



Contributions of rice entrepreneurial activities to sustainable livelihood assets of rice farmers in Kwara state, Nigeria

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Abstract

This study assessed the contributions of rice entrepreneurial activities to sustainable livelihood assets of rice farmers in Kwara State, Nigeria. A three stage sampling procedure was used to select four hundred respondents. An interview schedule was design to collect primary data. Data collected was analysed using descriptive and inferential statistics. Results further showed that most of the respondents participated in production (100%), processing (61.5%), marketing (53.0%) while few (22.3%) participated in transportation to a great extent. Results further showed that financial asset (mean=2.19), and natural assets (safe drinking water and irrigation water) with mean=15.7 and mean=15.4 respectively were the topmost assets accrued by farmers as a result of their participation in rice entrepreneurial activities. The leading constraint to rice entrepreneurial activities was inadequate access to rice processing equipment (mean=15.5). Correlation analysis revealed that age ($r = -0.437$), household size ($r = -0.196$) and years of experience ($r = -0.459$) of farmers indicated significant correlation with the perceived contribution of rice entrepreneurial activities to asset at $p \leq 0.05$ level of significance. The study conclude that rice farmers highly participated in rice cultivation, processing and marketing which contributed highly to financial assets of the farmers. This study suggests extension policy to further strengthen the capacity of farmers to adequately access rice processing equipment in the study area.

Keywords: Rice cultivation; Rice entrepreneurs; Rice value chain.

1. Introduction

Rice (*Oryza sativa*) is a type of rice specie commonly grown throughout the world. It was first discovered by a group of hunter-gathers near China's Yangtze River where the cultivation started many years ago (Song, Chen and Zhao, 2018). Rice is one of the major staple foods in Nigeria (Oladimeji *et al.*, 2020). Participation in rice entrepreneurial activities in this study refer to engagement along the value chain. Employment in rice entrepreneurial

activities across the value chain is essential for diversification of the sources of farm household's livelihood for increased income and access to assets (Hussaini *et al.*, 2021). A working definition of livelihoods by this study is stated as the activities, assets/capitals (financial, physical, social, human, natural and information), capability or competency and the access to assets (mediated by institutions and social relations) that together determine the living gained by individual or household (Ellis, 2000).

Studies have shown that employment in rice value chain is profitable. According to Nwahia, (2020), involvement in rice production is profitable. A review of literature by Hussaini *et*

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Received: December 11, 2021; Accepted: March 25, 2022;

Published online: April 1, 2022.

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al. (2021) concluded that employment in rice value addition activities such as production, harvesting, processing and marketing in Nigeria are profitable in Nigeria. Similarly, Ewuzie *et al.* (2020) found that rice farming, processing and trading are very profitable and there is equity in the rice value chain.

There are problems associated with the production of rice along the value chain in Nigeria. These include high postharvest loss of rice along the value chain (Babatunde *et al.*, 2019); Birds' disturbance, non-availability of basic rice processing facilities, high cost of processing equipment, inadequate finance and lack of rural infrastructure for rice along the value chain (Omoare and Oyeleke, 2017). In marketing, problems include lack adequate means to overcome the costs to enter the market, such as assets, access to market information, low prices of farm produce, and distance to the market location (Omiti *et al.*, 2009). Anthony, Alabi, Ebukiba and Gamba, (2021) have indicated that sex, educational level, access to credit facilities, extension services, price information, market information and marketing experience were main factors that significantly influence farmers employment in rice value chain.

In recent times, farmers have been encouraged to take opportunities of the benefits in rice value chain to improve their livelihood activities and increase their income which will invariably reduce their poverty status. Farmers Patigi and Edu Local Government Areas in Kwara State had taken the opportunity of this situation in the rice sector to venture into rice related business such as cultivation, transportation, processing and marketing activities. This is in response with recommendation by (Komolafe, 2021) who noted that farmers should be encouraged to take advantage of the benefits in value addition activities such as production, harvesting, processing and marketing of rice to improve their livelihood activities and increase their

income which invariably reduced their poverty status. Therefore, a study of rice production along the value chain and its contributions to sustainable livelihood assets of rice farmers is crucial to the development of agriculture and economic growth of the country. This is expected to foster a better extension policy programme that will further enhance the capacity of rice-based entrepreneurs in Nigeria. Unfortunately, no information is available in literature regarding the contributions of rice entrepreneurial activities to sustainable livelihood assets of rice farmers in Kwara State, Nigeria.

