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RESEARCH ARTICLE

Hunger spread and issues in government agricultural sector financial policies: Analysis of food security financing in Nigeria

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ABSTRACT - Although food security remains a problem in sub-Saharan Africa, studies have not assessed how food security financing propels food insecurity in Nigeria. The study analyses food security financing in Nigeria, explains the implications of finance accessibility for food supply in the country, and describes the challenges confronting food security financing in the country. The Public Interest Theory was adopted for the study from the perspective that whilst common goals are absent, different individuals pursue their goals separately, and this manifests as the profit-making objective of farmers or food suppliers. The study adopted an integrative literature review method to purposively select a total of 20 peer-reviewed journal articles published between the years 2018 and 2023. Data were collected through content analyses and thematically presented. The study revealed that food security is financed by individual farmers following poor funding from the government. The sources of funds available to individuals are both formal and informal. The implication of access to finance by those in the agricultural sector including farmers has been identified to include an increase in food supply. The challenges confronting food security have been identified to include profit motives by producers inducing inflation, climate change, poor electricity supply, insecurity, and inadequate finance. The study submitted that finance is key to attaining food security in Nigeria.

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1. INTRODUCTION

Food remains one of the three basic routine needs of human beings. After clothing and shelter, ensuring food accessibility by the booming population across the world has been captured in the United Nations' Sustainable Development Goals (UNSDGs) number two, which emphasises food security and sustainable agriculture. Food security, the condition in which the majority of a country's population can access food produced within their border and at an affordable price (Akinboyo, 2020), has continued to face threats in sub-Saharan Africa, including Nigeria. For instance, Ikudayisi, Okoruwa, and Omonona (2019) claimed that globally, about 795 million people are confronted with the challenges of food insecurity in that they do not have access to the required quantity and quality of food. Also, about 7.1 million of Nigeria's populace are confronted with the challenge of food insecurity, given the rate of poverty in the country (Ikudayisi et al., 2019). Food security is considered significant because its absence or poor supply implies a reduction in the livelihood of households and food consumption (Osabohien et al., 2020). Despite its importance, the production and access to food are expected to remain an issue for the human population, and the challenges are attributable to the continuous reduction in the available arable land for cultivation due to urbanization, increasing cost of farm tools, and insufficient credit accessibility by farmers, especially in Nigeria (Osabohien et al., 2020).

The increase in population has also been noted to increased food demand, while there is no corresponding supply, and this results in hunger in sub-Saharan Africa, including Nigeria (Izuogu, Olaolu, Azuamairo, Njoku, Kadurumba, & Agou, 2023). In a different perspective, Shepherd (2012) explained that hunger in the contemporary world is neither the outcome of a natural phenomenon nor the Thomas Malthusian unbalanced equation but rather a structural problem in the agricultural sector around the globe. The structural problem with food production across the world is the outcome of the profit-making goal of farmers and food suppliers. Hence, while there are small-scale farmers in the food production and supply business, corporations control food production and supply across the world, with the main goal of profit-making for their shareholders (Shepherd, 2012). As such, these corporations prefer selling their produced food or supplies at an expensive and profitable rate to wealthy consumers rather than cheap to poor consumers (Shepherd, 2012). Food insecurity results from such a gap in Nigeria.

In addition to the above, the challenges with food security in sub-Saharan Africa are associated with poor performance in agriculture, the effect of climate change, political instability, civil unrest, and the booming population issues (Nchanji, Chagomoka, Bellawood-Howard, Drescher, Schareika, & Schlesinger, 2023). Addressing the issues of food insecurity in sub-Saharan Africa requires agricultural-focused transformation (Nchanji et al., 2023), especially adequate finance. Mbelu and Ifionu (2022) argued that while the agricultural sector has the capability of providing food for the population, generating raw materials, and serving as a means of foreign exchange earnings for Nigeria, access to finance by those in the sector will allow for the acquisition of the needed instrument for mechanised farming. Also, the food economy,

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according to the explanation by Osabohien et al. (2020), has different stages inclusive of food processing, packaging, transportation, distribution, and retailing, and these require finance to function. This revealed that food security has many aspects beyond the production stage, and each stage is significant, especially in attaining SDG goal two of food security in the country.

