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The Socioeconomic Characteristics of Rice Production in Yobe North, Yobe State, Nigeria.

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Abstract

Rice production plays a significant role in food security and rural livelihoods in Yobe State, Nigeria. Yet farmers' socioeconomic characteristics significantly influence output. This study examines the socioeconomic profile of rice producers in Yobe north, focusing on age, gender, education, farming experience, farm size, access to credit, and extension services. Data were obtained through structured questionnaires administered across selected rice producing local government areas and analyzed using descriptive statistics. Findings reveal that rice production is dominated by middle-aged male farmers (97.3%) with limited formal education (45.2%). Operating mainly on small-scale farms (43.8%) and relying heavily on family labour. Although Farmers possess considerable experience, access to improved inputs, extension services, and formal credit remains low. Rice farming constitutes a major source of household income, but productivity is constrained by socioeconomic and institutional challenges. The study highlights the need to improve access to education, credit availability, and extension services to enhance productivity and rural income.

Keywords: Rice production, socioeconomic characteristics, farmers

1. Introduction

Agriculture continues to be one of the most important sectors of the global economy. Contributing significantly to Gross Domestic Product (GDP), ensuring food security and provides employment opportunities for a large proportion of the population. Globally, agriculture provides employment for about 28% of the world's employed population (ILO, 2026). In Africa over 50-60% of the labour force in many African countries, particular Sub-Sahara Africa (ILO, 2026). While in Nigeria the sector accounts for about 33.53% of total employment as of 2025 (World Bank, 2025). Globally rice production is largely dominated by smallholder farmers. Whose socioeconomic characteristics significantly influence productivity, efficiency and income levels. Studies across Asia, Africa and other developing regions consistently identify factors such as age, education, farming experience, farm size, labour availability, access to credit and extension services as key determinants of rice production outcomes.

Rice production is a significant factor in Nigerian's economy, providing employment, income and food, for a large proportion of the population particularly in rural areas. Among staple crops, rice has gained significant importance due to its rising consumption and contribution to national and household food security (Ojo et al., 2020). Despite various policy efforts aimed at boosting domestic production. Nigeria continues to face a gap between rice demand and supply,

making local production a key development priority.

In Yobe state, particularly in Yobe north rice production constitutes a major livelihood activity for rural farmers. The region possesses favourable ecological conditions for rice cultivation, especially through the availability of fadama (lowland) areas and seasonal water sources (Boso, 2025). However, rice farming in Yobe north is predominantly characterized by traditional, smallholder production systems. Farmers largely depend on rain-fed agriculture and floodplain cultivation, making production highly vulnerable to climate variability and water constraints (Madaki et al., 2025). Farming practices in the area are mainly labour intensive, relying heavily on family labour and simple farm tools, with minimal mechanization. The use of improved inputs such as high yielding seed varieties, fertilizers, and agrochemicals remains limited. In addition, post-harvest handling and processing techniques are often inefficient, contributing to yield losses and reduced rice quality (FAO, 2023). Consequently, rice production in the region remains largely subsistence-oriented with only a small proportion of output marketed.

These production characteristics are closely linked to the socioeconomic attributes of farmers, including their age, education, farming experience, access to credit, and extension services. These factors influence farmers' ability to adopt improved technologies, access productive resources and enhance efficiency. Despite the importance of rice farming in the area, productivity remains low and the sector continues to face multiple socioeconomic and institutional constraints. This situation raises concerns about the ability of farmers to meet increasing demand and improve their livelihoods (FAO, 2022: AfricaRice, 2020).

