment generation in Nigeria within the time dimension 20082017.The study proxied the dependent variable, employment generation, by total employment, and the independent variable, agricultural development, by agricultural sector growth, gross domestic product, foreign private capital and federal government expenditure, and employed industrial sector output as a control variable. It sourced secondary data from CBN Statistical Bulletin and reports of National Bureau of Statistics of various editions, and estimated them using error correction mechanism and granger causality test. The study found that, agricultural sector growth and other explanatory variables contributed significantly to employment generation in Nigeria. It, also, found both short-run and long-run relationship between agricultural development and employment generation in Nigeria.

Ogboruet al (2018) investigated the effects of government expenditure on agriculture and its impact on unemployment reduction in Nigeria within a time frame 1999- 2015. The study proxied the dependent variable, unemployment, by unemployment rate, and the independent variable, government expenditure on agriculture, by government recurrent expenditure on agriculture and government capital expenditure on agriculture; and employed gross domestic product as a control variable. It sourced time-series data from Central Bank of Nigeria (CBN) Statistical Bulletin and reports of National Bureau of Statistics, and estimated them using ordinary least squares method. The study found that, government expenditure on agriculture did not have significant effects on unemployment in Nigeria.

Olukayode and Olorunfemi (2018) investigated the relationship between fiscal policy tools, employment and sustainable development in Nigeria within a temporal scope 1980-2015. The study proxied the dependent variables by gross domestic product and unemployment rate, and the independent variable, fiscal policy tools, by taxation, government expenditure on agricultural and manufacturing outputs. It sourced secondary data from CBN Statistical Bulletin and reports of National Bureau of Statistics of various editions, and estimated them using Engel granger co-integration test and ordinary least squares method. The study found a long-run relationship between fiscal policy tools and employment. It, also, found that, while government spending on

manufacturing output had inverse relationship with unemployment rate in Nigeria, taxation and agricultural output exhibited direct relationships with it.

Ogbanga (2018) examined the effect agricultural development on employment generation in Nigeria. To achieve this objective the Error Correction and Granger Causality test was employed to analyze the contribution of agricultural sector alongside other explanatory variables such as gross domestic product (GDP), foreign private capital (FPC), federal government expenditure (PEX) and industrial sector output (INQ) on employment generation in Nigeria. The study also provides the overview of agricultural development in Nigeria and also provides a framework for understanding the agricultural sector in relation to the strategies employed by government to develop the sector. The paper also identifies some major factors constraining the development of agricultural sector in Nigeria such as neglect of agriculture arising from the discovery of oil, inadequate infrastructural facilities, inadequate extension services, shortage of labour to rural-urban migration, decline quality of land because of oil activities in the Niger Delta Region, Policy inconsistency etc. However, the result of the study revealed that agricultural sector and other explanatory variables contribute significantly to employment generation in Nigeria. There, to reduce the increasing unemployment in Nigeria, The paper recommends that government should intensify effort in improving the agricultural sector that could serve as feedback mechanism in providing raw materials for industrial purposes, that is by ensuring the provision of credit facilities to farmers, extension services, price stabilization and making agriculture a priority to ensure that the sector takes its rightful place in our economy.

Uzomba and Otokutu (2020) assessed the performance of the Nigerian agricultural sector, this study puts in focus the relationship between agricultural fundingbased contributions and performance of the Nigerian agricultural sector from 1986 to 2018, following the prescription of financial intermediation theory. It relies on ex-post facto research design, employs and makes use of data from the statistical bulletin of Central Bank of Nigeria, 2018 and Work Bank Economic Outlook 2019. Total government expenditure (TGE), agricultural credits (ACG) and foreign direct investment (FDI) serve as the independent variables; while crop production (CRP), livestock production (LSP), forestry production (FRP) and fishing production (FSP) represent the dependent variables. The study utilizes the Fully Modified Ordinary Least Square (FMOLS) and Engle Granger Single Equation cointegration Tests for the search of possible link between the sets of variables. From the analyses, the results of the study reveal that TGE and AGS are significantly and positively related to CRP, LSP and FSP while FDI maintains a negative relationship with them. On another hand, TGE and FDI have negative relationship with FRP, but AGS is positively related to FRP. The Co-integration analysis reveals that there is a long run relationship between all the variables used in the four models. On this basis, the study concludes that agricultural funding-based contributions have significant and long run relationship with the performance of the Nigerian agricultural sector. The paper recommends that government should strengthen agricultural credit guarantee scheme and increase expenditures on the sector.