The sustainable allocation of ten per cent of member countries' budget to the Agricultural sector has been agreed upon as a measure of ensuring food security, especially in sub-Saharan Africa, by the African Union in its Maputo Declaration on Agriculture and Food Security recommendation (Osabohien et al., 2020). This is aimed at ensuring that the required investment is made in the agricultural sector to drive food security on the continent of Africa. In Nigeria, the intention of successive governments to ensure food security in the country has stimulated the enactment of policies aimed at enhancing financial accessibility to the agricultural sector (Odunze, 2019; Osabohien et al., 2020). The policies have included the 1972 National Accelerated Food Production Program (NAFPP), the 1974 Agricultural Development Projects, the 1976 Operation Feed the Nation, the 1980 Green Revolution, the 1987 Better Life Programme, the 1990 National Fadama Development Project, 1996 Family Economic Advancement Programme, and the 2016 Agricultural Promotion Policy (Odunze, 2019; Osabohien et al., 2020). The listed agricultural policies have been identified to have failed in the purpose of their formulation because of the increase in the number of farmers trapped in poverty, the increase in the level of hunger, and sustained dependence on food importation in the country (Odunze, 2019).

Despite efforts to increase financial access to the agricultural sector to drive food security, accessibility to finance in the form of credit facilities remains low (Osabohien et al., 2020). It has been stated that the budgetary allocation to the agricultural sector has continued to drop in Nigeria below the Maputo Declaration. For instance, the allotted percentage of the budget to the agricultural sector in the year 2018 was 0.20 trillion of 9.12 trillion nairas, and this represented 2.2 per cent and 0.10 trillion of 7.44 trillion nairas representing 1.3 per cent was allotted in the year 2017 (Osabohien et al., 2020). Similarly, credit accessibility equally declined from 83.20 to 42.58 per cent between the years 2013 and 2019 (Osabohien et al., 2020). Even though the agricultural sector is confronted with challenges inclusive of climate change, urbanization, structural problems such as profit maximization by corporations, and inadequate human resources in the sector in the country (Shepherd, 2012; Olomola in Camillone, Ducker, Bruns, Onyibe, & Omotayo, 2020; Nchanji et al, 2023), access to finance is expected to boost the productivity of the sector (Mbelu & Ifionu, 2022). However, while the various policies of the government to avail the sector with funds have failed and propelled dependency on food importation and resulted in the spread of poverty among farmers in the country, it suffices to understand how the agricultural sector is being financed and how the financing induces commercialization of food production, which drives food insecurity in the country.

The study analyses food security financing in Nigeria, explains the implications of finance accessibility for food supply in Nigeria, and describes the challenges confronting food security financing in Nigeria. It raised questions such as: How is food security financed in Nigeria? What implications does food security financing have for the country's food supply? What are the challenges confronting food security financing in Nigeria? The study is significant because it provides information on food security financing in Nigeria. It seeks to contribute to the extant literature by assessing food security financing in the country. It provides a perspective on how extant policies on agricultural financing induce food insecurity in the country. It will stimulate further research in the subject matter in the country.

The study has five sections. The study was introduced in section one. In section two, a literature review was presented. The methodology is presented in section three. The content of section four is results and discussion. The study is concluded in section five.

2. LITERATURE REVIEW

2.1 Conceptual review on food security

The meaning of the concept of food security remains unknown, and this is owing to the diverse ways scholars from different fields have explained the term. The term has equally been used in different contests, which also influence its exact meaning. Food, for instance, has been explained by Simelane and Worth (2020) as a substance one eats and drinks to support life and body development, and of which water was argued not to be a part of food.

In the explanation of Nwozor, Olanrewaju, and Ake (2019), a hungry-free country is described as one with food security. Food security, according to Akinboyo (2020), is the condition in which the majority of the population of a country can access food produced within their border at an affordable price. The definition identified accessibility by the people to food produced locally, but not imported, within their country and at an affordable food price. It implies measures aimed at achieving self-sufficiency in food production. Food security has been explained as the ability of individuals to access fundamental nutritious food (Prince, Nzechie, Obiorah, Ehi, & Idakwoji, 2023). This definition does not emphasize food importation or self-sufficiency in food production by a country. Rather, it is more concerned with the capability of an individual to access nutritious food. However, the definitions are concerned with access to food. On the contrary, food insecurity has been described as the situation that occurs when people do not have access to adequate social, physical, and economic food (Prince et al., 2023). In this study, the definitions of food security reviewed were adopted.