Statement of the problem

Despite the growing importance of rice as a staple food in Nigeria. Domestic production has not kept pace with increasing demand, leading to continued reliance on imports. In Yobe north rice farming is a major economic activity, yet productivity remains low and largely subsistence-based. This persistent low output is not only a function of environmental constraints but is also closely linked to the socioeconomic characteristics of farmers. Many farmers in the region operate on small-scale farms, with limited access to modern inputs, formal education, credit facilities and extension services. These limitations hinder their ability to adopt improved farming practices and technologies that could enhance productivity. Additionally, issues such as inadequate institutional support, resilience on traditional tools systems and poor access to markets further constrain production. Despite the growing body of literature on rice production in Nigeria, significant gaps remain in understanding the specific dynamics of rice farming in Yobe north. Most existing studies at the national and regional levels tend to generalized findings across diverse agro-ecological and socioeconomic contexts. Thereby, overlooking location specific realities that shaped production outcomes. Another major gap lies in the limited empirical evidence on the socioeconomic characteristics of rice farmers in Yobe north. Given the region's distinct socio-environmental and economic conditions, particularly its semi-arid climate, farmers dependence on fadama farming systems and persistent security challenges. There is need for location specific studies on rice production in Yobe north. Broad generalizations may not adequately capture the realities of local production constraints. Also, there is a lack of integrated analysis linking

socioeconomic factors directly to production outcomes in the area. Many studies focus either on agronomic practices or broad rural livelihoods without explicitly examining how farmers' characteristics influence productivity, efficiency and income levels in rice farming. These factors are important for understanding the sustainability and future of rice farming in the region. The key gap lies in the absence of context-specific, data-driven analysis that captures the unique socioeconomic realities of rice farmers in Yobe north and clearly links these factors to production performance. Therefore, there is need to systematically analyse the socioeconomic attributes of rice farmers in the region and how these factors affect production outcomes.

The specific objectives are to:

i. analyses the socioeconomic characteristics of the rice farmers
ii. examine how these socioeconomic attributes affect rice production outcomes
iii. identify the major socioeconomic constraints affecting rice production

2. Literature Review

Globally rice production is strongly influenced by farmer's socioeconomic conditions such as education, access to inputs, and institutional support. A study by Food and Agriculture Organization (FAO, 2021) shows that smallholder farmers dominated global production. Particularly in Asia and Africa, are often constrained by limited access to credit, land and technology. The study further highlights that increasing demand for rice globally has not been matched by production due to structural and socioeconomic limitations among farmers. Socioeconomic inequalities especially in access to land, credit and information are major determinants of rice productivity worldwide (Mishra, et al., 2022). Ishfaq et al., (2020), highlights that global rice production efficiency depends heavily on farm size, household labour and resources access with smallholders facing persistent structural limitation. Smallholders' farmers dominate in many regions such as southeast Asia where most rice producers are small-scale, about 900 million of the world's poor depend on rice as producers or consumers (Mishra, et al 2022; Chang, Benjamin, & Sauer, 2024)

A study by Shan Shan, (2024) found that socioeconomic variables such as economic conditions, population dynamics and environmental factors strongly influence global food and rice production systems. The study emphasized that access to financial resources, institutional support and productive assets remain critical to improving agricultural productivity worldwide. Similarly, Islam et al., (2020) observed that rice production systems globally face challenges related to resource management, labour availability and environmental sustainability. The study further highlighted that efficient farm management practices and access to improved technologies are essential for maintaining rice productivity. Literature underscores the importance of resource accessibility and institutional support in enhancing agricultural productivity. However, while Shan Shan, focused more broadly on global socioeconomic and environmental influences on food systems, Islam et al., concentrated specifically on farm management and technological efficiency in rice production systems.

In Southeast Asia, a study by Thangrak et al., (2020) conducted among rice farmers in Cambodia, revealed that most rice farmers were elderly, operated on a small-scale production, with low educational attainment and limited training in rice production. The study further showed that

family labour constituted the major source of labour, while many farmers operated below the poverty line. Likewise, a study by Delco, (2020) on rice farmers in the Philippines found that farmers' socioeconomic characteristics including education level, household size and farming experience significantly influenced farming practices and productivity. The study also emphasized the importance of training and institutional support in improving rice production efficiency. Empirical evidence agree that farmers' socioeconomic characteristics significantly affect rice production and productivity.

In Africa rice production is largely dominated by smallholders' farmers with limited resources, and their socioeconomic characteristics significantly affect output (FAO, 2020). According to Nasrin et al., (2015) found out that across country like Ghana, Tanzania, and Mozambique, rice farmers are typically small-scale producers. Highly dependent on family labour and has limited access to markets and inputs. Another study by Mwalyagile et al., (2024) found out that Gender also plays a major role in sub-Sahara Africa show that female farmers face disadvantages in land ownership, credit access and commercialization, which reduces productivity compared to male farmers.