It is against this background that this study was set out to assess the contributions of rice entrepreneurial activities to sustainable livelihood assets of rice farmers in Kwara State, Nigeria. The specific objectives were to: (i) describe the socioeconomic characteristics of the rice entrepreneurs, (ii) examine the extent of respondents' involvement in rice entrepreneurial activities (iii) determine the perceived contributions of rice entrepreneurial activities to access assets, and (iv) identify constraints encountered by rice farmers.

2. Methodology

This study was conducted in Kwara State. The state is situated in the North Central geopolitical zone of Nigeria and located on parallels 8° and 10° North latitudes and 3° and 6° East longitudes. The State has an area of land totaling 32,500km² with Guinea Savannah Vegetation. The Kwara State population is 2.37 million people based on the Nigeria 2006 Census, with 2.6% annual growth rate, the population should be 4.10 million people in 2019 (NBS, 2017). The climate of the state is tropical with average annual rainfall of about 1500 mm, average maximum temperature of 38°C, average relative humidity of 77.50% and 7.1 h of sunshine daily (Olanrewaju, 2009; Mijinyawa and Akpenpuun, 2015). The state has sixteen Local Governemnt

Areas (LGAs). Farming is one of the main sources of livelihood for the people of the state, which is based on production of food crops, such as cassava, maize, rice, yam, guinea corn and cowpea etc. Edu and Patigi LGAs of Kwara State accounted for over 90 percent of the rice production in the state (Ayanda *et al.*, 2013).

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The population of the study comprised of all rice farmer in Kwara State. A three-stage sampling procedure was used to select the respondents. Firstly, Edu and Patigi Local Government Areas (LGAs) were purposively selected due to the high of rice and processing. The second stage involved a random selection of five villages from each of the selected LGAs. Lastly, forty rice farmers were selected from each of the selected communities. The list of rice farmers from Kwara State Agricultural Development Project was used as sampling frame. The total sample selected from the list was 400.

An interview schedule was used to obtain primary data. The instrument used was subjected to test of reliability and validity. The test of reliability was done using test pre-test method and the data was analysed and result gave r-value of 0.85 which indicated that the instrument used was reliable. The test for validity was done using content analysis. Participation in processing, transporting and marketing of rice were measured with 3 Likert type scale of extent as great extent =2, little extent=1, no relevant=0. Data collected was analysed using frequency count, percentage and mean score while Pearson Product Moment Correlation (PPMC) analysis was conducted to test the relationship between socioeconomic characteristics and perceived contribution of rice entrepreneurial activities to access assets of respondents. The PPMC functions is specified as follows:

$$r_{xr} = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{\{n \sum x^2 - (\sum x)^2\} \{n \sum y^2 - (\sum y)^2\}}} \dots\dots\dots(1)$$

r = correlation coefficient

x =independent variables (sex: [male=1, female=0]; age in years; household size in persons; years of experience)

y = dependent variable

n = total number of observation

\sum =summation

3. Results and Discussion

3.1 Socioeconomic characteristics of the respondents

The result in Table 1 shows that majority of the rice entrepreneurs were male (71.3%). This can be attributed to the traditional dominance the male have over female on the issues like land acquisition and other production factors. The mean age of the respondents was 39years which indicates that respondents were in their active and productive age to contribute to the development of rice sector. This claim is in line with Eze *et al.* (2019) who stated that age of the farmers usually affect the ability of the farmer to perform farming operation.

The mean years of farming experience was 9years which is relatively long for the rice farmer to improve their performance in rice operations. This assertion is in line with Girei *et al.* (2017) who stated that the longer a farmer stay in farming, the better his/her performance. In respect to their educational status, majority of the respondents had non-formal education (36.3%) and significantly few (16.3 %) of the respondents had tertiary education.

The average household size was 9 persons and the average rice farm size was 4.2 hectares. This shows that respondents were mainly small holder. This finding is in line with Nwahia (2020) who stated that most rice farmers in Nigeria operate in a small scale. This situation of prevalent small scale production in the rice sector according to Adenuga *et al.* (2013) is attributed to expensive and inadequate support for commercial production. Respondents

sourced for capital in different ways including personal savings (37.3%), family (24.0%), friends (13.7%), while cooperative sources was just 9.3%. This implies that appreciable percentage use personal saving to operate rice

entrepreneurial activities which may not encourage large scale production. According to Chandio *et al.* (2017), supply and access to capital are critical to improving agricultural production and economic growth.