2.2 History of Agricultural Sector Neglect in Nigeria

The increase in the inflow of revenue from the export of oil and gas since the discovery and production of commercial quantity in Nigeria informed the sudden transition from an agricultural-based economy to an oil-dependent economy (Matemilola & Elegbede, 2017; Ojong & Anam, 2018; Udemezue & Kanu, 2019; Ajekwe & Ibiamke, 2020). The outcome of the transition from an agricultural to an oil-dependent economy is food importation and the neglect of the agricultural sector (Matemilola & Elegbede, 2017; Ajekwe & Ibiamke, 2020). The neglect influenced the perspective of youths on taking up jobs in the agricultural sector. Job in the agricultural sector in the country is believed by the youths as having the capacity to 'condemn them to backwardness and dirty lifestyle associated with the elderly illiterate farmers' (Ajekwe & Ibiamke, 2020). Hence, while the Nigerian farmers' population is ageing and are incapable of deploying new technology to foster food production, the youth are not readily available to take up jobs in the 'poverty-tagged' agricultural sector of the Nigerian economy (Ajekwe & Ibiamke, 2020). Thus, there is a problem with the sustenance of the agricultural sector, given the challenges with human resources. Before the discovery and production of crude oil in commercial quantity in Nigeria, the agricultural system in place in the country around the 1940s and 50s was capable of food security because there was specialization of regions in the country in the production of different kinds of cash and food crop (Matemilola & Elegbede, 2017). For instance, the production of cash crops such as cocoa was identified with the western region, the northern region was identified with the groundnut pyramid, palm oil was a major output of the eastern region, and rubber plantation was attributed to the mid-west (Matemilola & Elegbede, 2017). The production of food crops existed along with the growth of cash crops.

However, with the discovery of crude oil and the neglect of the agricultural sector, Nigeria resulted in food importation (Matemilola & Elegbede, 2017). Usio and Enemona (2020) have explained that the decline in agricultural exports was due to the increase in crude oil exportation. Hence, while the revenue accruing from the sale of crude oil is available to a small portion of the Nigerian population, there are two categories of income earners in the country which are low- and high-income earners. The high-income earners are those benefitting from the oil revenue inflow, while among the low-income earners are farmers. Also, the majority in the low-income category of the economy suffer from high prices of food items as they can hardly afford the price of imported food items in the country (Matemilola & Elegbede, 2017; Ajekwe & Ibiamke, 2020). The development was responsible for food insecurity in Nigeria and stimulated the government's revamping quest for the country's agricultural sector. However, little is known about how financing the agricultural sector affected productivity and accessibility of food during the era.

2.3 Food Security Financing in Nigeria

The agricultural sector in Nigeria employs between 70 and 75 per cent of the Nigerian population and contributes about 20.9 per cent of Nigeria's Gross Domestic Product and GDP (Ajekwe & Ibiamke, 2020; Nwuba & Okoli, 2022). Osabohien et al. (2020) argued from the perspective of the food economy, which is believed to include activities at the farm level, including processing, packaging, transportation, distribution, and retailing, noting that about 85 million of the Nigerian population are employed. While 75 per cent of the food economy is employed in agriculture, 20 per cent are engaged in food processing and marketing, and 65 per cent are engaged in local communities (Osabohien et al., 2020). Nwuba and Okoli (2022) ranked the agricultural sector in the second position in terms of its contribution to the GDP, with a total of 40.1 per cent from 1981 to 2011. In contrast, the foreign exchange generated by the agricultural sector to the Nigerian economy declined from about 11 per cent in 1970-75 to about 2 per cent between 1991-95 (CBN cited in Nwuba & Okoli, 2022).

However, while a sizeable ratio of the population in Nigeria is still employed in the agricultural sector at a subsistence level (Matemilola & Elegbede, 2017), the country has become an almost mono-product export country since the discovery and production of crude oil in commercial quantity (Odunze, 2019). Revitalizing the neglected agricultural sector has informed the introduction of diverse measures by the government, but results have not been recorded through the approaches (Oduze, 2019; Osabohien et al., 2020; Nwuba & Okoli, 2022). Oduze (2019) reviewed the role of the agricultural promotion policy in enhancing entrepreneurship in the agricultural sector in Nigeria. The agricultural policy was noted to have been targeted at the reduction of dependence on crude oil and enhancing growth in the Nigerian economy through private sector partnership, agricultural input and output liberalization, and provision of necessary development in infrastructure (Oduze, 2019). However, the review of the policy revealed that restrictions affecting entrepreneurship in the sector include access to finance.

