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Agricultural Resource access and the Influence of Socioeconomic Characteristics Among Rural Women in Borno State, Nigeria

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Abstract

Agricultural resource access and the influence of socioeconomic characteristics among women in Borno State, Nigeria was the main objective of this study. The data for the study were generated by the use of structured questionnaire which was administered to 266 respondents obtained by the use of multistage random sampling technique. The techniques used to analyze the data generated for this study were descriptive statistics and the binary logistic regression analyses. The major findings of the study showed that respondent's socioeconomic characteristics indicated high levels of illiteracy (59.4%), non-membership of cooperatives (89.8%), no extension contact (72%) and low access to credit (89.4%). Access to production resources including fertilizers, agrochemicals, family and hired laours and land ownership were low. Some socio-economic factors influenced the likelihood of women's access to production resources. These factors included cooperative membership, years of schooling, farm income, extension contact, off-farm income, family size, age, farming experience and farm size. It was recommended that agricultural development planners should work at enhancing rural women's access to socioeconomic factors which enhance their access to production resources for more efficient agricultural productivity.

Key words

Access, agriculture, Borno State, production resources, rural area, socioeconomic characteristics, women.

Introduction

The food security and agricultural development of Nigeria lies in the hands of subsistence farmers in an extensive agricultural system. Particularly striking is the fact that rural women more than their male counterparts take the lead in agricultural activities making up to 60 – 80 percent of the agricultural labour force in the country (World Bank, 2003; Mahmood, 2001) depending on the region. They also provide two thirds of the food crop (Ogunlela and Muktar, 2009). Despite women's significant contribution to Nigeria's agricultural production, women's productivity is often constrained by a lack of access to productive resources (World Bank, 2001, Odame et al., 2002 and Welch et al., 2000). Empirical studies have shown that the deprivation women face in terms of agricultural production resource access is influenced by the socioeconomic characteristics of women. These socioeconomic characters include women's level of education and credit access (Okunade, 2007), access to extension information and cooperatives (Ogato et al., 2009), farming experience, and decision making powers (Damisa and Yohanna, 2007)). The study of Ogato (2009) found that socioeconomic factors of respondents in that study affected women's ability to access resources.

The socioeconomic characteristics of respondents are important determinants of women's accessibility to production resources. In most developing countries, there is a patriarchal system of social setting where men hold the sovereign power to control households and society as a whole, while women are ascribed a lower hierarchy compared to men (Balk, 1997). The likelihood that such a system will affect women's access to socioeconomic factors has implications for women's access to agricultural production resources. This study is an attempt to investigate the effect of women's socioeconomic characteristics on women's access to production resources in Borno State, Nigeria.

The main objective of this study was agricultural resource access and the influence of socioeconomic characteristics among women in Borno State, Nigeria.

Literature Review

Okunade (2007) in a study on accessibility of agricultural credit and input to women farmers in Osun State noted that the multiple regression analysis in the study showed a positive and significant relationship between level of education and accessibility to credit and other inputs. He also showed from the study that women's access to factors of production tended to increase with increase in age and income. As is commonly the case, most women with little or no education were landless. They were thus hindered from properly pursuing access to other farm resources. Bantilan and Padmaya (2008) carried out a focus group study on "Empowerment through social capital build-up: Gender dimensions in technology up-take". The study was conducted among women in Umra and it was found that access to membership of women groups like cooperatives and other social networks tended to improve women's skills in agriculture. This finding had a bearing with the findings of Onemolease (2002) titled Extension Needs of women Cassava farmers in Iguebe and Esan North East Local Government Area of Edo State, Nigeria. In the study, access to skill in application of agrochemicals was low among women cassava farmers because the women did not belong to cooperatives. The result was the reduction of women's production efficiency. A similar study titled "Impacts of the women-In-Agriculture (WIA) extension programme on women's lives" was carried out by Odurukwe et al. (2006) in Imo State. Using descriptive statistics, it was found that women's membership of groups enhanced their access to decision making powers, and farm inputs. The implication of the foregoing is that the socioeconomic status of women is important in determining women's accessibility to agricultural production resources. Some of these socioeconomic factors observer in literature included marital status; credit and education. Others were age, decision making powers, finance and membership of cooperatives and other social networks.