Table 1. Distribution of respondents based on their socioeconomic characteristics

Characteristics	Frequency	Percentage	Mean
Age (years)			39 years
≤30	47	11.8	
31-40	132	33.0	
41-50	87	21.8	
51-60	106	26.5	
>60	28	7.0	
Sex			
Male	285	71.3	
Female	115	28.7	
Educational level			
Non-formal	145	36.3	
Adult Education	29	7.3	
Primary Education	88	22.0	
Secondary Education	73	18.3	
Tertiary Education	65	16.3	
Household size (persons)			9 persons
≤5	194	48.5	
6-10	122	30.5	
>10	84	21	
Farm size (ha)			4.2 hectares
≤2	78	19.5	
3-5	136	34.0	
> 6	186	46.5	
Years of experience			9 years
≤5	97	24.3	
6-10	164	41.0	
11-20	90	22.5	
>20	49	12.3	
Sources of capital			
Personal savings	149	37.25	
Family	96	24	
Friends	54	13.5	
Bank credit	68	17	
Cooperative society	33	8.25	

Source: Field survey, 2017

3.2 Participation of respondents in rice entrepreneurial activities

Table 2 shows the rice entrepreneurial activities in rice processing. As shown in the table, all (100%) of the respondents were greatly involved in rice cultivation. Most (61.5%) of the

respondents participated actively in rice processing to a great extent. Most (53.0%) of the respondents were also involved in rice marketing to a great extent while few (22.3%) of the respondents were involved in rice transportation. This finding implies that rice cultivation, processing and marketing were the leading rice

entrepreneurial activities in the study area. Low participation of respondents in rice transportation could be traced to the poor nature

of farm road in Kwara State (Akangbe *et al.*, 2013).

Table 2. Distribution of respondents based on their extent of involvement in rice entrepreneurial activities

Activities	Great extent	Little extent	No relevant
Production	400(100.0)	0	0
Processing	246(61.5)	106(26.5)	48(12.0)
Transporting	89(22.3)	97(24.3)	214(53.5)
Marketing	212(53.0)	178(44.5)	10(2.5)

Sources: Field Survey, 2017.

3.4 Perceived contribution of rice entrepreneurial activities to access assets

The mean summary of farmers' responses to possible contribution of participation in rice entrepreneurship to livelihood is presented in Table 3. As shown in the table, financial asset such as income (mean=2.19), and natural assets such as safe drinking water (mean=15.73) and irrigation water (mean=15.45) were the topmost assets accrued by farmers from their participation in rice entrepreneurial activities.

The findings imply that farmers sell their rice produce to obtain cash to buy needed items. Water is a fundamental human need. Access to safe intake water is a basic requirement for all humans. Water is obviously essential for every bodily function, sanitation and for food production (Md Habibur and Rokeya, 2020). Irrigation water is another asset accessed by the rice farmers. while irrigation water is an unavoidable resource needed to produce rice all year round. The benefit of irrigation (which is the artificial supply of water for agricultural crop growth) in Nigeria is not limited to food supply alone but it also serves as a source of income and employment during the slack period of rain-fed agriculture (Ifabiyi *et al.*, 2014). This finding agrees with earlier studies that participation in agricultural entrepreneurship is profitable and could help to increase assets (Komolafe, 2018; Kabir *et al.*, 2012).

3.5 Constraints encountered by rice entrepreneurs

The mean summary of farmers' responses to possible factors capable to hinder rice entrepreneurship is presented in Table 4. As shown in the table, poor access to rice processing equipment, lack of access to agricultural extension agents, inadequate of government policies to promote agribusiness and poor access to market information were the leading constraints to rice entrepreneurial activities ranked first, second and third. This finding is in line with Omoare and Oyeleke (2017) who found that high cost of processing equipment and inadequate finance were the major constraints to rice value chain in Nigeria. Poor access to rice processing equipment, lack of access to agricultural extension agents and inadequate of government policies to promote agribusiness and poor access to market information are suggested to have negative impact on rice entrepreneurial activities of farmers. This is because, access to information from extension agents and other sources of information about agricultural related activities would improve the productivity of farmers (Khanal *et al.*, 2018). The implication of these results as posited by Ojo *et al.* (2019) show that to improve the productivity of rice farmers, government and development partners should work together to improve the conditions of access of rice farmers to suitable agricultural credit, including the policy incentives aimed at lowering the cost of borrowing in the Nigerian agricultural sector.

