

Determinants of Well-being Status of Rice Farmers in Nasarawa State, Nigeria

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Abstract

This paper examined the determinants of well-being status of rice farmers in Nasarawa State, Nigeria. One hundred and eighty-one rice farmers from Karu, Kokona and Doma local government areas were chosen for the study by multi-stage sampling procedure. Data were analyzed using frequency, mean and logit regression model. Rice farmers were satisfied with their well-being status having satisfaction in five out of seven indicators that defined a general well-being. However, indicators of well-being status like safety and future security were not satisfactory. Age, sex, rice yield, income and extension contact had significant and positive influence on the well-being status of the rice farmers. Government and relevant agricultural stakeholders should focus on the key influencing factors in view of improving the well-being status of rice farmers in the study area.

Keywords: rice farmers, well-being, future security.

Introduction

Rice (*Oryza sativa L.*) is an important food security crop in Nigeria. In the producing areas, rice provides employment for more than 80 percent of the inhabitants along the value chain from cultivation to consumption (Ayedun and Adeniyi, 2019). According to (Ajibola, Adeniji, Olaleye and Ojo, 2017), Nigeria is the largest producer of rice in West Africa, producing over 46% of the regions total production.

Rice as a staple crop generates more income for Nigeria's farmers in comparison to some cash crops in the country (Izuchukwu, 2019). Though, the low productivity of rice farmers is a growing concern in Nigeria due to use of low technologically empowered agricultural equipment that do not support large scale production (Osabuohien, Okorie and Osabohien, 2018). Given the economic importance of rice to the well-being of the citizens of Nigeria, boosting its production has been accorded high priority by the government in recent times.

Well-being of the citizen of a country is the quality of life of an individual. It is a state in which every individual realizes his own potential and can cope with normal stresses of life, can work productively and fruitfully and able to contribute to his

community. Well-being is also the state of being comfortable, healthy or happy. It is used in relative term with concepts like happiness, life satisfaction, pleasure, and prosperity. The strategies for achieving well-being help people reach new ways of understanding and controlling their lives both in an individual and a collective scope (Pinto, Fumincellie, Mazzo, Caldeira and Martins, 2017).

According to Yakubu and Aidoo (2015), well-being comes under three main dimensions which includes, what people have (objective), what people can do (relational) and what people feel about what they have and can do (subjective). Objective and relational well-being which forms core well-being, captures household income and others like knowledge, life expectancy, assets and food security. Subjective wellbeing as an end in life which evaluates people's satiation with their life situations, is emerging as a complement to the more traditional and material ways of measuring well-being status.

Well-being is also influenced by the environment and disposition, safety and security, physical and mental health, relationships and social networks, access to goods and services, and the fairness of the society an individual live, to name just a few of the contributing factors. Similarly, well-being may differ from individual to individual due to differences in their socio-economic characteristics (Gamage, Kuruppuge and Nedelea, 2016).

The farmers' well-being is a dynamic process which is influenced by both qualitative and quantitative parameters (Kumar, Narasimha and Lakshminarayan, 2017). Understanding the well-being of farmers is especially complex as, in addition to the usual factors that influence well-being, farming is associated with several occupation specific factors that can challenge well-being, such as climate change, limited capital, inadequate technologies and limited access to market. The maintenance of well-being is critical in enabling farmers to succeed in their personal and professional lives.

Many factors can negatively impact on well-being of farmers: in particular, experiencing poor health difficulties (Schirmer, Mylek and Yabsley, 2015). It is often argued that farmers experience poorer mental health and well-being than non-farmers. Studies examining this have however produced inconsistent results, most likely because not all farmers are the same, and different studies have looked at different groups of farmers. Nevertheless, the results of several studies suggest that at least some groups of farmers have poorer mental and physical well-being than non-farmers (Yazd, Wheeler and Zuo, 2019).

A large number of rice farmers in Nasarawa State operate at the subsistence level. The question now is what determines the well-being status of rice farmers in Nasarawa State and this is the research gap this study sought to close. Specifically, this study analyzed the well-being status of the rice farmers and examined the factors that influence the well-being status of rice farmers in Nasarawa State, Nigeria.

Methodology

This study was carried out in Nasarawa State, Nigeria. The State lies between Latitude 7° 45' and 9° 25' North of the equator and between Longitude 7° 51' and 9° 37' East of the Greenwich meridian. The major agricultural production activities in the State include rice, cassava, millet, yam, sorghum, sesame and maize cultivation while livestock reared include goat, cattle and sheep.