Methodology

This study was conducted in Borno State, Nigeria. Multistage sampling technique was used to select 266 respondents for the study while primary data was sourced by the use of structured questionnaire and/interview schedule that was administered by trained enumerators. Descriptive statistics (The Likert scale) and logit regression model were the analytical tools used. In the Likert scale, zero mean represented "no access"; 1 represented "low access"; 2, "medium access" and 3, "high access". The scale was used to create a rank order of level of access among the resources from the least to the highest access. This was achieved by calculating the mean access and the coefficient of variation (CV) and comparing the mean values with the specified scale.

Results and discussion

The socioeconomic characteristics of respondents in the study area as presented in Table 1 revealed that 72% had no extension contact; almost 90% were none - membership of cooperatives, farm income was less than 30, 000 naira per annum for over 60% of respondents while almost 90% did not receive credit for their agricultural activities. Illiteracy was reported by almost 60% of respondents. The result also showed that most respondents (almost 60%) had family sizes of 1 – 10 people while 77% had many years of farming experience (over 10 years) indicating that they were well experienced farmers. Over 80% of respondents were aged between 25 and 48 years implying that majority of the respondents were relatively young and agile for farm work. In this study, access to resources is understood to mean the ability of a rural farmer to get sixteen socioeconomic resources and accrue benefits from them. These resources include production resources such as land, family labour, hired labour, mechanization, fertilizer, pesticide, improved seeds and membership of cooperatives Data contained in Table 2 showed the extent of women's access to these resources in the study area using the Likert scale. The rank order from the Likert scale showed that respondents had better access to some resources in comparison to others.

The better accessed resources were farm land (mean score: 1.32) and hired labour (mean score: 1.03) which according to the Likert scale indicated low access to own land and hired labour. Respondents' accesses to other resources were very limited (less than 1). On the basis of the rank order, these resources were family labour (mean score: 0.94), improved seeds (0.67), fertilizer (mean score: 0.67), Mechanization (0.59) and agrochemicals (mean score: 0.47). The result showed therefore that respondents' access to farm production resources were low. Generally, the inverse relationship between the mean access and CV was

Factors	Percentage	Factors	Percentage
Membership of Cooperatives		**Family size**	
		1-5	16.5
Non member	89.8	6-10	42.5
Member	10.2	11-15	27.8
Highest level of schooling completed		16-20	11.3
No formal schooling	59.4	21-25	0.4
primary	19.9	**Farm income/annum(₦ '000)**	
secondary	12.0	<10	7.9
tertiary	8.7	10-29	56.4
Extension Contact		30-49	17.6
No contact	72.5	50-69	13.8
1-4	12.0	≥70	4.3
5-8	6.8	**Off farm income/annum(₦ '000)**	
9-12	7.9	1-50	13.6
>12	0.8	51-100	21.4
Farming experience (years)		101-150	9.0
1-10	22.6	151-200	5.6
11-20	59.5	201-250	4.1
21-30	12.7	251-300	0.8
31-40	3.7	301-350	2.3
>40	1.5	>350	0.4
Age			
<25	3.4	**Credit (₦ '000)**	
25-36	38.0	no credit	89.4
37-48	41.7	1-10	1.5
49-60	13.9	11-20	5.6
>60	3.0	>20	3.5

Source: Field Survey, 2010

Table 1: Social factors of respondent farmers in the study area.

Resources	Frequently	Occasinally	Rarely	Not at all	*Mean	CV	SD	Rank by mean values
Farm Land	4.5	38.5	41.0	15.0	1.32	60	0.791	1
Hired Labor	6.0	30.9	23.4	39.6	1.03	95	0.974	2
Family labor	3.8	29.4	20.8	46.1	0.94	114	1.974	3
Seeds	2.3	15.5	29.4	52.8	0.67	122	0.818	4
Fertilizer	1.9	10.6	37.0	50.6	0.64	117	0.749	5
Mechaniza-tion	1.5	12.5	29.8	56.2	0.59	129	0.764	6
Insecticide	1.7	12.6	16.6	69.5	0.47	166	0.777	7

Source: Field Survey, 2010

Table 2: Respondents' access to productive resources in the study area (n = 266).

consistent. This outlook revealed a situation where the dichotomy between the percentage of those who had access and others who had little or no access to resources continued to increase as the mean access to resources decreased among the respondents. In this study, the percentage of those who had access to resources kept falling while those without access were increasing as mean was decreasing down the ranks. The least accessed resource in the study was agrochemicals while land was the most accessible. These resources directly affect agricultural output. The observed nature of access to resources in the study area has serious implications for agricultural productivity.