Table 3. Distribution of respondents by perceived contribution of rice entrepreneurial activities to their assets

Livelihood indicators	Mean score	Rank
Financial assets		
Income from rice able to meet the basic needs	21.9	1 st
Physical assets		
Purchase of farm machineries	12.95	8 th
Purchase of crop processing equipment	11.28	12 th
Purchase of crop cultivation inputs	12.83	10 th
Social assets		
Ability to network and contact with other rice entrepreneurs, NGOs and Extension Agent	12.23	13 th
Participation in social gathering	11.53	11 th
Education Attainment	13.89	5 th
Human assets		
Health condition	12.87	9 th
Rice entrepreneurial knowledge and skills competency	13.38	6 th
Experience in crop related enterprises	13.18	7 th
Natural assets		
Access to safe drinking water	15.73	2 nd
Access to water for rice irrigation farming	15.45	3 rd
Access to fertile land for rice cultivation	14.44	4 th

Source: Field survey, 2017

Table 4. Mean distribution of constraints encountered by rice entrepreneurs

Constraints	Mean	Rank
Inadequate government policies to promote agribusiness	14.55	3 rd
Lack of access to capital	12.56	6 th
Lack of access to agricultural extension agents	14.87	2 nd
Poor access to market information	14.11	4 th
Long distance to market	11.90	8 th
Poor access to rice processing equipment	15.53	1 st
Post-harvest losses	12.08	7 th
Bad road network	13.34	5 th

Source: Field survey, 2017

3.6. Test of hypothesis

H0: There is no significant relationship between some socio-economic characteristics and farmers' perceived contribution of rice entrepreneurial to assets of respondents

Analysis of the relationship between some selected socio-economic characteristics of the respondents and the perceived contribution of entrepreneurial activities to assets was showed in the Table 5. Based on the result age ($r=-0.437$, $p=0.00$), household size ($r=-0.196$, $p=0.042$) were negatively significant while experience

($r=-0.459$, $p=0.00$) were positively significant to contribution to assets.

The negatively significant variables mean every unit increase in age will lead to -0.437 decrease in the contribution of entrepreneurial activities to livelihood assets. This implies that, the rice entrepreneurial activities should be operated by the young entrepreneurs instead of the old ones for increase in income and every unit increase in the number of household will give -0.196 decrease in the contribution of entrepreneurial activities to the livelihood assets. This implies

that, sizeable number of household with relevant entrepreneurial skills is better than having large number of unskilled people; this could facilitate the development of the community and entrepreneurial activities in terms of provision for infrastructural facilities. However, the higher the number of years of experience the higher the contribution of entrepreneurial activities to livelihood assets. Meaning that, those rice farmers that had high years of farming experience will have the ability to expand their agribusinesses by employing more people into

the business. This is in line with Khanal *et al.* (2018) who suggested that the more experienced farmers can better manage agricultural activities and adapt to new farming practices than less experienced ones, thereby increasing the technical efficiency of agricultural production. There is therefore a clear opportunity for rice farmers in Kwara State to improve the performance of rice cultivation, processing and marketing through young farmers, increased involvement of household members and by applying knowledge gained through experiences.

Table 5. Results of PPMC showing the relationship between some socio- economic characteristics of the respondents and perceived contribution of entrepreneurial activities to assets

Variables	Coefficient	P-value	Remark
Age (years)	-0.437**	0.00	Significant
Household size	-0.196*	0.042	Significant
Years of experience	0.459**	0.00	Significant

*Correlation is significant at 0.05 (-2 tailed)

**Correlation is significant at 0.01 (-2tailed)

4. Conclusion and Recommendations

This study concludes that rice entrepreneurial activities in Kwara State is dominated by male who could be considered as youths and small scale farmers. The farmers participated in rice cultivation, processing and marketing business activities. Farmers' participation in these activities led to increase access to financial asset (income), and natural assets (safe drinking water for domestic use and irrigation water for rice farming) due to significant influence of farmers' age, number of persons in household and years of experience in rice farming. Farmers' were hindered in their participation by poor access to rice processing equipment, inadequate access to agricultural extension services, unfavourable government policies to promote agribusiness and poor access to market information.

Based of conclusion drown from this study, it is recommended that extension organizations in Kwara State should intensify efforts to make

extension and advisory services on rice cultivation, processing and marketing more available to rice farmers, most especially processing equipments and market information. State government should also provide more enabling environment through appropriate policies that promote more participation in rice cultivation, processing and marketing.

Acknowledgement

This study hereby acknowledges the Institution-Based Research Fund (IBRF) of the funding support received from Tertiary Education Trust Fund (TETFUND), Nigeria to conduct this study.

Authors' Contributions

All authors are contributed in this research.

Funding

There is no fund in this research.

Institutional Review Board Statement

All Institutional Review Board Statement are confirmed and approved.

Data Availability Statement

Data presented in this study are available on fair request from the respective author.

Ethics Approval and Consent to Participate

This work carried out Agricultural Extension and Rural Development, Home Economics and Food Science and Business Administration departments and followed all the departments instructions.

Consent for Publication

Not applicable.

Conflicts of Interest

The authors declare no conflict of interest.

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