



Perceived Benefits of Farmers' Cooperative Societies on Rice Production in Selected Local Government Areas of Abuja, Nigeria

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ABSTRACT

This study examined the perceived benefits of farmers' cooperative societies to rice production in selected local government areas (LGAs) of Abuja, Nigeria. Using a structured questionnaire complimented with interview schedule, data were collected from 120 respondents selected from four cooperative societies in the study area through a multi-stage sampling technique. Data analysis was done using descriptive statistics and linear regression analysis. The result showed that the respondents mean age was 46years and about half (50.8%) had up to at least secondary education. Majority (83.4%) of the respondents had been involved in rice cultivation for the past 15years but only 5.8% had only been members of rice cooperative for more than 10 years. The respondents' perceived benefits of cooperative society on rice production with higher mean scores include "cooperative gives advice on the quality of seeds, fertilizers, and pesticides, and cropping practices" (WM = 4.68), "helped in facilitating access to better market" (WM = 4.57), "enlightening and educating members on new improved farm practices and access to farm inputs" (WM = 4.50). The linear regression analysis results revealed that the R² value was 0.8445, meaning that over 84% of the variables included in the model accounted for the variation in the dependent variable. The educational level, marital status and farmers output were respectively, significant at 1% level of probability. On the hypothesis, there is a significant difference between the rice output produced by farmers before and after joining the cooperative societies (t-cal (5.211) > t-critical (1.00). Complicated administrative procedure, poor membership contribution, lack of trust among members, discriminating attitude of cooperative officials and inability to access loan/credit were the major problems faced by the cooperative members. Therefore, it was recommended that Agricultural stakeholders should encourage farmers to operate a functional cooperative that could facilitate credit and group dynamism.

Keywords: Perceived, Benefits, Farmers, cooperative societies, Rice and Production

INTRODUCTION

Rice (*Oryza sativa*) is one of the major crop that is cultivated all over the world for the benefit of mankind and it has contributed tremendously to global food security (West Africa Rice Development Agency (WARDA), 2005). According to Uba (2013), 70% of Nigerians feed on rice while about 30% of their cereal-based diets is also from rice. Nutritionally, rice is known to produce about 27% of the dietary energy supply and 20% of the dietary protein intake (Edoka *et al.*, 2009). It is used for the preparation of several local dishes that are eaten in many homes especially during festive periods and special occasions (Ekeleme *et al.*, 2008). More recently, there has been an increasing demand for rice due to shift in consumption preference in favour of rice, population growth, and rising income (Balasubramanian *et al.*, 2007). To this end, the increase in the demand for rice is high in Africa than anywhere else in the world (Abate *et al.*, 2014) Rice in terms of comparative advantage can be grown in flooded and non-flooded soils because it has both lowland and upland varieties that can adapt to different agro-climatic and soil conditions (Philip *et al.*, 2006). Rice is cultivated in nearly all the agro ecological zones in Nigeria. However, the quantity of rice produced does not meet up with its demand. Heiko and Mathias (2007) reported

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that the output of rice produced in Nigeria was estimated at three million tonnes, while the demand amounted to five million tonnes. In other words, Nigeria consumes about five million tonnes and produces only three million tons of rice annually, thus, spends about a hundred billion naira on rice importation annually (Sabair, 2008). However, there has been an introduction of recent policies by Central Bank of Nigeria (CBN) such as Anchor Borrowers Programme to boost rice production, enhance food security and curb the level of importation to save money for the country.

In order to meet up with the level of rice production, non-governmental organizations and donor agencies have also encouraged and promoted formation of cooperative as requisite for accessing agricultural support services (ICA, 2010). In this vein, the function, interaction, linkages, alliance and knowledge flow in the cooperative system depends on the overall performance of individual members. However, Nigeria in the present dispensation has witnessed proliferation of cooperative in many sectors including rice sector. Farmers cooperatives are now perceived as social instruments for making the market environment work for resource poor farmers who are faced with the challenge of limited and uncertain demand for the commodities they produce (Ilebani, 2010).