Ayomitunde, et al., (2020) investigated the role of agriculture in generating employment in post SAP era Nigeria. This study was motivated as a result of lack of sufficient studies regarding this

subject matter in the recent time. Data were sourced from the CBN Statistical Bulletin and Cointegration, DOLS and Granger Causality Approach was used to address the objective of this study. Consequently, the major findings that emerged in this study are as follows: agricultural sector contributed to employment generation in the country, though not significant in the post SAP era. Similarly, inflation rate has a positive impact on employment generation in the economy. However, the contribution of agricultural expenditure to the employment generation was negative in the country. Furthermore, one-way feedback flows from employment to agricultural expenditure and expenditure on agriculture granger causes inflation rate in the economy. Moreover, based on these findings the following recommendations could be made for the policy makers in Nigeria that agricultural sector has the capacity to address the current unemployment menace among the youths in Nigeria. Also, the government should possess a political goodwill to diversify the current mono-cultural nature of the economy towards agricultural sector by proper funding of this sector of the economy.

Austine, et al., (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. The study, therefore, recommends that monetary authorities should carefully and coherently pursue a policy that can control inflationary pressure in the economy, and at the same time, adopt friendly exchange rate policy that can stimulate investment in the sector.

Orji, et al., (2021) investigated the impact of agricultural financing and agricultural output growth on employment generation in Nigeria from 1981 to 2017. The study adopts the framework of the Auto Regressive Distributed Lag (ARDL) Model for analysis. The empirical results show that while agricultural financing increases employment generation in the short run and long run, the lag of agricultural output growth increases employment generation mainly in the short run. Other variables found to have significant effect on employment generation were price and agricultural output while labor force population, wages and aggregate expenditure were insignificant. The study concludes that policy makers should endeavor to see that every fund allocated for specific agricultural schemes and interventions should be fully utilized for its purpose. To increase employment opportunities, there should be careful monitoring of the implementation of each

scheme and policy to realize their specific objectives. Aderemi *et al*. (2020) examined how agriculture generated employment in Nigeria during the post Structural Adjustment Programme era. The author explored Cointegration, Dynamic Ordinary Least Squares and Granger Causality techniques to estimate the objective of the study. The finding form the study argued that agricultural sector did not contribute a significant impact to employment generation in Nigeria during post SAP periods. The study also affirmed that agricultural expenditure led to an inverse with employment generation in the country.

## METHODOLOGY

This study was designed to examine the effects of agricultural sector development on the unemployment rate in Nigeria. The research design adopted in this study is the descriptive research method which is largely quasi-experimental. Secondary data were used in this study. The relevant data used were sourced from the publications of the Central Bank of Nigeria such as the CBN Statistical Bulletins and Nigeria Bureau of Statistic and World Bank Data Base.

### Model Specification

UNER = f(AP, AF, AFB, AEX ) (1)

From equation 1, the research decomposed profitability into ratio to formulate the empirical models as follows:

UNER $= \alpha_0 + \beta_1 AP + \beta_2 \mathrm{AF} + \beta_3 AFB + \beta_5 \mathrm{AEX} +$ $\varepsilon_i$… ……
.(2)

**Where:**

UNER = Unemployment Rate
AP = Agricultural productivity proxy agaric sector GDP to total GDP
AF= Agricultural sector finance proxy by ACGS to GDP
AFB = Agricultural fiscal budget as percentage of GDP
AEX = Agricultural sector export as percentage of GDP
$\varepsilon_i$ = Stochastic Error Term
$\beta_0$ = Regression Intercept
$\beta_1$ - $\beta_4$ = Coefficient of the Independent Variable to the Dependent Variable

### Method of Data Analysis

The method of data analysis that was used in this study is the multiple regressions with the use of Ordinary least square (OLS) analysis, employing the econometrics view statistical package.

### A-priori expectation of Results

According to theories, economic diversifications are expected to have a negative effect on unemployment rate as illustrated by theories .It is mathematically stated as β1, β2, β3 β4<0.

### Estimation Techniques

The study took cognizance of the challenges (non-stationarity/unit root) that may arise with econometric modeling, using time-series data. Results from a regression exercise involving non-stationary data is observed to be spurious (Granger, 1981). Therefore, the empirical analysis is carried out in the light of the recent developments in the time series analysis and this would check for the order of integration of these variables, while the OLS technique is applied to the long-run static and short-run dynamic models.

