Effects of Membership of Rice Farmers Associations on Access to Institutional Support for Rice Production in Kaduna and Kano States, Northwest Nigeria

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Abstract
The study examined the effects of membership of Rice Farmers Associations (RFAs) on access to institutional support for rice production in Kaduna and Kano States, North West Nigeria. A multi-stage sampling procedure was used for the selection of 282 respondents comprising of 141 members and 141 non-members from both States while semi-structured questionnaires were used for data collection. Data was analysis was done using descriptive statistics and Z-test. Results of the study showed that members had significantly higher amount of agricultural credit than non-members in Kaduna and Kano. There was no significant difference at $P<0.05$ in access to agricultural extension services among members and non-members in Kaduna. In Kano, access to agricultural extension services was significantly better among members than non-members. Access to improved seeds and subsidised fertiliser through the Growth Enhancement Support Scheme of the Federal Government was not influenced by membership of RFAs in the study area. The study concluded that access to institutional support for rice production was similar among members and non-members of RFAs. It is recommended that the government should ensure that farmers are not only encouraged to join associations but are supported with necessary inputs and extension advisory services to boost food production. Existing local structures that farmers depend on for support in food production should be identified and strengthened for them to provide better services.
Keywords: Rice Farmers Associations, access to credit, access to extension services, access to seeds and subsidised fertiliser, Nigeria

1. Introduction

Adoption of improved agricultural technology is crucial to the attainment of self sufficiency in food production and access to agricultural extension services and availability of farm credit for food production are major drivers of adoption of improved agricultural technology by farmers. It has been observed that members of farmers associations have better access to farm credit and agricultural extension services than non-members (Okwoche and Obinne, 2010). In view of this, efforts have been made by the Government of Nigeria to ensure that farmers across the country access improved production technology through extension services. Moreover, rice farmers are being encouraged to form commodity associations to enhance adoption of improved rice production technology and increased income through better access to extension services and critical farm inputs.

Conceptually, cooperatives are all types of business enterprises or organisations owned and controlled by members in the pursuit of perceived mutual benefits and need actualisation (Trewin, 2003). Farmer cooperatives are regarded 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). Cooperatives are useful in overcoming access barriers to assets, information, services, and markets for high value products; they also assist some Nigerian small scale farmers in solving land, labour and capital problems (Nweke, 1979 and Holloway *et al.,* 2000). Farmers' cooperative associations in Oyo State, Nigeria, function well as agent, medium, and target of change for agricultural extension in their domains (Jibowo *et al.*, 1994). Contrastingly, a survey by Savannah Conservation of Nigeria (2004) in Daudawa and Tafoki Local Government Areas of Katsina State, Nigeria reported that most farmers' groups in the study area were at their embryonic stage of development. They were found to be economically weak with low capacity in resource mobilisation and collective action for improved access of members to farm inputs and technical services.

Findings of survey of farmers' groups in the Kano River Irrigation Project by Community Empowerment Initiative (2004) revealed that although most of the groups had legal registration status and a formal leadership structure, few had a good financial base or a sound income generating source. In another study among farmers in Abuja FCT, Ajah (2012) reported that farmers' level of education and cooperative membership did not affect access to extension services. It is against this background that this study was conducted to investigate the effects of membership of Rice Farmers Associations on access to institutional support for rice production in the study area. The specific objectives of the study were to:
  i.   describe the socioeconomic characteristics of members and non-members of Rice Farmers'

Associations in the study area;

ii.   determine the effect of membership of Rice Farmers Associations on amount of farm credit utilised for rice production.

iii.   compare access to improved seeds and subsidised fertiliser among members and non-members; and

iv.   determine the effect of membership of Rice Farmers Associations on access to agricultural extension services.

The study hypothesised as follows:

- There is no significant difference in access to extension services among members and non-members of Rice Farmers Associations in the study area
- There is no significant difference in access to improved seeds and subsidised fertiliser among members and non-members.
- There is no significant difference in the amount of credit obtained for rice production among members and non-members.