Several empirical studies in Nigeria demonstrate that socioeconomic characteristics significantly influence rice production outcomes. For instance, Farinde et al., (2020) in a study conducted in Niger state, reported that 92% of rice farmers were male, with a mean age of 45 years. The study further revealed that the majority of farmers relied on personal savings due to limited access to formal credit. While poor extension services and inadequate access to inputs constituted major constraints to rice production. Similarly, Apuyer et al., (2023), also in Niger state found that the average age of rice farmers was 38 years. With most respondents being married and having large household sizes. About 59% of the farmers had formal education, while 72% operated on a small-scale basis. According to Oluwaseyi et al., (2025) in Osun state, indicated that rice farmers had an average age of 44 years, with males constituting 83% of the farming population and an average farm size of 2 hectares. The study further revealed that most rice farmers was predominantly small-scale and characterized by low-income levels. These findings reflect the broader structure of rice farming in many parts of Nigeria. Where subsistence and smallholder farming dominate the agricultural landscape. Additionally, Fidelugwuowo, (2021) found that only 49% of rice farmers had access to agricultural information. This finding complements the study by Oluwaseyi et al., 2025 by indicating that, beyond financial constraints and small farm holdings, limited access to extension services and agricultural information also affects farmers productivity and decision-making abilities. In contrast, Ebukiba & Ogbole, (2020) approached the issue from a broader socioeconomic characteristic. Arguing that variables such as, income level, education, access and household structure influence rice production and profitability. Their argument suggests that farmers with better education, stronger financial capacity and easier access to institutional credit are more likely to adopt improved farming technologies and achieves higher productivity levels. Comparatively, all three studies agree that socioeconomic conditions are central determinants of rice farming performance in Nigeria. Together, the studies demonstrate that rice production is not determined by farm size alone, but also by the interaction of education, income,

information access, credit availability and households' dynamics.

Bello and Mbhele (2024) and Bichi et al., (2023) examined factors influencing rice production in different regions and reported both similarities and variations in their findings. Bello and Mbhele (2024) emphasized the broader socioeconomic challenges faced by rural farmers, including issues related to land ownership, limited financial resources, and low level of education. These factors were found to indirectly affect rice production by constraining farmers' ability to adopt improved farming practices and access essential production resources. In contrast, Bichi et al., (2023) placed greater emphasis on demographic and socioeconomic variables, particularly the educational level of farmers, as a direct determinant of rice production activities. Their study revealed that farmers with higher levels of education were more likely to adopt improved technologies and management practices. Thereby enhancing productivity, overall, both studies underscore the importance of socioeconomic factors, although they differ in the extent to which these variables differ directly or indirectly influence rice production outcomes.

In summary, the studies overall collectively demonstrate that rice production across different regions in the world is shaped by socioeconomic conditions, access to resources, institutional support and demographic characteristics of farmers. Despite differences in geographical locations and farming systems, the studies share several similarities regarding the importance of resource accessibility and modern technologies remains essential for enhancing rice productivity and ensuring sustainable agricultural development globally.

Theoretical Framework

The study is anchored on Human Capital Theory and the Agricultural Household Model. The Human Capital Theory developed by Theodore Schultz in 1960s emphasizes the importance of education, skills and experience in enhancing farmers' productivity and decision-making capacity. The theory is particularly relevant to this study as it explains variations in rice production among farmers with different educational background and levels of farming experience. It suggests that farmers who possess greater knowledge, technical skills, and experience are more likely to adopts improved farming practices and achieve higher productivity levels.

The Agricultural Household Model developed by Inderjit Singh, Lyn Squire and John Strauss in 1986, provides another theoretical foundation for the study. The model explains that farm households' function simultaneously as producers and consumers. It emphasises that decisions related to production and the allocation of resources such as, labour, land, and capital are interrelated within rural households and are often influenced by existing constraints. These interconnected decisions ultimately affect agricultural production and household livelihood outcomes. Therefore, the model is useful in explaining how socioeconomic and household factors influence rice production among farmers in Yobe north.