Generally, 'Cooperative society' is an autonomous association of persons unified voluntarily to meet their common economic, social and cultural needs through a jointly-owned and democratically controlled enterprise (International Cooperative Alliance (ICA), 2010) as cited by Ibitoye, 2013). Similarly, Bhuyan (2007) stressed that, rural cooperatives including rice farmers' cooperatives play important role in mobilizing and distributing inputs to the farmers as well as wide range of services such as health, storage facilities and dissemination of information on modern practices in agriculture (Nweze, 2002). By pooling capital, labour, goodwill and other resources, cooperative members are able to carry out profitable activities, which if undertaken by individuals, would involve greater transaction cost, risk and efforts (Ebonyi and Jimoh, 2002) as cited by Ibitoye, (2013). Thus, farmers can realize the scale of economies of bulk acquisition and enter into more stable trade agreement with suppliers or processors (Afolami et al., 2012).

For farmers to reap the benefits of rice production and considering the huge business opportunity that exists in the Nigerian rice sector; especially in the wake of the intended policy that will prohibit rice importation. Building a functional, effective and sustainable rice producers' group (rice farmers' cooperative) is a priority for improving rice production. In view of the above, the study seeks to examine the perceived benefits of farmers' cooperative societies to rice production in selected local government areas of Abuja, Nigeria. To achieve this, the study seeks to achieve the following objectives: describe the socio-economic characteristics of rice farmers; examine the perceived benefits of cooperatives on rice production; determine the factors influencing farmers' perceived benefits in cooperative societies and identify the constraints associated to rice farmers' membership in cooperative societies. The research hypothesis is stated as follows: H_0 : There is no significant difference between farmers' production before and after joining cooperative.

METHODOLOGY

The study was conducted in Abuja, which is the Federal Capital Territory of Nigeria (FCT). The area is located between latitudes 8°25' and 9°25' North of the Equator and longitude 6°45' and 7°45' East of the Greenwich. Abuja is bordered to the North by Kaduna State, to the east by Nassarawa State, to the west by Niger State and to the south by Kogi State. Geographically, FCT is located at the center of the country and has a land mass of approximately 7,315km² within the savannah region (Adakayi, 2000). It comprises of six main LGAs which includes Abaji, Abuja Municipal, Gwagwalada, Kuje, Kwali and Bwari. The area is endowed with abundant infrastructural resources that favours human relaxation, thus, had a projected population of 2,892,000 in the year 2018 (NPC, 2016). The annual rainfall in Abuja is about 1,631.7mm while mean temperature ranges between 18.45°C to 36.05°C annually (Balogun, 2001).

In order to obtain a sample size for this study, multistage sampling technique was adopted to select respondents for the study. The first stage involved random selection of four (4) LGAs, namely; Kwali, Bwari, Gwagwalada and Abuja municipal. While the second stage involved the random selection of one rice farmers' cooperative from each of the selected LGAs as sample frame for the study. The third stage involved random selection of 10% of the cooperative members to serve as the sample size for the study. Hence, a total of 120 rice farmers belonging to rice cooperative societies were considered as respondents for the study. Data were collected using a structured questionnaire complimented with interview schedule and analyzed using frequency distribution, percentages, mean and linear regression analysis. A 5-point Likert rating scale of Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1 was used to determine farmers' perceived benefits of cooperative society on rice production. Perceived benefits with mean (\bar{X}) scores ≥ 3.0 indicates favourable perception, while scores < 3.0 indicate unfavorable perception. Linear regression analysis was used to

determine factors influencing the perceived benefits of rice farmers in the cooperative societies which was specified as follows:

The implicit form of the model used was stated as:

$$Y_i^* = X_i\beta + \varepsilon_i$$

The explicit form of the regression model used for the study was expressed as:

$$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + e$$

Where:

Y = Perception scores on the benefits of cooperative societies in rice production

$\beta_1 - \beta_7$ = Parameters estimated were:

$X_1 - X_7$ = Independent variables. Where: X_1 = age (years), X_2 = educational level (years), X_3 = sex (male = 1; otherwise = 0), X_4 = marital status (married = 1; otherwise = 0), X_5 = farm size (hectares), X_6 = output (kg), X_7 = farming experience (Years) and e = error term which accounts for those variables not included in the model.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the respondents

Age of the respondents: The result in Table 1 shows that about 66.7% of the farmers were between the age brackets of 21-50 years. The mean age of the farmers is 46 years which implies that, the farmers were still in their productive age. Hence, rice farming operations which tend to be labour demanding may be carried out with some relative ease.