2. Methodology

2.1 Study Area

The study was conducted in Kaduna and Kano States. Kaduna State is in the North West geopolitical Zone of Nigeria. The State lies between latitude 09^0 02'N and 11^0 32'S and between longitude 96^0 15'E and 08^0 60'E, at Coordinates: $10^031'23''$N $7^026'25''$E (www.kadunastate.gov.ng) where it occupies a land area of 45,567km² with a projected population of 7,328, 597 in 2012 based on 3.2% annual growth rate (NPC, 2006) and a population density of 500 people per kilometre especially within the Kaduna and Zaria axis. The State is made up of 23 Local Government Areas. The State has an altitude of 500-1000 m above sea level and an annual average rainfall of 1,272 m (World Bank, 2008a). The farming season in the State is characterised by the rainy season which lasts for six months from May to October and the dry season from November to April. The vegetation in the State ranges from the Guinea Savannah in the southern part to the Sudan Savannah in the north. Maize, Rice, Sorghum, Millet, Soybean and Groundnut are some of the major crops grown by farmers in the State.

Kano state is also located in the North-west geopolitical Zone of Nigeria between latitudes 13^0 N and 11^0 S and longitudes 8^0N and 10^0 E with a land mass of 20,760 km². It has a projected population of 11,206,688 million in 2012 based on NPC (2006). The average annual rainfall is 700 mm with 35^0 C and 19^0 C as mean daily maximum and minimum temperature respectively. Major crops cultivated by farmers in the State include rice, maize, millet, cowpea, groundnut and vegetables. The Kano State Agricultural and Rural Development Authority is the agency of government mainly responsible for extension services in the State.

2.2 Sampling procedure and sample size

Rice farmers from both States were the target population for the study. Multi-stage sampling procedure was used for selecting respondents. The first stage involved purposive selection of two Local Government Areas from each State. In this regard, Kura and Bunkure in Kano State were selected while in Kaduna State, Igabi and Kajuru were preferred on account of the importance of rice as a prominent crop in the areas. The sample frame for Rice Farmers Associations is constituted by 936 registered members based on figures for the selected LGAs provided by Kaduna Agricultural Development Programme and Kano Agricultural and Rural Development Authority. In the second stage of sampling, two settlements were purposively selected from each of the 4 LGAs. In Kura LGA in Kano, Bakin Kogi and Rimin Kwarya were selected while Refawa and Bela were selected in Bunkure LGA. The selected locations for Igabi LGA in Kaduna State were Fako and Ligyara. In Kajuru LGA, Kasuwan Magani and Kallah were the preferred locations for the study. The locations were selected based on the presence of rice growers both as members and non-members of Rice Farmers Associations. From the sample frame of 936 members of Rice Farmers Associations, 141 respondents (15%) were selected randomly across settlements in the two States for the study. The same number of non-members of Rice Farmers Associations was selected randomly from each location giving a total of sample siZe of 282 comprising of 141 members and 141non-members. Data collected were analysed using Z-test and descriptive statistics such as frequency, mean and percentage.

3. Results and Discussion

3.1 Socioeconomic characteristics of respondents

Apart from years in formal education and ownership of mobile phone, the results showed that there were significant differences in the socioeconomic characteristics of members and non-members of Rice Farmers Associations (Tables 1a and 1b). Members had 5 years of formal education as compared to 6 years for non-members. About 89% of members and 85% of non-members used mobile phones. Significant differences were found in age, household size, number of household labour, years of experience in rice production, and size of rice field. Members were older than non-members. Average ages of members and non-members were 43 and 39

years respectively. Members had a larger household size (8.73) than non-members (6.95). Size of household labour among members was greater (3.49) than the figure obtained among non-members (2.70). Members had more years of experience in rice cultivation (17.4) than non-members (12.07).

3.2 Access to agricultural credit

Amount of credit obtained for rice production among members of Rice Farmers Associations was higher than the figure obtained for non-members in the pooled results and also in both States (Table 2). Amount of credit obtained by both members and non-members of Rice Farmers Associations in Kano State was higher than that of their respective counterparts in Kaduna State. Mean amount of credit among members in Kaduna State was significantly higher (N 20,050) than that of non-members (N 7,052) at $P<0.05$ as the calculated Z-value (2.275) is greater than the tabulated Z-value (1.96). In Kano State, mean credit among members (N 66,845) was significantly higher ($P<0.05$) than the figure for non-members (N 27,150) based on the result of the Z-test. For the pooled data, amount of credit obtained by members was N 51,725 while that of non-members was N 21,229. There is a significant difference in the mean amount of credit obtained for rice production by members and non-members of Rice Farmers Associations at $P<0.05$ in the pooled results. Okwocha and Obinne (2010) found significant difference in the amount of agricultural credit obtained by women co-operators (N 43,350) and non-cooperators (N 22,183). In the pooled data from Ekiti and Ogun States, Afolami *et al*. (2012) reported that 19.4% of the respondents had access to credit as opposed to 80.6% with no access.