In line with these theories the study adopts a descriptive research design to analyses data collected from rice farmers. Variables relating to the socioeconomic characteristics of the respondents were examined to determine their influence on rice production in Yobe north.

3. Methodology

Study Area

The study was conducted in Yobe North, Yobe State, which is located in northeastern Nigeria. Yobe state was carved out of Borno state on August 27th, 1991 and is primarily an agricultural state. Its terrain consists of plains drained by the seasonal Komadugu Yobe River and its tributaries in the north, as well as the Gongola River in the south. Yobe shares borders with Borno to the east, Bauchi to the west, Gombe to the southwest, and Jigawa to the northwest. It also borders Diffa and Zinder regions of Niger Republic to the north. The state lies mainly in the dry Savanna belt, characterized by scattered acacia trees. The far north consists of sandy soil and thorn scrub. The climate is predominantly hot and dry throughout the year, except in the southern part which has a milder climate. Yobe State is situated between latitudes 11^{o}N and longitude 13.5^{o} E (figure 1.1). It covers a land area of 45,502 Square Kilometers, of which about 85 percent is arable land.

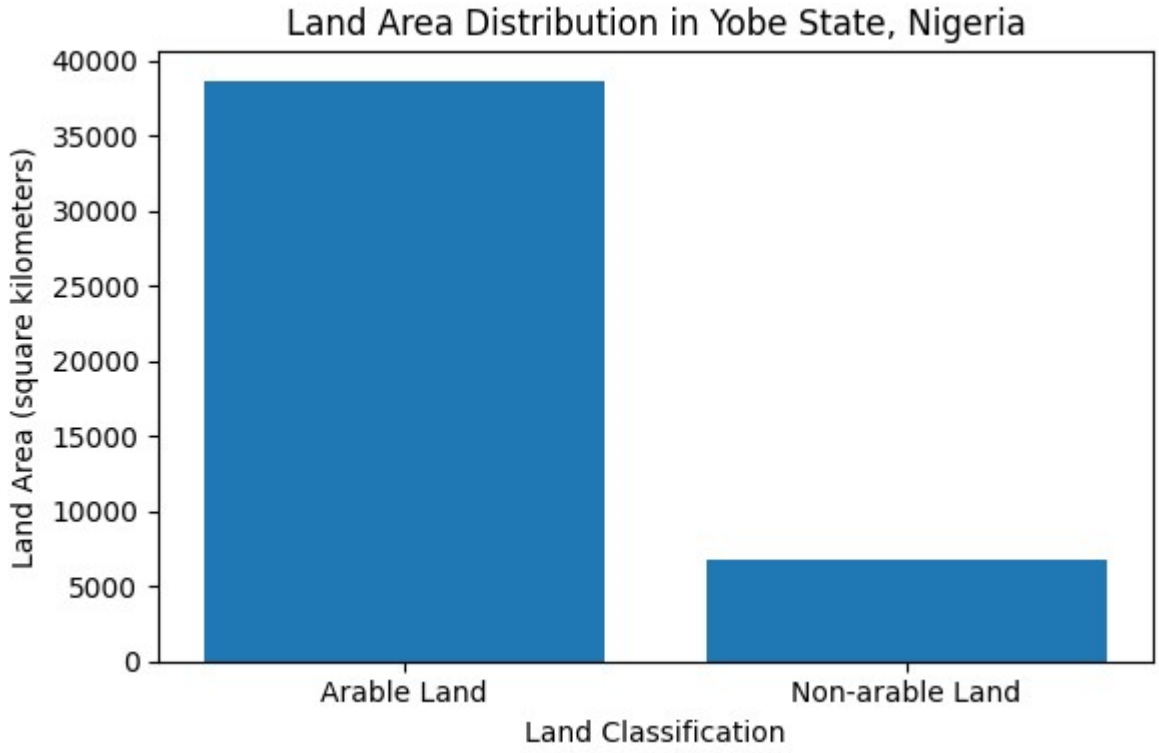

Figure 1.1. land classification of Yobe state
Source: fieldwork, 2024

Research Design

This study adopted a descriptive research design. This design was considered appropriate because it enables the systematic description and analysis of the socioeconomic characteristics of rice farmers in Yobe north. It also allows for the collection of quantitative data to describe farmers' profiles and production conditions. A multistage sampling technique was employed to select 400 respondents from these four LGAs. Data collection methods include Questionnaires. The questionnaire was administered to farmers, including, leaders of farmers' association, village rice farmers, villages heads, and officials of the state ministry of agriculture and rural development.