Silong and Gadanakis (2020) revealed in a study that 47.6 per cent of the sampled population accessed credit to finance their agricultural business in the study area, with fewer women than men. It was further revealed that semi-formal sources of loans were the most available and accessible to farmers. Hence, while more men were able to access credit from formal sources, more women were able to access it from non-formal. Factors influencing access to credit sources among farmers were identified to include education, group membership, and household size. Also, Osabohien et al. (2020) explained that a one per cent increase in farmers' access to agricultural finance implies a 0.002-0.006 per cent expected increase in food production. This implies that a level of access to agro-funding at a low rate motivates farmers to secure vital materials, including seedlings and machinery, and these will boost the production of agricultural materials (Osabohien et al., 2020). The submission has been supported by Mbelu and Ifionu (2022) that access to bank and community loans positively impacts agricultural production, and this can influence the gross domestic product of the country.

In another dimension, Ibrahim, Hendriks, and Schonfeldt (2023) have presented food insecurity from the perspective of land tenure. It has been noted that despite the smallholder farmers dominating the production of food in developing countries, they constituted the largest share of the food-insecure, poor, and hungry population (Ibrahim et al., 2023). Hence, evidence from Ibrahim et al. (2023) studies revealed that smallholders who possess the land for free are less likely to record high household dietary diversity scores (HDDS), owners of family-inherited plots are likely to consume diverse diets and acquire more assets, and owner of informal land documents was more likely to be food secure by recoding low expenditure share, high HDDS, and livelihood coping strategy.

To this end, revitalizing the agricultural sector has been aimed at the recruitment of agropreneurs, reduction in risk in the sector, ensuring living and lively income, empowerment for the marginalized farmers to encourage mechanization and reduce subsistence, and constant education to farmers to boost agricultural production (Owoade, 2019). However, financing the sector has remained a major challenge, and studies have focused more on these particular issues rather than understanding how this reality encourages the commercialization of food and results in food insecurity, especially in Nigeria.

2.4 Issues in the Agricultural Productivity in Nigeria

The productivity in the agricultural sector of any country, including Nigeria, is conditioned by factors from within and external to the country. In their analysis of the effects of globalization on the agricultural sector in Nigeria using data from the Central Bank of Nigeria Statistical Bulletin between 1986 and 2018, Akinwale and Obagunwa (2021) identified a relationship between productivity in the agricultural sector output and foreign direct investment, trade openness, and exchange rate. While it was noted that agricultural output is stimulated by trade openness, foreign investment, and exchange rate, the foreign direct effect on agricultural productivity is negative (Akinwale & Obagunwa, 2021). The reason for the negativity of foreign direct investments is that it will create food insecurity because the aim of such investment is profit-making. Usio and Enemona (2020), in their analysis of the impact of agricultural exports on economic growth in Nigeria, noted that agricultural export has a positive and significant nexus on growth in the economy, and it was further noted that the sector contributes 5 per cent to the economy growth of Nigeria, which is considered low. Ikenna, Oluwafemi, Onyohu, and Bashiru (2023) noted in their study that there is a unidirectional causality running from Agricultural export to inflation rate and also from exchange rate to inflation rate. Hence, for a country to gain or have foreign exchange, it is required to develop the agricultural sector to provide food and raw materials for non-agricultural sections. However, the agricultural sector is expected to be impacted by climate change, among others.

The manifestation of climate change in Nigeria has included desertification, rising temperatures, altered rainfall patterns, and rising heatwave levels, implying poor productivity in the agricultural sector (Prince et al., 2023; Mbanasor, Kalu, Okpokiri, Onwusiribe, Nto, Agwu, & Ndukwu, 2024). In a study by Akomolafe, Awoyemi, and Babatunde (2018) on the effects of climate change on agricultural productivity in Nigeria, it was revealed that climate change is insignificant in influencing agricultural productivity in the short run in the country but has implications in the long run. To contain the effect of climate change on productivity in the agricultural sector, Mbanasor et al. (2024) have recognized the emergence of Climate Smart Agriculture, CSA. The main factors encouraging the adoption of CSA have been identified to include household size, level of education, income, extension exposure, and farming experience (Mbanasor et al., 2024). Despite the existence of the CSA, the majority of the farmers are still tied to traditional methods of farming, such as bush burning and deforestation, which can enhance climate change (Mbanasor et al., 2024). Similarly, Oyawole, Ojo, Aminu, and Oyawole (2022) identified belonging to a cooperative society and formal education has the possibility of adopting Good Agricultural Practices, GAP among cotton farmers in Ogun State, Nigeria.

2.5 Challenges of Food Security Financing in Nigeria

The challenges confronting food security financing in Nigeria remain diverse. Herders/farmer crisis, disease control, insecurity, low level of technological adoption, and poor finance are some of the challenges confronting food security in Nigeria. Nwozor et al. (2019) remarked on the challenges of national security on food security in the country that the achievement of food insecurity remains impossible if the insecurity that pervades and envelopes farming communities are not resolved. Udemezue and Kanu (2019) have identified the resulting displacing of over three hundred thousand internally displaced farmers and over ten thousand deaths of farmers resulting from recurring violent conflicts in rural communities, especially between herders and farmers.