Level of education: The literacy level of the farmers was also appreciably high as about 50.8% had at least secondary education and only 5.8% had no formal education. This implies that education level of farmers is likely to increase the ability to obtain, process and use of agricultural related information supplied by the cooperative societies, and the level of benefits as a result of participation (Muthyalu, 2013). Similarly, Abate *et al.* (2014) reported positive association between a decision to join a cooperative and educational level of members, and that the probability of membership in a cooperative society increases with increase in educational level.

Years of farming experience and cooperative membership: The result on Table 1 also revealed that, majority of the farmers (83.4%) had been involved in rice cultivation for the past 15 years but had only been members of rice cooperative for not more than 10 years ago. Thus, rice farmers' cooperatives in the study area are relatively young and would need all the support and mobilization they can get from stakeholders to enhance farmers' membership and understanding on the benefits accrued from such group formation.

Table 1: Distribution of socio-economic characteristics of respondents

Variables	Frequency	Percentage
Age		
21- 30 yrs	10	8.3
31 - 40 yrs	26	21.7
41 -50yrs	44	36.7
51 - 60yrs	34	28.3
>60yrs	6.0	5.0
Educational status		
Primary	12	10.0
Secondary	61	50.8
Tertiary	23	19.2
Adult education	8	6.7
Qu'ranic education	9	7.5
None	7	5.8
Farming experience		
1 - 5 years	20	16.7
6 - 10 years	26	21.7
11 - 15 years	27	22.5
> 15 years	47	39.2
Years of cooperative membership		
1 - 5 years	83	69.2
6 - 10 years	30	25.0
>10 years	7	5.8

Source: Field survey, 2017

Farmers' perceived benefits of cooperative society on rice production

Farmers' perception on benefits of rice producers' cooperative societies is an expression of their feelings on the important attributes of it that serve as a medium for accessing the benefits and how this may influence the level of rice production of its members. The results in Table 2 reveal that among the favourable perception with the higher mean scores on farmers' perceived benefits of cooperative society on rice production include cooperative gives advice on the quality of seeds, fertilizers, and pesticides, and cropping practices (WM = 4.68), helped in facilitating access to better market (WM = 4.57), enlightening and educating members on new improved farm practices and access to farm inputs (WM = 4.50), subsidize agricultural inputs to members (WM = 4.41) and has also helped in creating a strong bargaining price for products (rice) (WM = 4.40). These forms of guidance are necessary especially as agricultural activities are time-bond and availability of production resources especially farm inputs require timely supply, both knowledge and precision of utilization in the process of production. Agbo, (2009), reported that members of rice producer cooperative societies got assistance from the societies through accessing credit, marketing their produce and made farm inputs available at cheap prices thereby increasing farmers' income. The result implies that if more farmers join cooperative societies and have access to the expected benefits there is likelihood of boosting rice production in the study area. Hence, membership of farmers in cooperative societies is most likely to increase the success of agricultural production.