Sources of Data

The study employed both primary and secondary data sources. Primary data was gathered through the use of questionnaire. Secondary data were obtained from various relevant sources, including journals, textbooks, internet resources, and other pertinent literature. The questionnaire incorporated both open-ended and close-ended questions designed to elicit relevant information from the respondents. Although the questionnaire was developed in English, it was administered in the local dialect, when necessary, with the help of research assistant.

Population of the Study

The population for this study comprised all rice farmers, as obtained from the list of registered farmers provided by the Yobe State Agricultural Development Programme (YOSADP). The target population consisted of all rice farmers from four Local Government Areas (LGAs).

Sample size and Sampling Techniques

A total sample size of 400 farmers was used for the study. A multistage sampling technique was employed. First stage, selection of the four local government areas (Bade, Jakusko, Karasuwa, and Nguru). In the second stage, purposive sampling was applied to select five communities from each LGA, resulting in a total of 20 communities. Third stage, random selection of rice farmers from the selected communities.

Method of Data Analysis

Descriptive and inferential statistical techniques were employed for the data analysis in this study. Descriptive statistics, such as frequency, percentages and means were used to summarised and present the socioeconomic characteristics of rice production farmers. These statistical tools facilitate the organisation, description, and interpretation of the variables under investigation. Thereby providing a clearer understanding of the respondents' characteristics and production conditions.

Multiple regression analysis was employed in this study to explain variations in rice production among farmers. In this model rice output was specified as the dependent variable, while various socioeconomic characteristics of rice farmers served as the explanatory variables. The techniques were considered appropriate for assessing the extent to which these socioeconomic factors influence differences in production levels among farmers.

The model is explicitly expressed as follows:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11},$

Where:

Y = Rice production (in kilograms)
X1 = Age (in years)
X2 = Gender
X3 = Education level (certificate)
X4 = Farm size (in hectares)
X5 = Household size (number of persons)
X6 = Income (in Naira)
X7 = Occupation
X8 = Access to credit
X9 = Extension services
X10 = Farming experience (in years)
X11 = Rice varieties
εi = Error term

4. Results and Discussion

The results presented in Table 1.1 provide insights into the socioeconomic characteristics of the respondents, who were (rice farmers). The findings revealed that the majority of the respondents (97.3%) were male, while only (2.8%) were female. This indicates that rice farming in the study area is predominantly a male-dominated activity. The disparity can be attributed to the physically demanding and labour-intensive nature of rice farming, which is

often perceived as a male responsibility due to men's generally greater physical strength. In contrast, societal norms in many regions tend to allocate women to domestic roles or lighter agricultural tasks.

The study further revealed that the majority of the respondents (58.5%) were within the age range of 35-44 years, followed by those aged 25-34 years, accounting for (16.0%). The smallest proportion of respondents (2.8%) fell within the 15-24 years age range. The mean age of the respondents was 42 years, suggesting that the rice farmers were primarily in their prime years. This age group is typically characterized by a high level of energy, enthusiasm, and dynamism, which likely enables them to effectively navigate the challenges associated with rice production.

The educational levels of the respondents showed a slight difference between those with formal education and those with non-formal education. The majority of respondents (40.5%) had non-formal education, closely followed by those with senior secondary school education (45.2%). The smallest proportion of respondents (3.0%) had attained tertiary education. These findings indicate that the level of education among rice farmers in the study area is relatively low, highlighting the need for further educational development. This suggests that many rice farmers in the region would benefit from formal education programs. Literacy and numeracy initiatives tailored to their specific needs could significantly enhance their ability to access and utilize agricultural information, thereby improving their farming practices and boosting rice production. Such educational interventions would empower farmers to adopt more effective agricultural techniques and contribute to the overall development of the sector.