There are also the challenges of gender consideration in finance accessibility in agricultural cooperatives. Obianefo, Osuafor, and Ng'ombe (2021) evaluated the problems confronting women in agricultural sector cooperatives in southeast Nigeria and identified issues confronting women, including discrimination on an economic level, cultural factors, and age. It was further explained that women with poor economic status are less likely to have access to contemporary agricultural technology, labour, and infrastructure. Also, as a result of cultural factors, women could not possess land, farm inputs, and agricultural credit facilities. These practices are restrictive and affect food security in the country. The world has also continued to embrace digitalization, and the effect of this on the agricultural sector has been analysed. Izuogu et al. (2023), in their review of the digitalization of agriculture in Nigeria, noted that the development has the capacity for the removal of middlemen in the marketing of agricultural products, allowing for accessibility to agricultural products and improving the livelihood of small-scale farmers. Despite the significance of the development, it is said to require effective training, especially of the farmers, on usage to achieve its purpose.

2.6 Rural Electrification in Nigeria

Rural areas remain key to the economic growth of a country both as a producer of food items and markets for trading in domestic products and, as such, require electricity for purposes including home lighting, Small-Medium Enterprises (SME), irrigation/water pumps, crop processing, storage, cooling/refrigeration (including space cooling and vaccine refrigeration at health centres), recreation, telecommunication, and education. (Uzoma, Atama, Igwe, & Amadi, 2020). In countries with insufficient national energy supply, electricity distributors rarely consider remote communities due to their distant settlement, low electricity demand, and poor payment capabilities (Babalola, Daramola, & Iwarere, 2021). With evidence from the Ibogun community, Badejo, Ogunseye, and Olasunkanmi (2020) revealed that due to poor supply of electricity, about 46% of residents relied on power-generating for about 1 to 4 hours daily to augment shortage, and also, electricity infrastructure was in a poor condition. With the recent development in technology, renewable energy is expected to provide the rural populace access to clean and affordable energy. The poor supply of electricity is believed to affect about 70 per cent of residents' business and communication (Badejo et al., 2020). However, the study by Lawal (2022) argued that the problem with renewable energy harnesses in the country for rural electrification includes poor funding, high cost of renewable energy technology, low level of community involvement in the project, and non-existence of agency set-up for such purpose.

2.7 Theoretical Framework

The Public Interest Theory, PIT, is adopted for the study. The theory is considered appropriate for the study because intervention to correct free market inefficiency or inequality is in response to public demand (Downs, 1962; Posner, 1974; Cochran, 1974) from the government. The intervention has been identified to include taxes, subsidies, finances, grants, legislative, and administrative controls (Posner, 1974), availed to sectors including agriculture, which is key to food supply to serve the interests of the members of the public. Public Interest has been taken to imply the interest of isolated and autonomous individuals (Cochran, 1974). Hence, public interest is absent because the common good is absent as there is nothing good for the whole community, individual and group interests collectively, but each group, individual, and community pursues their goals (Downs, 1962; Cochran, 1974). The theory is adopted and applied to the study from the perspective that the absence of common goals or what constitutes public interest influences food security financing. Thus, while the government, individuals, and groups' goals are maximising profit, the same applies to groups inclusive of farmers or food suppliers. Hence, the goal of autonomous farmers or food suppliers to maximise profit is key to understanding food insecurity.

3. METHODOLOGY

The integrative literature review method is adopted for the study. The method is considered appropriate because while most integrative literature review intends to address mature, new, and emerging topics, the essence of using it is to overview the knowledge base, to critically review, potentially reconceptualize, and expand on the theoretical foundation of specific topics as it develops (Snyder, 2019). This is very relevant to the study because while the study is on food security in Nigeria, studies have been conducted on the area from different fields of study. Hence, using this method, issues can be critically reviewed, potentially reconceptualized, and expanded as it relates to food security financing in Nigeria. A total of 20 journal articles published between 2018 and 2023 were purposively selected for the study from a list of 50 randomly downloaded articles from scholar.google.com. Articles were purposively selected based on the relevance of their abstract to the study. Also, a total of 20 articles were considered enough to provide answers to questions raised and the stated objectives of the study. The selected articles were sourced using the keywords 'food security in Nigeria'. The study adopted thematic analyses to present information gathered from the selected studies.