In Table 3, five binary logistic regression estimates were used to determine the likelihood effect of socioeconomic characteristics of respondents on access to five specified resources (fertilizer, agrochemicals, family labour, hired labour and land ownership). The result on Table 3 is a summary of the socioeconomic characteristics of respondents that significantly affected respondents' access to the specified resources. Years in school and membership of cooperatives by respondents had significant influence on the likelihood of having access to fertilizer. Years in school increased the likelihood of access to fertilizer, while membership of cooperatives reduced the likelihood of access to fertilizer.

The decrease in likelihood of accessing fertilizer by membership of cooperatives was unexpected and may be an indication that the cooperatives to which respondents belonged were ineffective in encouraging input access. The β (exp) indicated that increasing respondents' years of schooling by 1% would result in an increase of the likelihood of accessing fertilizer among women by 1.12%. On the other hand, increasing membership of Cooperatives by 1% will bring about 0.072% decrease in likelihood of accessing fertilizer among respondents. This implies that years in school had a positive effect on women's access to fertilizer in the study area. The result implies that high level of illiteracy among respondents in the study area is a hindrance to respondents' access to fertilizer and by implication, a hindrance to respondents' agricultural productivity.

Extension contact, years in school, farm income and membership of cooperatives showed significant influence on the likelihood of accessing agrochemicals among respondents. Extension

Farm input Resources	Socioeconomic resources	β	S.E.	wald	significance*	β(Exp)
Fertilizer	years of schooling	0.111	0.032	11.996	0.001	1.118
	Cooperative membership	-2.382	0.477	24.938	0.000	0.072
Agrochemicals	Extension contact	0.343	0.060	32.272	0.000	1.220
	Years of schooling	0.119	0.044	20.744	0.000	1.000
	Farm income	0.000	0.000	6.509	0.011	1.000
	Cooperative membership	-2.817	0.665	17.950	0.000	0.060
Family labour	Extension contact	0.136	0.045	9.130	0.003	1.106
	Off farm income	0.000	0.000	4.520	0.034	1.000
	Family size	0.138	0.034	16.113	0.000	0.078
Hired labour	years of schooling	0.109	0.030	13.394	0. 000	1.115
	Farm income	0.000	0.000	0.000	0.000	1.000
	Age	0.066	0.015	18.552	0.000	0.936
	Farming experience	0.054	0.023	5.486	0.019	1.055
	Farm size	0.123	0.071	3.149	0.030	1.131
Land ownership	Off farm income	0.000	0.000	7.138	0.006	1.000
	Age	0.042	0.016	6.909	0.009	1.043
	Cooperative membership	1.520	0.488	9.715	0.002	4.573
	Farm experience	-0.042	0.023	3.376	0.006	0.958
	Farm size	0.172	0.080	4.592	0.032	1.188

*variables
Source: Field Survey, 2010

Table3: Logistic regression of socioeconomic factors that affect respondents' access to resources.

contact, years in school, and farm income increased respondents' likelihood of accessing agrochemicals. On the other hand, membership of cooperatives decreased the likelihood of accessing agrochemicals. The β (exp) indicated that a 1% increase in the accessibility of these variables (extension contact, years of schooling, and farm income) increased the likelihood of accessing agrochemicals by respondents by 1.22%, 1.0%, and 1.0% respectively while membership of cooperatives decreased the likelihood by 0.006%. These variables however were generally very poorly accessible to the respondents in the study resulting in very low access to agrochemicals and hence, lowered agricultural productivity. This explains that agrochemicals application require technical skills such that extension contact and education are of great relevance if women are to use agrochemicals effectively. Since agrochemicals need to be purchased, the level of respondents' farm income is significant in determining their ability to access agrochemicals. Membership of cooperatives unexpectedly contributed to decreasing the likelihood of women's access to agrochemicals. Ordinarily, membership of cooperatives should expose women to the relevance, and means of accessing agrochemicals. A similar trend was observes in the likelihood of accessing fertilizer. This observation suggests that there may be poor organization and ineffectiveness of cooperatives in the area with regard to input acquisition and distribution. The significant socioeconomic variables that affected respondents' access to family labour were extension contact, off farm income and family size which all increased the likelihood of accessing family labour. A 1% increase in extension contact, farm income, and family size will increase the likelihood of using family labour by 1.11%, 1.00%, and 0.078% respectively. Extension contact introduces techniques to farming that sometimes require more intensive labour supply thus, requiring all available or idle family labour. In most cases, it is only when there is insufficient family labour that hired labour is used. This is because of the extra cost implication of using hired labour. Unexpectedly, off farm income was significant. This may be because off-farm income provides respondents with the means of providing incentives to family labour. Such incentives encourage the availability of family labour. Family size was also significant in determining women's access to family labour. The larger the family size, the more the people available to work on the farm. This however is limited by age of family member Table 4.1i p42 revealed that on the average, family size was ten people among the respondents in the study.