**Unit Root Test for Stationarity of Series**

The most accepted method for the testing for unit root is Augmented Dickey-Fuller (ADF) test due to Dickey and Fuller (1979, 1981), and the Phillip-Perron (PP) due to Phillips (1987) and Phillips and Perron (1988). One advantage of ADF is that it corrects for higher order serial correlation by adding lagged difference term on the right hand side. It relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favor of the alternative hypotheses of stationarity. The tests are conducted with and without a deterministic trend (t) for each of the series. For the purpose of this study, the ADF unit root was adopted and the general form of ADF test is estimated by the following regression:

$$y_t = \alpha^0 + \alpha^1 y^{t-1} + \sum_{i-1}^{n} \alpha \Delta y_i + e^t \quad 3$$

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i-1}^{n} \alpha_1 \Delta y_i + \delta_t + e^t \quad 4$$

Where Y is the time series, t is the linear time trend, is the first differential operator, α is the constant, n is the number of lags in the dependent variable and $e$ is the random error term.

**Cointegration Test**

For the cointegration test, the maximum likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991) was used. In the test, if *Yt* is a vector of n stochastic variable then there exist a P-lag vector auto regression with Guassian errors. Johansen methodology takes its starting point in the vector auto regression (VAR) of order of P given by;

$$y_t = \mu + \Delta y_{t-1} - - - + \Delta P y_{t-p} + e_t \quad \text{……..5}$$

Where yt is an (nX1) vector of variables that are integrated of order commonly denoted (1) and is an $e_t$ (nx1) vector of innovations. In order to determine number of co-integration vectors, Johansen (1989) and Johansen and Juselius (1990) suggested two statistic tests, the first one is the trace test (trace). It tests the null hypothesis that the number of distinct cointegrating vector is less than or equal to q against a general unrestricted alternatives q=r the test calculated as follows:

$$\lambda trace(r) = T \sum_{I=R+1} (In1 - \lambda_t) \quad \text{…..……6}$$

T is the number of usable observations, and the $_I$ is the estimated eigenvalue from the matrix. The

second statistical test is the maximum eigenvalue test (max) that is, calculated according to the following formula; max(r, r+1) = T In(1-$_r$ + 1). The test concerns a test of the null hypothesis that there is r of co-integrating vectors against the alternative that r +1 co-integrating vector.

**VAR and Granger Causality Test**

The test of cointegration ignores the effect of the past values of one variable on the current value of the other variable. So, the study tried the Granger causality test to examine such possibilities. Granger causality test whether lagged values of one variable predict changes in another, or whether one variable in the system explains the time path of the other variables. The test for Granger causality is performed by estimating equations of the following form;

$$\Delta y_t + \alpha_0 + \sum_{i-1}^{m} \alpha_{1,i} \Delta y_{t-i} + \sum_{i=o}^{m} \alpha_{2,i} \Delta x_{t-1} + \delta ECM_{t-1} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

$$\Delta y_t + \beta_0 + \sum_{i-1}^{m} \beta_{1,i} \Delta y_{t-i} + \sum_{i=o}^{m} \beta_{2,i} \Delta y_{t-1} + \lambda ECM_{t-1} + \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 8$$

Where $e_t$ and $\mu_t$ are white noise disturbance terms (normally and independently distributed), m is the number of lags necessary to induce white noise in the residuals, and $ECM_{t-1}$, is the error correction term from the long-run relationship. $x_t$ is said to Granger-cause $y_t$, if one or more $a_{2,i}(i = 1, \ldots m)$ and $\delta$ are statistically different from zero. Similarly, $y_t$ is said to Granger cause $x_t$, if one or more $\beta_{2,i}$ $(i=1,m)$ and are statistically different from zero. A feedback or bi-directional causality is said to exist if at least $\alpha_{2,I}$ and $\beta_{2,i}$ $(i=1,m)$ or $\delta$ and are significantly different from zero. If on the other hand, $\alpha_{2,0}$ and $\beta_{2,0}$ are statistically significant.,

## ANALYSIS AND RESULTS DISCUSSION

Table 1: Ordinary Least Square results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| AP | -11.29570 | 1.591681 | -7.096712 | 0.0000 |
| AF | -9.041939 | 1.514847 | -5.968878 | 0.0000 |
| AFB | -7.630327 | 1.350212 | -5.651206 | 0.0000 |
| AEX | 6.195518 | 1.127736 | 5.493764 | 0.0000 |
| C | -16.38593 | 6.949505 | -2.357855 | 0.0299 |
| R-squared | 0.948051 | Mean dependent var | | 0.943084 |
| Adjusted R-squared | 0.927849 | S.D. dependent var | | 121.7842 |
| S.E. of regression | 32.71236 | Akaike info criterion | | 10.06104 |
| Sum squared resid | 19261.77 | Schwarz criterion | | 10.44815 |
| Log likelihood | -122.7936 | Hannan-Quinn criter. | | 10.17252 |
| F-statistic | 46.92797 | Durbin-Watson stat | | 2.124021 |
| Prob(F-statistic) | 0.000000 | | | |