Table 2: Farmers' perceived benefits of cooperative society on rice production

Statements	SA	A	U	DA	SD	WM	Rank
The cooperative has helped in facilitating access to credit facilities	61(50.8)	24(20)	8(6.7)	17(14.2)	10(8.3)	3.90	10 th
The cooperative has helped in facilitating access to farm inputs	63(52.5)	55(45.8)	1(0.8)	1(0.8)	-	4.50	3 rd
The cooperative has helped in facilitating access to tractor services	35(29.2)	53(44.2)	17(14.2)	11(9.2)	4(3.3)	3.86	11 th
The cooperative has helped in facilitating access to extension services	61(50.8)	44(36.7)	7(5.8)	8(6.7)	-	4.32	6 th
The cooperative has helped in facilitating access to processing mill	10(8.3)	9 (7.5)	34(28.3)	53(44.2)	14(11.7)	2.58	14 th
The cooperative has helped in facilitating access to better market	78(65.0)	33(27.5)	8(6.7)	1(0.8)	-	4.57	2 nd
The cooperative gives advice on the quality of seeds, fertilizers, and pesticides, and cropping practices	88(73.3)	25(20.8)	7(5.8)	-	-	4.68	1 st
The cooperative has helped in creating a strong bargaining price for products (Rice)	75(62.5)	24(20.0)	14(11.7)	7(5.8)	-	4.40	5 th
The cooperative has helped in reducing per-unit handling or processing costs by assembling large volumes	58(48.3)	39(32.5)	10(8.3)	12(10.0)	1(0.8)	4.18	8 th
The cooperative has helped in enlightening and educating members on new improved farm practices	69(57.5)	46(38.3)	1(0.8)	4(3.3)	-	4.50	3 rd
The cooperative has helped in rendering guidance and counseling services	51(42.5)	58(48.3)	5(4.2)	6(5.0)	-	4.28	7 th
The cooperative has helped to subsidize agricultural inputs to members	61(50.8)	51(42.5)	4(3.3)	4(3.3)	-	4.41	4 th
The cooperative has helped in Organizing agricultural exhibition, seminar and workshop for members	18(15.0)	21(17.5)	15(12.5)	34(28.3)	32(26.7)	2.66	13 th
The cooperative has helped to ensure unity and peace within the society	48(40.0)	47(39.2)	15(12.5)	10(8.3)	-	4.11	9 th
The cooperative has helped in making land acquisition easy	42(35.0)	36(30.0)	24(20.0)	18(15.0)	-	3.85	12 th

WM ≥ 3.0 = Perceived attributes with higher mean scores.

Note: SA-Strongly Agreed; A-Agreed; U-Undecided; D- Disagree; SD-Strongly Disagree; WS: Weighted Sum; WM=Weighted Mean

Source: Field survey, 2017.

Factors Influencing the Perceived Benefits of Rice Farmers in the Cooperative Societies

From the regression result on Table 3, the R-squared of the model was 0.84, implying that 84% of the factors influencing the perceived benefit of rice farmers' cooperatives were explained by the independent variables included in the equation. While F-ratio is significant at 1%, implying that the variables significantly explained the benefit received by the cooperative members. The results reveal that, regression coefficient of educational level (X_2), marital status (X_4) and output (X_6) were positively significant, indicating that an increase in value of these variables, holding others constant will lead to an increase in the perceived benefit acquired from the cooperative by its members. By implication, increase in farmers' educational level enhances their ability to understand with relative ease the functions and importance (benefits that may come) of belonging to a cooperative association. Education level of farmers was assumed to increase the ability to obtain, process and use of agricultural related information supplied by the cooperative societies, and the level of benefits as a result of participation (Muthyalu, 2013). Karli et al. (2006); Abate et al. (2014) reported positive association between a decision to join a cooperative and educational level of members. Hence, the probability of a membership in cooperative societies increases with increase in educational level. On marital status, it can be argued that members with spouses are likely to involve their spouse in all the cooperative activities and thereby gaining more benefits than for the farmers not with spouses. Similarly, members with spouses can play complimentary role in the cooperatives and likely to get benefits that will support their rice production activities. Abate et al. (2014) asserted that family size positively influence level of participation of members in cooperative activities. Hence, the likely accrue benefits. On the output, cooperatives may benefit their members because they facilitate input supply, and provide training on rice management and processing activities that can increase farmers' return (Kebede, 2012). The result further shows the regression coefficient of farm size (X_5) to be negative; this implies that farm size has no association with the benefits received by members from the cooperative societies. Hence, it can be inferred that farm size is not a factor that determines the level of participation and benefits members are likely to get from cooperative societies in the study area.