Table 1. List of selected journal articles for the study

S/N	Name of Selected Author	Year of Publication	Findings of the study
1	Akomolafe et al,	2018	The result shows that climate change is insignificant in influencing agricultural productivity in the short run.
2	Odunze	2019	shows that the policy recognizes inherent constraints that have a bearing on entrepreneurship in the sector and goes to great lengths to provide clear policies on how to tackle each of them. The policy prioritizes partnership with the private sector and liberalization of the agricultural input and output markets, is gender and age-sensitive, and recognizes the need for infrastructural development especially in rural areas to create an enabling environment for entrepreneurial opportunities amongst other issues.
3	Owoade	2019	identified transformers to include the need to ensure sustainable food security and make the country competitive in food production, diversify the revenue base, generate employment, and reduce government involvement and high incidence of poverty in rural areas.

Table 1. (cont.)

S/N	Name of Selected Author	Year of Publication	Findings of the study
4	Nwozor et al	2019	finds that the achievement of food security would be impossible if the insecurity that pervades and envelopes farming communities is not resolved.
5	Ajekwe & Ibiamke	2020	it is appreciated that two problems confront youths contemplating a career as agri-preneurs: What type of agricultural business to start? How to raise capital to start an agricultural business? To realistically capitalise on initial interest and enthusiasm for agriculture, potential entrepreneurs are urged to start small with simple projects capable of producing cash rewards in the short term. Buying, storing and distributing agricultural produce, mini-livestock farming (e.g., raising snails, rabbits, etc.) and vegetable gardening are good examples of agricultural businesses to start with; these businesses take up little space and/or require little capital but can yield significant revenue quickly.
6	Badejo et al.,	2020	Findings revealed that the Ibogun community is a literate society dominated by the low-income class. 26% of its residents relied on the electricity service provider (ESP) for electricity supply whereas 69.7% received electricity supply from both ESP and alternatives, particularly power-generating sets. Because of the inadequate electricity supply, about 46% of residents used power-generating sets between 1 to 4 hours daily to augment the shortage. Most residents received estimated electricity bills, which indicate electricity consumption in the community is not metered. 42.6% confirmed electricity infrastructure was in a poor state and 50% rated electricity supply as poor. About 70% of the residents were affected by poor electricity supply but the greatest negative impacts were imposed on residents' businesses and communication. The major problem of electricity supply was the climate impacts on electricity infrastructure.
7	Osabohien et al	2020	the result implies that a 1% increase in farmers' access to agricultural finance is associated with an increase in food production by 0.002%–0.006%.
8	Silong & Gadanakis	2020	Findings reveal only 47.6% of the participants accessed credit, with fewer women accessing it than men. The most accessed forms of credit are from semi-formal sources, with more men accessing from formal sources and more women from non-formal sources. Factors having a significant influence on credit demand generally are education, group membership, and household size. Formal, semi-formal, and non-formal credit sources are 1); education, information on sources of credit, deposits, household size, and marital status, 2); education, deposits, group membership, household size, flock size, and 3); education, group membership, and gender from the non-formal credit providers, respectively.
9	Camillone et al	2020	argues that taking a farmer-centric educational approach to agricultural extension, rather than a farm-centric business approach, will have the most profound and sustained impact on Nigerian agricultural development.
10	Usio & Enemona	2020	Results from the OLS regression model show that agricultural exports had a positive and significant relationship with economic growth, therefore, providing evidence that the agricultural sector contributes significantly to GDP growth in Nigeria. The findings also show that at a 5 percent critical level agricultural export increases economic growth by 5 percent. The Co-integration test result indicated that there exists a long-run relationship among the variables. The contribution of agricultural exports of 5 percent is however low.
11	Akinwale & Obagunwa	2021	The result of the Bound co-integration test indicated that there is a long-run relationship among agricultural sector output, foreign direct investment, foreign portfolio investment as a percentage of gross domestic product, trade openness, and exchange rate. The result of the ARDL revealed that trade openness, foreign portfolio investment, and exchange rate stimulate agricultural sector output while foreign direct investment negatively influences agricultural sector output in Nigeria.

Table 1. (cont.)