**Source**: Extract from E-view 9.0

An examination of the OLS regression estimate shows the between agricultural sector development and unemployment in Nigeria are presented in table 4.2 $R^2$ is 0.948051 (94.8%) while

adjustment $R^2$ is 0.927849 showing a total of 92.7% of the variations in percentage of Nigeria's unemployment rate can be explained by the changes in the explanatory variables. The beta coefficient of the variables indicate that agricultural productivity have negative and significant relationship with unemployment rate, agricultural financing have negative and significant relationship with unemployment rate, agricultural fiscal budget have negative and significant relationship with unemployment rate while agricultural export have positive and significant relationship with unemployment rate. This indicates that there may be some degree of time dependence in the level series result which could lead to spurious regression results, suggesting the need for more rigorous analysis of the stationarity properties of the level series Data.

**Table 2: Unit Root Test**

| Variable | ADF Statistics | MacKinnon @ 1% | MacKinnon @ 5% | MacKinnon @ 10% | Order of Integration | Conclusion |
|---|---|---|---|---|---|---|
| | | | ADF at Level | | | |
| UNER | -7.169917 | -3.646342 | -2.954021 | -2.615817 | 1(1) | Stationary |
| AP | -4.436711 | -3.670170 | -2.963972 | -2.621007 | 1(1) | Stationary |
| AF | -5.770313 | -3.646342 | -2.954021 | -2.615817 | 1(1) | Stationary |
| AFB | -8.936291 | -3.679322 | -2.967767 | -2.622989 | 1(1) | Stationary |
| AEX | -9.119364 | -3.653730 | -2.957110 | -2.617434 | 1(1) | Stationary |
| | | | ADF at Difference | | | |
| UNER | -12.44898 | -3.653730 | -2.957110 | -2.617434 | 1(1) | Stationary |
| AP | -5.334013 | -3.679322 | -2.967767 | -2.622989 | 1(1) | Stationary |
| AF | -8.711265 | -3.661661 | -2.960411 | -2.619160 | 1(1) | Stationary |
| AFB | -11.81939 | -3.646342 | -2.954021 | -2.615817 | 1(1) | Stationary |

| | | | | | | |
|---|---|---|---|---|---|---|
| AEX | -8.11839 | -3.679322 | -2.967767 | -2.622989 | 1(1) | Stationary |

**Source**: Extract from E-view 9.0

The time series properties of the variables used in the analysis was investigated using Augmented Dickey-Fuller test. The test was run with specification of trend and intercept in the model. The ADF statistics for the test are presented in the table above. It can be seen from the table 2 above that the unit root test results, using the ADF unit root test suggest that all series are stationary at difference and integrated in order I (1).

**Table 3: Co-integration Test**

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.724876 | 111.8714 | 69.81889 | 0.0000 |
| At most 1 * | 0.574534 | 70.57430 | 47.85613 | 0.0001 |
| At most 2 * | 0.449876 | 43.22808 | 29.79707 | 0.0008 |
| At most 3 * | 0.367083 | 24.10449 | 15.49471 | 0.0020 |
| At most 4 * | 0.256100 | 9.467173 | 3.841466 | 0.0021 |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
| None * | 0.724876 | 41.29709 | 33.87687 | 0.0054 |
| At most 1 | 0.574534 | 27.34621 | 27.58434 | 0.0536 |
| At most 2 | 0.449876 | 19.12360 | 21.13162 | 0.0933 |
| At most 3 * | 0.367083 | 14.63731 | 14.26460 | 0.0436 |
| At most 4 * | 0.256100 | 9.467173 | 3.841466 | 0.0021 |

**Source**: Extract from E-view 9.0

Table 3 presents the cointegration test of the relationship between agricultural sector development and unemployment in Nigeria. The results of the Johansen co-integration test show that we reject the null hypotheses of no co-integrating equation at the 5% level of significance. This implies that, there is linear combination of the variables that are stationary in the long run and also confirms the existence of a long-run relationship between agricultural sector development and unemployment in Nigeria at trace statistics but none using the maximum Eigen.

**Table 4: Pairwise Granger Causality Tests**

| **Hypothesis** | **Obs** | **F-Statistic** | **Prob.** | **Conclusion** |
|---|---|---|---|---|
| AP does not Granger Cause UNER | 32 | 4.56141 | 0.0196 | causal relationship Reject HO |
| UNER does not Granger Cause AP | 32 | 0.15575 | 0.8565 | No causal relationship Accept HO |
| AF does not Granger Cause UNER | 32 | 1.64348 | 0.2121 | No causal relationship Accept HO |

| | | | | |
|---|---|---|---|---|
| UNER does not Granger Cause AF | 32 | 0.52241 | 0.5990 | No causal relationship Accept HO |
| AFB does not Granger Cause UNER | 32 | 0.15139 | 0.8602 | No causal relationship Accept HO |
| UNER does not Granger Cause AFB | 32 | 1.66894 | 0.2073 | No causal relationship Accept HO |
| AEX does not Granger Cause UNER | 32 | 0.87723 | 0.4275 | No causal relationship Accept HO |
| UNER does not Granger Cause AEX | 32 | 0.13526 | 0.8741 | No causal relationship Accept HO |

**Source**: Extract from E-view 9.0

Table 4 summaries the pairwise granger causality tests relationship between agricultural sector development and unemployment in Nigeria.