Table 3: Factors influencing the perceived benefits of rice Farmers' cooperative

Variables	Coefficient	Standard Error	T-values	P>t
Constant	0.5280261	0.1978656	2.67	0.009***
Age (X_1)	0.000163	0.0033719	0.05	0.962NS
Educational level (X_2)	0.0753376	0.0247637	3.04	0.003***
Sex (X_3)	0.1627227	0.0927609	1.75	0.082NS
Marital status (X_4)	0.3315544	0.1171375	2.83	0.006***
Farm size (X_5)	-0.0843962	0.0217974	-3.87	0.000***
Output (X_6)	0.005706	0.0012955	4.40	0.000***
Farming experience (X_7)	-0.0041715	0.0052912	-0.79	0.432NS
R ²	0.8445			
Adjusted R ²	0.8348			
F-statistic	87.65***			

Source: Field Survey, 2017

=significant at 5%, * = significant at 1%, NS = not significant

Constraints associated to rice cooperative societies

Despite the numerous benefits of cooperative societies to rice farmers', there were some constraints that hinder cooperative activities. The results on Table 4 show that discriminating attitude of cooperative officials (74.17%), inability to access loan/credit (70.00%), complicated administration procedure (66.70%), lack of membership commitment (66.70%) and selfishness of members (64.17%) were some of the major constraints limiting rice farmers' participation in cooperative activities. From all indication members are the enemies of their own success. Human factor with regard to members' behavior and attitude is the major challenges limiting rice farmers' chances of reaping the full scale benefit of participating in cooperative organization.

Table 4: Constraints associated to rice cooperative societies

Constraints	Frequency	Percentage (%)	Rank
Complicated administration Procedure	80	66.67	3 rd
Lack of knowledge about the benefits of the cooperative society	52	43.33	11 th
Poor leadership style	39	32.50	12 th
Poor membership contribution	71	59.17	9 th
Lack of trust among members	73	61.34	8 th
Inadequate skilled personnel	62	51.67	10 th
Lack of membership commitment	80	66.67	3 rd
Selfishness of members	77	64.17	5 th
Lack of membership cooperation	76	63.33	7 th
Disproportionate distribution of items	77	64.17	5 th
Inability to access loan/credit	84	70.00	2 nd
Discriminating attitude of cooperative officials	89	74.17	1 st

Source: Field Survey, 2017

Differences between the output of rice farmers before and after joining the cooperative society

The result on Table 5 reveals that $t_{cal} > t_{critical}$, which implies that there is a significant difference between the rice output produced by farmers before and after joining the cooperative societies. Thus, mean paddy rice produced by farmers after joining the cooperative is higher than output before being a member, by implication, farmers enjoy greater output as a result of participating in the activities of cooperative societies.

Table 5: Differences between the output of rice farmers before and after joining the cooperative society

Variables	Mean	Difference	T-Value
Output before joining cooperative	56.53333		$t = 5.2108^{***}$
Output after joining cooperative	74.33333	3.415984	
			T-critical = 1.0

Source: Field Survey, 2017

CONCLUSION AND RECOMMENDATIONS

From the findings of the study on the perceived benefits of farmers' cooperative societies to rice production in selected LGAs of Abuja, Nigeria, the result revealed that there is significant difference between the rice production output of farmers before and after joining the cooperative societies. The majority of the cooperative members perceived their membership to be very supportive in their rice production enterprise. However, only members with higher level of education, married, males, higher output and low farm size tend to acquire more benefit from participating in the cooperatives. Therefore, it was recommended that Agricultural stakeholders should encourage farmers to operate a functional cooperative that could facilitate credit and group dynamism. Financial institutions should educate cooperatives on the requirement for accessing loan so as to enhance their members' productivity. Equally, members should be enlightened on the etiquettes of group participation and membership so as to curb their poor attitude towards group activities.

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