The study population comprised rice farmers registered as contact farmers and household heads with the Nasarawa State Agricultural Development Programme (ADP). List of the rice farmers was obtained from Nasarawa State ADP for this study. Multi-stage sampling procedure was used to select the rice farmers. The first stage was a purposive selection of one local government area (LGA) predominance in rice production from each agricultural zone in the State. The second stage was purposive selection of five villages from each of the three LGAs also due to predominance in rice cultivation to get a total of 15 villages for the research work. The third stage involved a random selection of 10% of the rice farmers from the selected villages giving 181 rice farmers from the total population of 1,812 rice farmers. Data were collected using structured questionnaire and interview schedules. Data were presented using frequencies, percentages, mean and logit regression.

Table 1: Sample frame

Agricultural zones	LGAs	Villages	Population	Sample size	
Western	Karu	Dorawa	131	13	
		Agada	150	15	
		Kawo	111	11	
		Kasuwa			
		Laraba	120	12	
		Karshi	101	10	
Central	Kokona	Angwan			
		Takwa	113	11	
		Sabon gida	140	14	
		Ganti	101	10	
		Maisauri	128	13	
	Agwa Loko	99	10		
Southern	Doma	Galadima	158	16	
		Iwashi	102	10	
		Rutu	108	11	
		L/Benue	129	13	
		Alagye	121	12	
		Total	1,812	181	

Source: Nasarawa State ADP, 2019

Measurement of Variables

Relevant variables measured for this study include: well-being status of rice farmers. In measuring the well-being status of the rice farmers, the study adopted international wellbeing group, personal wellbeing index (2013). The international well-being group categorizes personal well-being using a constructed well-being index-adult scale. The scale was operationalized by a number continuum in a linear scale that ranged between 0-10. The mean score of 5.5 was considered with not satisfied=0 for score less than 5.5 and satisfied=1 for score greater than or equal to 5.5 from the list of various questions of satisfaction with specific life domains. The scale measured the degree of personal well-being satisfaction. The procedure that determined an individual well-being satisfaction depended on the rice farmer responses to some structured survey items. These items were standard of living, personal health, achievement in life, personal relationships, personal safety, community connectedness and future security which formed the seven life domains. Each of the seven domains were analyzed as a separate variable and the seven domain scores were equally summed up to yield an average score which represented subjective well-being.

The independent variables of this study were the socio-economic characteristics of rice farmers. The socio-economic variables were measured as follow:

Age: Rice farmers were asked to state their age in years (ratio scale).

Marital status: Rice farmers were asked if they were single or married (1=male, 0=female).

Sex: This was measured whether they were male or female rice farmers (1=male, 0=female).

Education: This was measured based on years of formal schooling of the rice farmers (ratio scale).

Household size: Rice farmers were asked to list the number of their wives, children and other dependents living with them (ratio scale).

Farm size: This was measured in hectares (ratio scale).

Income: This was measured in Naira and was based on estimated annual income from rice farming (ratio scale) over the last one year.

Experience: Rice farmers were asked to state their years of experience in rice farming (ratio scale).

Extension contact: Rice farmers were asked to state the number of contact times with extension agent per year (ratio scale).

Rice yield: Rice farmers were asked to state the rice yield in kilogramme per hectare

Membership of association: Rice farmers were asked to state the association they belong to (1=member, 0=non-member).

Access to training: Rice farmers were asked the type of training they had participated in (1=access to training, 0=non-access to training).

Based on the personal well-being index, the logit regression model was estimated to identify the determinants of well-being status among the rice farmers.

The implicit form of the model is expressed as.

$$K_1 = \beta X_1 + U_1$$

K_1 = The well-being status of ith rice farmers

X_1 = Vector of explanatory variables

U_1 = The error term

β = Vector of the parameter estimates

The Logit regression model is explicitly specified as;

$$K_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i} + \beta_{11} X_{11i} + \beta_{12} X_{12i} + U_i$$

Where in the case of personal well-being status;

K_i = Personal well-being status ith rice farmer (1 = satisfied, 0 = not satisfied)

AG_1 = Age (years)

S_2 = Sex (1 = male, 0 = female)

HHS_3 = Household size (number of persons)

EL_4 = Educational level (years)

FE_5 = Farming experience (years)

RY_6 = Rice yield per hectare (Kilogrammes)

EC_7 = Extension contact per year (Number of visits)

I_8 = Income (Naira)

MA_9 = Membership of association (1= member, 0= non-member)

AT_{10} = Access to training (number of times)