**Table 5: VAR Lag Order Selection Criteria**

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -799.0776 | NA | 4.60e+15* | 50.25485* | 50.48387* | 50.33077* |
| 1 | -774.9389 | 39.22549* | 4.97e+15 | 50.30868 | 51.68281 | 50.76416 |
| 2 | -757.8314 | 22.45350 | 9.20e+15 | 50.80197 | 53.32120 | 51.63702 |

**Source**: Extract from E-view 9.0

Table 5 presents the Var Lag Order Selection Criteria on the relationship between asset pricing channel and growth of Nigeria manufacturing sector. The most popular of the information criteria are the Akaike information criteria (AIC), and Bayesian information criteria (BIC) (Stock and Watson, 2012). Since the value proposed by both AIC, HQIC is lag 1, the optimal lag length in this study is 1.

**Table 6: Error Correction Model**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(UNER (-1)) | -0.247220 | 0.271893 | -0.909254 | 0.3746 |
| D(UNER (-2)) | 0.000213 | 0.173906 | 0.001226 | 0.9990 |
| D(AP (-1)) | 3.684166 | 0.808428 | 4.557194 | 0.0002 |
| D(AP (-2)) | 0.760491 | 1.043585 | 0.728729 | 0.4751 |
| D(AF (-1)) | -1.749860 | 1.100498 | -1.990061 | 0.0283 |
| D(AF (-2)) | -2.082446 | 1.042433 | -1.997679 | 0.0603 |
| D(AFB (-1)) | -2.826921 | 0.886541 | -3.188707 | 0.0048 |
| D(AFB (-2)) | -0.097726 | 1.037564 | -0.094188 | 0.9259 |
| D(AEX (-1)) | -0.518191 | 0.734667 | -0.705342 | 0.4892 |
| D(AEX (-2)) | 0.875912 | 0.802582 | 1.091367 | 0.2888 |
| ECM(-1) | -0.722820 | 0.309177 | -2.337886 | 0.0305 |
| C | -1.115092 | 20.98319 | -0.053142 | 0.9582 |
| R-squared | 0.829488 | Mean dependent var | | 0.669469 |
| Adjusted R-squared | 0.730770 | S.D. dependent var | | 224.4518 |
| S.E. of regression | 116.4620 | Akaike info criterion | | 12.63765 |

| | | | |
|---|---|---|---|
| Sum squared resid | 257704.7 | Schwarz criterion | 13.19274 |
| Log likelihood | -183.8836 | Hannan-Quinn criter. | 12.81860 |
| F-statistic | 8.402644 | Durbin-Watson stat | 2.215732 |
| Prob(F-statistic) | 0.000035 | | |

**Source**: Extract from E-view 9.0

Table 6 presents the relationship between agricultural sector development and unemployment in Nigeria. The corresponding sign of Error Correction Term (ECT) is negative but not significant. The negative sign of (ECT) indicates a move back towards equilibrium following a shock to the system in the previous year. The adjusted $R^2$ from the model proved that the independent variables can explain 73 percent changes on unemployment rate in Nigeria. The model is statistically significant from the value of f-statistics and probability. However, the ECM coefficient indicates that the models can adjust at the speed of 72.2 percent annually. The coefficient of the variables defines the effect of the independent variables on the dependent variables at various lags.

**Discussion of Findings**

The estimated model as formulated in the study found that 73 percent changes on unemployment rate in Nigeria. The beta coefficient of the variables proved that agricultural productivity have positive and significant effect on unemployment rate in Nigeria, the coefficient indicate that agricultural productivity added 3.6 percent increase to unemployment rate. The positive effect of the variable contradicts the expectations of the study and not in line with reforms in the agricultural sector in Nigeria. The finding contradict the findings of conservation model of agricultural development evolved from the advances in crop and livestock husbandry associated with the agricultural revolution and the concepts of soil exhaustion suggested by the early German chemists and soil scientists. Empirically the findings in this study contradict the findings of Guido (2005) that 10 percent increase in the price of agricultural exports would stimulate the likelihood of employment by 1.36 percent, Ayinde et al., (2011) revealed a unidirectional causation, implying that causality runs among the variables, Bernard and Adenuga (2017) a positive association between agricultural output and employment generation in Nigeria, Ayinde (2008) that unemployment rate is significantly greater in the urban areas which may be attributed to rural-urban migration, as well as disengagement of workers by employers in order to adopt technology, Enilolobo and Ohalete (2017) that as unemployment and poverty rates declines and the findings Ogbalubi and Wokocha (2013) investigated agricultural development and employment generation in Nigeria.