S/N	Name of Selected Author	Year of Publication	Findings of the study
12	Obianefo et al	2021	found that cultural factors increase women's failure to own land, farm inputs, and agricultural credit. Additionally, the results show that compared to men, institutional factors increase women's unequal access to extension training as well as their domestic workload. We also found that older women face fewer challenges in the agricultural sector cooperatives than younger ones while more educated ones face more challenges.
13	Izuogu et al.	2021	Digitalization of agriculture has reduced the role of middlemen, provided opportunities for farmers to expand their markets, and improved the linkage between extension and research centres, and the productivity and livelihood of small-scale farmers. Training needs for effective digitalization of agriculture were in skills, use of relevant digital services, digital privacy, and security risks. Challenges of digitalization of agriculture were lack of technical skill, poor infrastructure, and high cost of purchase and maintenance.
14	Uzoma et al.	2021	shows that the electricity situation in rural areas is abysmal. Consequently, rural living standards are very low, due to a lack of income opportunities.
15	Lawal	2022	finds that inadequate funding of rural electrification programs, high initial costs of renewable energy technology, and absence of community participation coupled with the absence of a body with a specific mandate to promote the use of renewable energy for rural electrification are major barriers to rural application of renewable energy.
16	Mbelu & Ifionu	2022	The study identified, in the long run, that; the agricultural credit guarantee scheme fund shows a positive and significant influence on the gross domestic product in Nigeria. The commercial bank loans and community – -micro-finance bank loans show a positive and significant influence on the gross domestic product in Nigeria within the reference period.
17	Nwuba & Okoli	2022	The identified challenges or limitations consist of marketing problems, infrastructure deficiencies, and unstable input and output prices.
18	Oyawole et al.	2022	The result showed that off-farm income positively influenced the adoption of GAPs. Male farmers were more likely to adopt these practices relative to women, probably as a result of culturally defined gender roles that limit women's access to productive resources.
19	Ibrahim et al	2023	The regression results showed that smallholders who owned land and acquired plots for free were less likely to have high Household Dietary Diversity Scores (HDDS). On the other hand, owners of family-inherited plots were more likely to consume diverse diets and hold more assets. Holders of informal land documents were more likely to be food secure by having a low food expenditure share, high HDDS, and Livelihood Coping Strategy (LCS).
20	Prince et al	2023	Impacts of climate change on Nigeria's food security include increased droughts, desertification, pests and diseases, unpredictable weather, decreased fishery productivity, and limited access to resources and technology. To mitigate these impacts and enhance resilience, the study suggests various adaptations and strategies such as crop diversification, utilization of improved varieties, efficient water management, sustainable soil practices, climate-smart agriculture, capacity building, access to credit and insurance, policy support and coordination, climate information systems, and the establishment of farmer cooperatives and sustainable value chains.

Source: *Authors' compilation*, 2024

4. RESULTS AND DISCUSSION

4.1 Food Security Financing in Nigeria

Food security financing in Nigeria has involved the individual, cooperative society, formal and informal organisations, and government. The African Union, in its Maputo Declaration on Agriculture and Food Security, recommended that member countries should commit ten per cent of their budget to the Agricultural sector as a measure of ensuring food security, especially in sub-Saharan Africa (Osabohien et al., 2020). Similarly, Silong and Gadanakis (2020) identified credit accessibility as another source of finance for agriculture, and the most accessed forms of credit are from semi-formal sources, with more men accessing from formal sources and more women from non-formal sources. There are also commercial bank loans and community –micro-finance bank loans (Mbelu & Ifionu, 2022). Oyawole et al. (2022) showed that off-farm income positively influenced the adoption of Good Agricultural Practices. Male farmers were more likely to adopt these practices relative to women, probably as a result of culturally defined gender roles that limit women's access to productive resources. Silong and Gadanakis (2020) revealed that only 47.6% of the participants in the study accessed credit facilities, with fewer women accessing them than men. Factors having a significant influence on credit demand generally are education, group membership, and household size.

4.2 Implications of Finance Accessibility for Food Supply in Nigeria

Finance accessibility is expected to drive agricultural productivity. Osabohien et al. (2020) stated that a 1% increase in farmers' access to agricultural finance is associated with an increase in food production by 0.002%–0.006%. Mbelu and Ifionu (2022) identified that in the long run, the agricultural credit guarantee scheme fund, commercial bank loans, and community –micro-finance bank loans show a positive and significant influence on the GDP. Akinwale & Obagunwa (2021) claimed the long-run relationship among agricultural sector output, foreign direct investment, foreign portfolio investment as a percentage of gross domestic product, trade openness, and exchange rate. Also, it was revealed that trade openness, foreign portfolio investment, and exchange rate stimulate agricultural sector output while foreign direct investment negatively influences agricultural sector output in Nigeria.