From the results on Table 3, years of schooling, farm income, age of the respondents, farming experience and farm size all increased the likelihood of respondents' access to hired labour. Hired labour increased by 1.12%, 1.00%, 0.94%, 1.06% and 1.1% respectively with 1% increment of years of schooling, farm income, age, farming experience and farm size respectively. Education tended to increase the likelihood of making agriculture a business, thus increasing the need for more efficient labour. If hired labour was to be used, in the absence of credit, off farm income enhanced farmers' enablement to pay for hired labour. As women grew older, they may need labour to make up for their waning strength when children were grown and gone from home. Farming experience also determined the extent to which respondents needed to access hired labour. Most experienced farmers knew at what stage of their farm operations hired labour was required for best output. Such farmers utilized hired labour effectively. Farm size was important in influencing the likelihood of accessing hired labour. As farm size increased, it became more difficult for the respondents alone or even the respondents and family labour alone to handle all the work on the farm, considering that farm work was often time bound. Farm income also significantly increased the likelihood of accessing hired labour because the more the farm income realizable from a production effort, the more the farmer is willing to invest in hired labour to ensure efficient labour utilization for maximum productivity and income. This is to ensure that the business could effectively pay for the hired labour. Access to these socioeconomic factors was limited in this study. The result is a reduction in farmer efficiency and output.

The model specification of the logit regression for the socioeconomic factors that affect respondents' access to own land indicated that off farm income, age, membership of cooperatives, and farm size significantly increased the likelihood of respondents owning their own farms. On the other hand, farming experience decreased the likelihood of owning farm land among the respondents. Data on Table 4.4 showed that a 1% increase in farm size, membership of cooperatives, age, and off farm income were likely to increase the likelihood of owning land by 1.19%, 4.57%, 1.04% and 1.0% as indicated by the β exp. Farming experience decreased the likelihood of owning land among respondents in the study area by 0.6%. This is because as respondents acquired more years of farming experience, with low access to education, extension, cooperatives and credit, the tendency to

resist change increases. This is likely to result in an unwillingness to aspire unto new ways of doing things like changing from being tenants to land lords. This reduces the likelihood of owning land.

Membership of cooperatives greatly increased the likelihood of owning land by respondents because awareness of the limitations of farm lands not owned by women is increased as respondents associate with other farmers. Furthermore, off farm income is an important income source to help respondents with the wherewithal to buy their own land. Most respondents who owned land did so through inheritance. Where women are faced with the problem of inadequate land, it often informs the need to purchase land. The very low membership of cooperatives by respondents in the study area, their relatively young ages, the relatively low involvement and earning from off- farm livelihood sources will likely discourage women owning farm lands of their own in the study. Findings in this section indicated that the socioeconomic characteristics of respondents tended to limit accessibility to farm inputs.

Conclusion and recommendation

This study revealed that socioeconomic characteristics of respondents significantly contributed to women farmers' access to production resources. The stronger these characteristics are, the higher the access to production resources among farmers. Given the generally weak socioeconomic characteristics of respondents in the study area, it is therefore pertinent for agricultural development planners to take into cognizance, the need to enhance rural women's short and long term access to socioeconomic factors like education, extension services, credit facilities and membership of cooperatives. This is vital for women in agriculture to obtain enhanced access to production resources for more efficient agricultural production.

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