The beta coefficient of the variables proved that agricultural financing have negative and significant relationship on unemployment rate in Nigeria, the coefficient indicate that agricultural financing reduced unemployment by 2.8 percent. The negative relationship between agricultural fiscal budget and unemployment confirm the expectations of the study and in in line with reforms in the agricultural sector in Nigeria. The finding confirm the conservation theory of agriculture that agricultural development within the ambit of the conservation model clearly was capable in many areas of the world of sustaining rate of growth in agricultural production around 1.0% per year over relatively long periods of time. Empirically, the findings confirm the findings of Oluwafemi, et al., (2019) 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, Ayinde (2008) that unemployment rate is significantly greater in the urban areas which may be attributed to rural-urban migration, as well as disengagement of workers by employers in order to adopt technology, the findings of Enilolobo and Ohalete (2017) that as unemployment and poverty rates declines, Agricultural output increases and thus, per-capita income increases, the findings of Bernard and Adenuga (2017) that agricultural sector output and other explanatory variables made significant short and long run contributions to employment generation in Nigeria and the findings of Dul and Evbuomwan (2017) a positive relationship between agricultural financing and youths' participation in agricultural activities in Plateau State. It, also, found that, the contribution of Plateau State Government to agricultural financing in attracting youths' participation was not enough. According to Nwafor (2006) most youths who are not gainfully employed become agents of social destabilization and disunity, economic sabotage and thuggery. They had been exported to the most trying time imaginable. Millions of them have been left wallowing in poverty as they roam the streets of major cities in search of non-existent jobs and opportunities. Several graduates of tertiary institutions have been forced into crimes and criminality, and those of them who are not very physically daring have taken to frauds and all sorts of shady preoccupation. The young women in this frustrated class have taken to disguised prostitution or full-blown harlotry. These days in Nigeria there are not enough motivating examples for the youths to copy, such as made for juvenile discipline and natural law-abiding propensity. Empowerment is a process of opening up something that has absolutely unlimited potentials, this implies reducing vulnerability and dependency among people.

The beta coefficient of the variables proved that agricultural financing have negative and significant relationship on unemployment rate in Nigeria, the coefficient indicate that agricultural financing reduced unemployment by 2.8 percent. The negative relationship between agricultural fiscal budget and unemployment confirm the expectations of the study and in in line with reforms in the agricultural sector in Nigeria. The beta coefficient of the variables proved that agricultural export have negative but no significant relationship on unemployment rate in Nigeria, the coefficient indicate that agricultural export reduced unemployment by 0.5 percent. The negative relationship between agricultural export and unemployment confirm the expectations of the study and in in line with reforms in the agricultural sector in Nigeria. The finding confirm the conservation model of agricultural development evolved from the advances in crop and livestock husbandry associated with the agricultural revolution and the concepts of soil exhaustion suggested by the early German chemists and soil scientists. Empirically the findings in this study confirm the findings of Guido (2005) that 10 percent increase in the price of agricultural exports would stimulate the likelihood of employment by 1.36 percent, Ayinde et al., (2011) revealed a unidirectional causation, implying that causality runs among the variables, Bernard and Adenuga (2017) a positive association between agricultural output and employment generation in Nigeria, Ayinde (2008) that unemployment rate is significantly greater in the urban areas which may be attributed to rural-urban migration, as well as disengagement of workers by employers in order to adopt technology, Enilolobo and Ohalete (2017) that as unemployment and poverty rates declines

and the findings Ogbalubi and Wokocha (2013) investigated agricultural development and employment generation in Nigeria.