Table 1.1 Socioeconomic characteristics of respondents

Socioeconomic Characteristics	Frequency	Percentage (%)	Mean
Gender			
Female	11	2.8	
Male	389	97.3	
Age			
15-24 yrs	11	2.8	
25-34 yrs	64	16.0	
35-44 yrs	234	58.5	42
45-54 yrs	56	14.0	
55-64 yrs	23	5.8	
Above 64 yrs	12	3.0	
Level of education			
None formal education	162	40.5	
Primary school	45	11.3	
secondary school	181	45.2	
Tertiary institution	12	3	
Marital Status			
Divorce	1	0.3	
Married	345	86.3	
Single	49	12.3	
Widowed	5	1.3	
Primary Occupation			
Civil servant	56	14.0	
Farmer	340	85.0	
Trader	4	1.0	
Household size			
Less than 5	114	28.5	
6-10	177	44.3	8
11-15	73	18.3	
Above 15	36	9.0	

Farm size			
Less than 1	12	3.0	
2 – 5	105	26.3	
6 –- 8	175	43.8	4.5
Above	108	27.1	
Farming experience (years)			
1—5	49	12.3	
6—10	79	19.8	
11—15	207	51.8	14
16-20	38	9.5	
Above 20	27	6.8	
Annual income from rice production			
#0 - #50,000	2	0.5	
#51,000 - #100,000	45	11.3	
#101,000 - #150,000	68	17.0	
#151,000 - #200,000	98	24.5	165,000
Above #200,000	234	58.5	
To which farming organization do you belong			
Cooperative farmers organization	23	5.8	
Rice farmers association of Nigeria (RIFAN)	387	96.8	
All farmers association of Nigeria (AFAN)	124	31.0	
National farmers' association of Nigeria (NFAN)	53	13.3	
National association of smallholder farmers in Nigeria (NASFAT)	12	3.0	
Nigerian agribusiness group (NABG)	3	0.8	
How do you acquire your land for farming			
Government allocation	23	5.8	
Inheritance	305	76.3	
Purchase	53	13.3	
Renting	19	4.8	
Total	400	100.0	

Source: Field Work, 2024

The majority of the respondents were married (86.3%), while (12.3%) were single. This suggests that married rice farmers bear the responsibility of providing for their families and meeting other household needs, which may influence their level of commitment to farming as a primary livelihood.

Regarding occupational status, the majority of respondents (85.0%) were farmers, with a smaller proportion (14.0%) employed as civil servants. This indicates that farming is the predominant occupation for the respondents in the study area, highlighting its central role in the local economy.

In terms of household size, most respondents (44.3%) had between 6 and 10 children, followed by 28.5% with fewer than five children. A smaller proportion (18.3%) had between 11 and 15 children. This suggests that larger households contribute more significantly to rice farming activities, as children often assist with tasks such as planting and harvesting, reducing the need for external labour. The mean household size was 8 children per family, which underscores the importance of family labour in rice production in the region.

Regarding farm size, the results in table 4.1 reveals that, the majority of respondents (43.8%) operated farms ranging from 6 to 8 acres, while (27.1%) were those with above 8 acres. Followed by (26.3%) with farms between 2-5 acres. A smaller proportion (16.3%) had farm sizes ranging from 9 and above acres, while the least number of respondents (3.0%) owned farms smaller than 1 acre. These findings indicate that small-scale farmers, particularly those with less than 1 acre, may face challenges in terms of sustainability and often rely on subsistence farming or non-farming income sources. In contrast, with those

with mid-sized farms (2-8 acres) possess moderate production potential and may have opportunities to increase income through improved farming practices or policies. Those farmers with (9-11acres) are better positioned to thrive, often dominating local markets and benefiting from economies of scale. The average farm size in the study area was 4.5 acres.