4.3 Challenges of Food Security Financing in Nigeria

The problems confronting the attainment of finance for food security are numerous, and these are evident in studies and presented as follows;

a. Climate Change Challenges

Climate change has constituted one of the factors influencing food security in Nigeria. Prince et al. (2023) revealed the impacts of climate change on Nigeria's food security include increased droughts, desertification, pests and diseases, unpredictable weather, decreased fishery productivity, and limited access to resources and technology.

b. Electricity Accessibility Challenges

In farming communities in Nigeria, electricity accessibility remains one of the issues affecting farmers and dwellers. Badejo et al. (2020) noted that due to the inadequate electricity supply, about 46% of residents used power-generating sets between 1 to 4 hours daily to augment the shortage. Lawal (2022) finds that inadequate funding for rural electrification programs, high initial costs of renewable energy technology, absence of community participation coupled with the absence of a body with a specific mandate to promote the use of renewable energy for rural electrification are major barriers to the rural application of renewable energy. Uzoma et al. (2021) show that the electricity situation in rural areas is abysmal. Consequently, rural living standards are very low due to a lack of income opportunities.

c. Agro-Product Marketing Challenges

Food security features distribution as one of its core areas. However, this constitutes a major issue for farmers. Nwuba & Okoli (2022) identified challenges or limitations consisting of marketing problems, infrastructure deficiencies, and unstable input and output prices for agricultural products.

d. Cultural Issues in Agricultural Financing Accessibility

Cultural factors also affect food security due to the preference for males over females. Obianefo et al. (2021) argued that cultural factors increase women's failure to own land, farm inputs, and agricultural credit. Additionally, older women face fewer challenges in the agricultural sector cooperatives than younger ones, while more educated ones face more challenges.

e. Issues with Security in Farming Community

Insecurity has also been confronting farming communities in Nigeria. Nwozor et al. (2019) noted that the achievement of food security would be impossible if the insecurity that pervades and envelopes farming communities is not resolved.

4.4 Data Analysis

The source of finance for food security in Nigeria has been identified to include formal, informal, foreign direct investment, and government (Badejo et al., 2020; Osabohien et al., 2020; Babalola et al., 2021). The funds availed by the government to the agricultural sector remain low (Olomola cited Camillone et al., 2020), and this is responsible for funding sourced from formal as well as informal. The poor finance availed to the agricultural sector has manifested in the poor electricity supply to rural areas (Badejo et al., 2020; Babalola et al., 2021) and the decline of youths to take up jobs in the sector (Ajekwe & Ibiamke, 2020). This evidence supports the claim that while subsistent farming exists, corporations control agricultural activities to generate profit for shareholders (Shepherd, 2012). Hence, this validates the theory of investment adopted for the study that cost, return, and expectations are the three determinants of investment.

The supply of food is noted to have been conditioned by access to finance by investors in the sector. Mbelu and Ifionu (2022) argued that access to finance has a long-term implication on supply. Osabohien et al. (2020) have also claimed that access to funds influences the productivity of the agricultural sector. The decline in agricultural productivity in the country has been traced to the failed finance available for use in the agricultural sector (Matemilola & Elegbede, 2017; Ojong & Anam, 2018; Udemezue & Kanu, 2019; Ajekwe & Ibiamke, 2020; Osabohien et al., 2020). This finding confirms the claims of earlier studies. The challenges of food security in Nigeria have been identified to include poor finance (Osabohien et al., 2020), rejection of careers in the sector by the youth (Ajekwe & Ibiamke, 2020), profit motive of producers and widespread hunger (Shepherd, 2012), climate change, political unrest (Nchanji et al., 2023 Prince et al., 2023; Mbanasor et al., 2024), poor integration of renewable source of energy in rural areas (Lawal, 2022). These findings validate the claims in existing studies.

5. CONCLUSION

The study is motivated by explaining how agricultural financing induces the commercialisation of food production and propels food insecurity in the country, analyses food security financing in Nigeria, explains the implications of finance accessibility for food supply in the country, and describes the challenges confronting food security financing in the country. The study adopted an integrative literature review method for the study to identify, select, and analyse existing literature. It was revealed that food security is financed by private individuals following poor funding from the government. The sources available to individuals are both formal and informal. The implication of access to finance by those in the agricultural sector has been identified to include an increase in food supply. The challenges confronting food security have been identified to include profit motives by producers inducing inflation, climate change, poor electricity supply, and inadequate finance. The study concluded that food security can be attained in the country if there is an increase in the level of finance accessible by investors in the sector.

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AVAILABILITY OF DATA AND MATERIALS

The data supporting this study's findings are available on request from the corresponding author.

ETHICS STATEMENT

Not applicable

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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