Sidi (2004) observed that unemployment compounds the problems the youths are facing in Nigeria. By staying idle, they are prone to such vices as prostitution, armed robbery, and rape. Nigerian girls in the rural areas could be mobilized and taught to keep poultry farms so as to have more meat for the home. Educated girls develop self confidence in themselves, are more capable of accommodating others, can take decisions of their own and make choices according to their own independent judgments. This would be a great political investment of a high value for Nigeria. According to Grewal and Ahmed (2011) the rural concentration of poverty in the developing countries such as Nigeria highlights the importance of agriculture in poverty reduction strategies, because most of the rural population relies directly or indirectly on agriculture. Department for International Development (DFID) (2004) also reported that, at the micro-economic level, growth in agriculture which could only be enhanced by its appropriate investment expenditure has been consistently shown to be more beneficial to the poor than the growth in other sectors. Their analysis also reveals that increasing agricultural productivity has probably been the single most important factor in determining the speed and extent of poverty reduction during the last 40 years (Oluwasegun, Taiwo and Opeyemi, 2016). Investment in agricultural sector for poverty reduction is supported by Oni (2014) investment favours agricultural sector not only because of its low skill and competence requirements, but also because of its potential for stimulating growth in the secondary and tertiary sectors. For instance, increased commercial agricultural activities through induced investment may lead to expansion of small food processing industries. This will in turn increase labour mobility from rural to urban areas (Grewal and Ahmed, 2011) Enyim (2013) investigated the link between government spending on agriculture and poverty reduction in Nigeria's economic growth in the period 1980-2009. Using poverty level as the dependent variable, while the independent variables are government expenditure on agriculture and agricultural credit guaranteed scheme (ACGS), it was discovered the one percent increase in agricultural credit guaranteed scheme fund (ACGSF) will on average lead to 0.06 percent decrease in poverty level. It was also recommended that effort should be made by the government to see that the rural farmers benefit from the opportunities surrounding her expenditures in the agricultural sector; in an attempt to reduce the poverty level in Nigeria.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

From the findings, the probability coefficient of 0.0002 is less than the critical value of 0.05; the study concludes that there is negative and significant relationship between agricultural productivity and unemployment rate in Nigeria. The probability coefficient of 0.0283 is less than the critical value of 0.05; the study concludes that there is negative and significant relationship between agricultural financing and unemployment rate in Nigeria.From the findings, the probability coefficient of 0.0048 is less than the critical value of 0.05; there is negative and significant relationship between agricultural financing and unemployment rate in Nigeria. The probability coefficient of 0.4892 is greater than the critical value of 0.05; the study concludes that there is

negative and no significant relationship between agricultural financing and unemployment rate in Nigeria.

**Recommendations**

i. For sustainable increase in employment generation in Nigeria, we recommend that
ii. The government should remove every constraint to agricultural policy effectiveness, such as policy instability, policy inconsistencies, narrow-based policy formulation, poor policy implementation and weak institutional framework for policy coordination.
iii. The government of Nigeria should develop policies that could improve agricultural activities in Nigeria. These policies could increase credit policies for agricultural purposes, strengthening of the agricultural product marketing board to encourage farmers.
iv. This study identified the agricultural fiscal budget as a determinant of employment. Therefore, government should intensify more effort in creating an enabling environment for increase in budget to agricultural sector in Nigeria and The stringent conditions and prerequisite required to be met by farmers to participate on the agricultural credits should be reviewed and made accessible to farmers.
v. Government should also create an enabling environment for industrial activities. This environment should include credit policies and interest rate policies that could encourage borrowing for investment. Also, social amenities in the form of electricity, pipe born water, roads and securities are necessary to encourage industrialization in Nigeria and the lending rate on loans to the agricultural sector should be reviewed and fixed at a rate that would encourage farmers to acquire loans from deposit money banks.
vi. The government should possess a political goodwill to diversify the current mono-cultural nature of the economy towards agricultural sector by benchmarking reasonable budget/funds to revamp this sector of the economy with a view to generating a substantial gainful employment for the current teeming unemployed youths and adequate food supply for all and sundry in the country and efforts should be made by the government and private individuals to encourage or increase investment in the agricultural sector.

**REFERENCES**

Abang, S. O., Agom, D. I., Enyenihi, E. A., & Ele, I. E. (2008). Introduction to Farm Management: Principles, Plans, Budgets and Control. Calabar, Nigeria: King Judah Publishers.

Aderemi, T. A., Abalaba, B. P. Adeniran, A. A. & Amadi, C. E. (2020). Agricultural sector and employment generation in Post Sap Era Nigeria: An Empirical Perspective. *International Journal of New Economics and Social Sciences, 11(1), 185-196.*

Adeshina, K. F., Tomiwa, O. Y., & Eniola, O. M. (2020). Agricultural financing and economic performance in Nigeria. *Asian Journal of Agricultural Extension, Economics & Sociology, 38(7), 61-74.*

Akwara, A. F.; Akwara, N. F.; Enwuchola, J.; Adekunle, M. & Udaw, J. E. (2013). Unemployment and Poverty: Implications for national security and good governance in

Nigeria. *International Journal of Public Administration and Management Research*, 2(1), 1 –11.