In terms of farming experience, the majority of respondents (51.8%) had between 11 and 15 years of experience in rice production, followed by (19.8%) with 6 to 10 years of experience. A smaller proportion (12.3%) had 1 to 5 years of experience, while (9.5%) had 16 to 20 years of experience, and only (6.8%) had more than 20 years of experience. This distribution suggests that rice production requires substantial experience, particularly for understanding soil fertility and managing pests, diseases, and weeds effectively. Those with 11-15 years of experience likely possess refined skills in critical operations such as planting, transplanting, fertilization, and irrigation. On the other hand, less experienced farmers may still be in the learning phase, potentially making occasional mistakes in timing and pest or weed control. The small proportion of farmers with over 20 years of experience could be attributed to socioeconomic, generational, or environmental factors that influence the continuity of farming practices. The mean number of years of experience in rice production was 14 years.

The annual income of the respondents revealed that the majority (58.5%) earned above two hundred thousand Naira (₦200,000), while (24.5%) had an income between one hundred and fifty-one thousand to two hundred thousand Naira (₦151,000 - ₦200,000). This suggests that rice farming in the study area requires a relatively high income to allow farmers into transition from traditional subsistence farming to more modern, investment-driven practices. Such investments in modern tools and sustainable practices are essential for improving rice production. Conversely, low income acts as a barrier, limiting farmers' ability to maximize their production potential. The mean annual income for the respondents was ₦165,000.

The results in Table 4.1 also indicates that a significant majority (96.8%) of the rice farmers in the study area were members of the Rice Farmers Association of Nigeria (RIFAN), while 31.0% were affiliated with the All-Farmers Association of Nigeria (AFAN), and 13.3% were members of the Nigeria Farmers Association (NFAN). Only a small proportion (0.8%) belonged to the National Association of British Growers (NABG). The study reveals that rice farmers join organizations or associations for a variety of reasons, including the numerous benefits these groups offer, such as improved access to resources, networking opportunities, and support that can enhance their livelihoods and overall well-being.

The results further show that the majority (76.3%) of respondents inherited their farms, while (13.3%) purchased their land, and (4.8%) rented their farms. These findings indicate that acquiring agricultural land through purchase or government allocation is a significant challenge for many farmers, likely due to a combination of socio-economic, cultural, and historical factors. The high cost of agricultural land makes it difficult for small-scale farmers or new entrants to purchase land outright. For many, inheriting land remains the only viable means of securing farmland, further emphasizing the barriers to land access in the region.

Regression Analysis Results and Discussion

Multiple regression analysis was employed in this study because it permits the estimation of the individual effects of explanatory variables, on the dependent variable while controlling for other influencing factors in the model. The results presented in Table 2.2 reveal that variables such as Age, gender, Education, Farm, Household, Income, occupation, access to resources, Extension service, farming experience and rice varieties are significant at 5% level in influencing rice production. The coefficient of determination R^2 = 0.8830 shows that approximately 88% of the variation in rice production was explained by the explanatory variables included in the model. While the remaining 12 % variability was attributed to other factors not captured in the analysis. Furthermore, the regression coefficients reveal that, Access to resources (+0.1126), Rice varieties (+0.0919), Occupation (+0.0953), Age (+0.0617) and Education (+0.0555) have positive relationships with rice production, indicating that these variables exerted considerable influence on rice production in the study area.

Regression Analysis Table

Table 2.2 Analysis of Socioeconomic Characteristics of the Rice Farmers

Variables	Coefficient	Std. Err	T
Age	0.0617	0.0025	24.6***
Gender	0.0301	0.0248	1.2
Education	0.0555	0.0082	6.8***
Farm	0.0163	0.0031	5.2***
Household	0.0404	0.0091	4.5***
Income	0.0103	0.0022	4.7***
Occupation	0.0953	0.0232	4.1***
Access resources	0.1126	0.0402	2.8***
Extension service	0.0149	0.0038	3.9***
Farming experience	0.0097	0.0032	3.0***
Rice varieties	0.0919	0.0236	3.9***
_cons	2.1694	0.0770	28.2***
F-value		45.10	
R^2		0.8830	

Source: Computer output, 2024

Note: ** *** are significant at 5% and 1% respectively

The coefficient of age 0.0617 indicates that a one-year increase in age of a farmer leads to an approximate increase of 0.0617 units in rice production, holding other variables constant. The variable was highly significant, as evidenced by the T-statistical value of 24.6 at the 1% significant level, suggesting a strong positive relationship between age and rice production. The findings of this study indicate that the coefficient of gender 0.0301 had a small positive effect on rice production. However, with a T-statistic value of 1.2, that was not statistically significant at the 5% level. The result suggest that gender did not exert a strong influence on rice production within the study area.