3.3 Access to extension agents

Among rice farmers in Kaduna State, 52% of members of Rice Farmers Associations and 35% of non-members had access to extension agents from Kaduna State Agricultural Development Programme (Table 3). This implied that about 48% of members and 65% of non-members did not have access to extension agents. The results show that members of Rice Farmers Associations had better access to extension agents than non-members. The Chi-Square value obtained confirmed the existence of a significant relationship at $P<0.10$ between access to extension agents and membership of Rice Farmers Associations. In Kano State 86% of members of Rice Farmers Associations and 66% of non-members had access to extension agents from Kano State Agricultural and Rural Development Authority. The results implied that about 25% of members and 44% of non-members did not have access to extension agents. There is a significant relationship at $P<0.01$ between access to extension agents and membership of Rice Farmers Associations in the State. Both members and non-members of Rice Farmers Associations in Kano State had better access to extension agents than their corresponding groups in Kaduna State.

In the pooled data, 75% of members of Rice Farmers Associations and 56% of non-members had access to extension agents while 25% of members and 44% of non-members did not have access to extension agents. The value of the Chi-Square obtained indicates a significant association at $P<0.01$ between access to extension agents and membership of Rice Farmers Associations. Ogundele and Okoruwa (2006), found a significant difference in the number of contacts with extension agent among rice farmers adopting improved technology and those using traditional system. Okwocha and Obinne (2010) also observed a significant difference in extension contacts among women cooperative members and non-members in Benue State. However, Ajah (2012) reported that there was no significant difference ($p>0.05$) in cooperative and non-cooperative members' access to extension services though the mean responses indicated that cooperative farmers had, slightly, more access to extension services than non-cooperative farmers.

3.4 Access to subsidised seeds and fertiliser

In Kaduna 52% of members of Rice Farmers Associations and 40% of non-members received improved seeds and subsidised fertiliser through GESS while 48% of members and 60% of non-members did not receive the inputs through GESS (Table 4). There is no significant relationship between membership of association and access to improved seeds and subsidised fertiliser through GESS. The results for Kano State show that 98% of members of Rice Farmers Associations and 100% of non-members obtained improved rice seeds and subsidised fertiliser through GESS while 2% of members did not receive the inputs. No significant relationship was found between membership of association and access to GESS inputs. More rice farmers collected farm inputs through GESS in Kano State than in Kaduna State. In the pooled results, 83% of members of Rice Farmers Associations and 80% of non-members registered obtained GESS inputs. There is no significant relationship between membership of association and access to GESS inputs meaning that collection of inputs was not influenced by membership or non-membership of Rice Farmers Associations in the two States. In a study on effectiveness of GESS in Kwara State, North central Nigeria, Adebo (2014) reported that 51% and 87.2% of the respondents benefitted from subsidised improved rice seeds and two bags of fertiliser each.

4. Conclusion and Recommendations

With the exception of years of formal education, and use of mobile phone, the results showed significant differences in other socioeconomic characteristics namely age, household size, household labour, size of rice field and experience in rice farming among members and non-members of Rice Farmers Association in the study area. Members had significantly higher amount of agricultural credit than non-members in Kaduna and Kano. There was no significant differences at P<0.05 in access to agricultural extension services among members and non-members in Kaduna. In Kano, access to agricultural extension services was significantly better among members than non-members. Access to improved seeds and subsidised fertiliser was not influenced by membership of Rice Farmers Associations in the study area. The study concluded that access to institutional support for rice production was similar among members and non-members of RFAs. It is recommended that the government should ensure that farmers are not only encouraged to join associations but are supported with necessary inputs and extension advisory services to boost food production. Existing local structures that farmers depend on for support in food production should be identified and strengthened for them to provide better services.