Austine, E. N., James, P. B., Felix, P. D. & Folorunso, T. (2020). Effect of agricultural development on unemployment reduction in Nigeria: An error correction mechanism approach. *Ianna Journal of Interdisciplinary Studies, 2(1), 95-107.*

Ayeomoni, I. O., & Aladejana, S. A. (2016). Agricultural credit and economic growth nexus. Evidence from Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 6(2), 146-158.*

Ayinde, O. E. (2008). Empirical Analysis of Agricultural Growth and Unemployment in Nigeria. *African Journal of Agricultural Research,* 3(7), 20-25.

Ayodeji, E. A. (2019). Agricultural financing: a panacea to unemployment malady in Nigeria (2000-2017). *Account and Financial Management Journal, 4(10), 2031-2040.*

Ayomitunde, A. T., Pereowei, A. B., Abosede, A. A., & Eusebius, A. C. (2020). Agricultural sector and employment generation in post sap era Nigeria: an empirical perspective. *International Journal of New Economics and Social Sciences, 1(11), 185-196.*

Bernard, O. A., & Adenuga, O. (2017). Agricultural sector development as a panacea for employment generation in Nigeria. *International Journal of Economics, Business and Management Research, 1 (2), 251- 257.*

Chaido, D. & Melina, D. (2013). Phillips curve inflation and unemployment: an empirical research for Greece. *International Journal of Computational Economics and Econometrics, 3, (1/2), 27-42.*

Douillet, M., & Grandval, F. (2011). Nigeria's Agricultural Policy: Seeking coherence within strategic frameworks. Retrieved from http://www.inter-reseaux.org/IMG/pdf/p16-18_Agric_Policy.pdf

Egwu, P. N. (2016). Impact of agricultural financing on agricultural output, economic growth and poverty alleviation in Nigeria. *Journal of Biology, Agriculture and Healthcare, 6(2), 36-42.*

Enete, A. A., & Onyenekwe, C. S. (2021). Policy adjustments for enhanced agricultural production in Nigeria after covid-19 pandemic. *AgroScience, 20(4), 28-35.*

Inegbedion, H., Eze, S. C., Asaleye, A. J., & Lawal, A. I. (2019). Inventory management and organisational Cynthia C. F. Dikeogu- Okoroigwe., Osmond N. Okonkwo & Akunya L. Ifeanyichukwu 141 efficiency. *The Journal of Social Sciences Research, 5(3), 756-763.*

Matthew, A., & Mordecai, B. (2016). The impact of public debt on economic development of Nigeria. *Asian Research Journal of Arts & Social Sciences, 1(1), 1-16.*

Lucky, A. L., & Uzah, C. K., (2016). Determinants of capital formation in Nigeria: A test of Jhingan's Preposition 1981 – 2014. *IIARD International Journal of Banking and Finance Research, 2 (1), 1 – 19.*

Lucky, A. L., & Nwosi, A. A., (2016). Crude oil production and Nigerian economic growth: A test of Dutch disease and the paradox of plenty: 1981 – 2014. *IIARD International Journal of Banking and Finance Research, 2 (2), 20 – 41.*

Ogbanga, A. (2018). Agricultural Development and Employment Generation in Nigeria. *International Journal of Advanced Studies in Ecology, Development and Sustainability*, 5(1), 1-22

Ogbanga, A. (2018). Agricultural development and employment generation in Nigeria. *International Journal of Advanced Studies in Ecology, Development and Sustainability, 5(1), 1-22.*

Ogbanga, A. (2019). Agricultural Development and Employment Generation in Nigeria. *International Journal of Advanced Studies in Ecology, Development and Sustainability IJASEDS*, 5(1), 19-*34*

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.*

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.*

Orji, A., Ogbuabor, J. E., Alisigwe, J. N., & Anthony-Orji, O. I. (2021). Agricultural financing, agricultural output growth and employment generation in Nigeria. *European Journal of Business Science and Technology, 7(1), 75-90.*

Petershie, B. E. K. (2008). Management Economics (Revised Edition). Terror Publications, Accra, Ghana. Taiwo, I. O. (2001). Review and Appraisal of the Year 2000. Federal Government Budget performance. Central Bank of Nigeria Bullion, 25(1), 67-99.

Uzomba, P. C. & Otokutu, O. P. (2020). Agricultural funding based contributions and performance of Nigerian agricultural sector. *International Journal of Academic Research in Business and Social Sciences, 10(1), 331–349.*

Uzomba, P. C., Imoisi, A. I., & Somiari, S. (2012). The impact of macroeconomic variables on non-oil exports performance in Nigeria, 1986-2010. *Journal of Contemporary Research, 9(1), 1-17.*

Zhang, X.; Fan, S.; Zhang, L. & Huang, J. (2004). Local governance and public goods provision in rural China. *Journal of Public Economics*, 88, 2857–71.