MS_{11} = Marital status (1= married, 0 =single)

FS_{12} = Farm size (Ha)

U_i = Error term

Results and Discussion

Well-Being Status of Rice Farmers

The result in Table 2 indicates that rice farmers in Nasarawa State were satisfied with their standard of living ($\bar{x}=5.84$), health status ($\bar{x}=6.23$), life achievement ($\bar{x}=5.54$) personal relationship ($\bar{x} =6.48$) and a feeling of part of the community ($\bar{x}=7.23$) while indicators like safety ($\bar{x}=4.92$) and future security ($\bar{x}=4.76$) fell below the index satisfaction scale level. The implication of this results is that the rice farmers were not satisfied with their safety and security in their pursuit of satisfactory well-being status. The current worsening security situation being experienced in some parts of North Central Nigeria which are caused largely by land disputes, ethnic and pastoralist-farmers clashes as well as banditry have dampened the rice farmers' efforts and beliefs of attainment of secured lives and properties.

Rice farmers do not feel safe any longer going to farm for any farming activities geared towards attainment of food security and well-being status. This result agrees with the finding of Mercy Corps (2015) and International Crisis Group (2017) that violent conflicts involving farmers and herders from northern Nigeria and sedentary agrarian communities of North-Central Nigeria have become common occurrences and has escalated in recent years threatening the country's security and stability. Therefore, the more the farming communities become troubled due to violence, the more difficult it becomes for the rice farmers to achieve a sustainable and satisfactory well-being status.

Table 2: Well-being status of rice farmers

Well-being indicators	Mean
Standard of living	5.84
Health status	6.23
Life achievement	5.54
Personal relationship	6.48
Safety	4.92
Feeling part of the community	7.23
Future security	4.76

Source: Field survey, 2019

Determinants of Well-Being Status of Rice Farmers

Table 3 indicates factors influencing the well-being status of rice farmers as age, sex, rice yield, extension contact and income. The coefficient for age was found to be positive and significant at 1% level of probability. This implies that the older the rice farmers, the more the responsibility of attaining a satisfactory well-being status. The coefficient for sex was found to be positive and significant at 5% level of probability. This evinces that the more males as household heads, the higher the probability of achieving a satisfactory well-being status. This result aligns with the output of the study carried out by Ajibola, (2017) in Kwara State, Nigeria where majority of rice farmers were males. Rice yield was also positive and significant at 1%, meaning that the more rice farmers increase their rice yield, the better they will be able to realize a satisfactory well-being status. The coefficient obtained for extension contact was positive and significant at 5%.

This indicates that the more contacts rice farmers have with extension agents, the higher the probability of learning and acquiring knowledge through professional teachings best approaches applicable at solving well-being issues. This is consistent with the findings of Msuta and Urassa, (2015) that extension agents' facilitation help farmers gain access to knowledge, resources, and services that will enhance their yield and well-being. The coefficient for income was also found to be positive and significant at 5% level of probability.

This shows that as income of the rice farmers increase, the tendency of achieving a satisfactory well-being status also increase. Income plays a pivotal role at achieving the basic household's needs be it in terms of health, accommodation, transportation, safety, life achievement and other well-being indicators that are very much necessarily to keep the farm households going in the journey of life. The more the income, the merrier the journey of life and the more sustainable well-being a farm household achieves. This result corresponds with that of (Kumar *et al.* 2017) who stated that income was one of the major reasons why majority of the farmers fell under medium to high category of well-being status.

Table 3: Determinants of well-being status of rice farmers

Variables	Coefficient	z-value
Age	0.0838	2.76*
Sex	1.6033	2.60*
Household size	0.0509	0.76
Educational level	0.0407	0.95
Rice yield	0.0048	3.24*
Extension contacts	0.7421	2.89*
Income	3.11e-06	2.09*
Membership of association	0.1992	0.33
Access to training	1.0627	1.67
Marital status	0.1594	0.12
Farm size	0.1337	1.17

LR Chi² (11) = 46.01

*P≤0.05. Source: Field survey, 2019

Conclusion and Recommendations

Factors such as age, sex, rice yield, extension contact and income were significant and had positive influence on the well-being status of the rice farmers. Government and relevant agricultural stakeholders need to intensify efforts on interventions that will continue to improve the yield and income of the rice farmers as well as their access to extension services. Effective conflict resolution mechanisms and sustainable security apparatus that will help guarantee the safety of lives and properties of the rice farmers should also be put in place in order to achieve a more satisfactory well-being status.

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