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Table 1a: **Socioeconomic characteristics of respondents**

Variable	Members		Non-members	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Age				
≤ 20	4	2.8	9	6.2
21-40	75	51.7	75	51.7
41-60	49	33.8	55	37.9
> 60	17	11.7	6	4.2
Total	145	100	145	100
Mean	43.097		39.476	
Calculated Z	2.547*			
Tabulated Z	1.96			
Household size				
0-5	46	34.8	65	49.2
6-11	41	31.1	38	28.8
12-17	39	29.5	27	20.5
18-23	6	4.6	2	1.5
Total	132	100	132	100
Mean	8.73		6.95	
Calculated Z	2.804*			
Tabulated Z	1.96			
Household labour				
0-3	72	51.4	98	70.0
4-7	56	40.0	34	24.3
8-11	12	8.6	7	5.0
>11	0	0	1	0.7
Total	140	100	140	100
Mean	3.493		2.700	
Calculated Z	2.301*			
Tabulated Z	1.96			

Table 1b: Socioeconomic characteristics of respondents

Variable	Members		Non-members	
	Frequency	Percentage	Frequency	Percentage
Years of formal education				
0-6	82	60.74	73	54.07
7-13	46	34.07	60	44.44
14-20	7	5.19	2	1.48
Total	135	100	135	100
Mean	5.089		6.148	
Calculated Z	-1.660			
Tabulated Z	1.96			
Years of rice farming				
<4	1	0.83	6	4.96
4-11	53	43.80	69	57.02
12-19	24	19.83	21	17.36
20-27	22	18.18	17	14.05
28-35	14	11.57	6	4.96
>35	7	5.79	2	1.65
Total	121	100	121	100
Mean	17.480		12.072	
Calculated Z	4.156*			
Tabulated Z	1.96			
Size of rice field				
<1	7	4.86	9	6.25
1-3	80	55.56	102	70.83
4-6	34	23.61	28	19.44
7-9	5	3.47	4	2.78
10-12	14	9.72	1	0.69
>12	4	2.78	0	0.00
Total	144	100	144	144 (100)
Mean	3.932		2.592	
Calculated Z	4.260*			
Tabulated Z	1.96			
Use of mobile phone				
Yes	129	89.0	124	85.5
No	16	11.0	21	14.5
Total	145	100	145	100
Chi-Square	0.77(0.38)			

Table 2: Amount of agricultural credit used for rice production among members and non-members of Rice Farmers Associations in Kaduna and Kano States

Amount of credit (Naira)	Kaduna		Kano		Pooled	
	Member	Non-member	Member	Non-member	Member	Non-member
<1000	25(52.08)	33(68.75)	44 (45.36)	70 (72.16)	69 (47.59)	103 (71.03)
1000-50,000	17(35.42)	15(31.25)	11 (11.34)	3 (3.09)	28 (19.31)	18 (12.41)
51,000-100,000	5(10.42)	0(0.00)	28 (28.87)	19 (19.59)	33 (22.76)	19 (13.10)
101,000-150,000	0(0.00)	0(0.00)	7 (7.22)	1 (1.03)	7 (4.83)	1 (0.69)
>150,000	1(2.08)	0(0.00)	7 (7.22)	4 (4.12)	8 (5.52)	4 (2.76)
Total	48(100)	48(100)	97 (100)	97 (100)	145 (100)	145 (100)
Mean	20,052	7,052	66,845	27,150	51,725	21,229
Calculated Z	2.275*		2.656*		2.889*	
Tabulated Z	1.96		1.96		1.96	

Table 3: Access to extension agents among members and non-members of Rice Farmers Associations in Kaduna and Kano States

Access to extension agent	Kaduna		Kano		Pooled	
	Member	**Non-member**	**Member**	**Non-member**	**Member**	**Non-member**
Yes	25(52.1)	17(35.4)	83(85.6)	64(66.0)	108(74.5)	81(55.9)
No	23(47.9)	31(64.6)	14(14.4)	33(34.0)	37(25.5)	64(44.1)
Total	48(100)	48(100)	97(100)	97(100)	145(100)	145(100)
Chi-Square	2.709		10.137***		11.075***	
	(0.10)		(0.001)		(0.001)	

Table 4: Access to subsidised seeds and fertiliser among members and non-members of Rice Farmers Associations in Kaduna and Kano States

Access to GESS seeds and fertiliser	Kaduna		Kano		Pooled	
	Member	**Non-member**	**Member**	**Non-member**	**Member**	**Non-member**
Yes	25(52.1)	19(39.6)	95(97.9)	97(100)	120(82.8)	116(80.0)
No	23(47.9)	29(60.4)	2(2.1)	0(0)	25(17.2)	29(20.0)
Total	48(100)	48(100)	97(100)	97(100)	145(100)	145(100)
Chi-Square	1.510		2.021		0.364	
	(0.219)		(0.155)		(0.546)	