However, the positive and statistically significant coefficient of age suggests a strong positive relationship between farmers age and rice production. This finding implies that older farmers are likely to possess greater farming experience, managerial ability, and technical knowledge all of which contribute positively to rice production outcomes. The result further indicates that age plays an important role in enhancing productivity, as experience accumulated over time may improve decision-making, resource management and the adoption of

effective farming practices. The findings of this study are consistent with previous empirical studies which reported that the most active rice farmers were within the age bracket of 31-50 years. While individual aged 21-30 years recorded the lowest level of participation in rice farming activities. The evidence supports the present study's conclusion that middle aged farmers are more actively engaged in rice production due to factors such as accumulated farming experience, physical strength and relative financial stability. Furthermore, the low participation of younger individuals in rice farming may be attributed to increasing rural-urban migration, limited interest of youths in agriculture and the perception of farming as a less attractive livelihood option among younger generations. Consequently, the ageing structure of the farming population may have implications for the sustainability of agricultural production if adequate measures are not implemented to encourage youth participation in the agricultural sector.

However, these results contrast with exiting literature which generally emphasises gender as a significant determinant of agricultural productivity and access to productive resources. The observed divergence may be explained by contextual differences such as variations in study location, socioeconomic conditions, cultural norms, and the level of access to critical farming inputs and resources across different regions.

The findings of this study indicated that occupation had a coefficient of 0.0953 with a t-statistic value of 4.1, suggesting a positive and statistically significant relationship between occupation and rice production. The results reveal that farming constitutes the predominant occupation among respondents in the study area, indicating the central role of agriculture in sustaining rural livelihoods and household income.

The findings consistent with exiting literature, which is similarly identified rice farming as a major livelihood activity and a primary occupation among rural households. This implies that rice farming is not merely an economic activity but also forms a core aspect of the social and cultural identity of many farming communities. Furthermore, the coefficient of education suggests that educated farmers are more likely to implement improved farming practices, optimize the use of production inputs and consequently enhance agricultural productivity. This finding aligns with previous studies that emphasise the importance of education in improving farmers' decision-making capacity, adoption of innovations, and access to agricultural information. However, some scholars argue that education plays a dual role in agriculture. Beyond equipping farmers with the technical knowledge and skills necessary for improved productivity outcomes. Education also provides psychological benefits, such as increased self-confidence, better risk management abilities and a greater willingness to adopt modern technologies and innovations. This attribute collectively contributes to improved farm performance and rural development.

5. Conclusion and Recommendations

The study examined the socioeconomic factors affecting rice production in the study area using descriptive and multiple regression analyses. The findings revealed that variables such as age, education, occupation, farm size, household size, income, access to resources and rice varieties significantly influenced rice production. the coefficient of determination ($R^2 = 0.8830$) indicated that approximately 88% of the variation in rice production was explained by the

explanatory variables included in the model. The study further established that access to productive resources, extension services, improved rice varieties, and adequate farm size positively enhanced rice production among farmers. Age was also found to have a significant positive relationship with rice production, suggesting that middle-aged farmers dominate rice farming activities due to their experience, physical strength, and financial stability. Occupation showed a strong and significant relationship with rice production, confirming that farming remains the major livelihood activity in the study area. However, gender was not found to have a statistically significant influence on rice production. Overall, the study concludes that improved access to resources and socioeconomic support mechanisms are essential for increasing rice productivity in the area.

1. Government and relevant agricultural agencies should improve farmers' access to productive resources such as land, credit facilities, farm inputs and improved rice varieties to enhance rice production.
2. Agricultural extension services should be strengthened through regular training, sensitization and technical support to enable farmers adopt improved farming practices and modern production techniques.
3. Policies and intervention programmes should encourage youth participation in rice farming by providing incentives, access to land, financial and mechanized farming technologies.
4. Farmers should be supported through subsidized inputs and affordable credit schemes to improve their production capacity and income levels.

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