J. Soc. Sci., 17(3): 233-236 (2008)
PRINT: ISSN 0971-8923 ONLINE: ISSN 2456-6756
DOI: 10.31901/24566756.2008/17.03.07

Determinants of Women Farmers' Land Management Decisions in Osun State of Nigeria

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KEYWORDS Determinants; women farmers; land management; Nigeria

ABSTRACT The study examined determinants of women farmers' land management decisions in Osun State of Nigeria. Data were obtained from 100 women farmers with the aid of structured questionnaire. Respondents were selected using multi-stage sampling technique. Data collected were analyzed using descriptive statistics and multiple regression technique. Results showed that the average age of respondents was 41 years while the average farm size cultivated was about 3 hectares. Regression results revealed that farm size and farm income were the major significant factors determining women farmers land management decisions in Osun State of Nigeria. The study recommends that strategies which will encourage women farmers to expand their farm size should be designed and implemented. Extension agents should educate women farmers on modern techniques in soil conservation. Government should design policy which will make it easy for women farmers to have access to fertilizer at affordable cost.

INTRODUCTION

In Nigeria like in several other developing nations, the demand for agricultural products is continually rising due to the geometric rise in population and this has resulted in the need to intensify land use and employ other scientific ways of increasing agricultural productivity (Akinbile and Adekunle, 2000).

Engelhard (1994) noted that the loss of biodiversity, climatic change and land degradation are closely linked, and that the immediate causes are population pressure, poverty and the poor performance of extensive agriculture.

Nigeria is a country where agricultural production is being practiced by both men and women. Women in rural communities of Nigeria represent a strong and virile productive force in subsistence agriculture. They play a very important role in the management of land, agricultural, forestry and water resources (Ifaturoti, 1996). This has to do with the crucial linkage which women maintain with the environment, either as producers, processors of food and preservers of foods. Other roles of rural women in Nigeria are that they act as major purveyors of water, fuel for energy and child bearers. Thus, from these roles, it could be deduced that rural women depend majorly on the availability of natural resources. In addition, women in the rural areas of Nigeria take part in various commercial and local enterprises which make use of locally available raw materials which are vulnerable to environmental degradation. Aina and Salau (1992) opined that rural women as farmers and traders perhaps experience environmental problems much more than their male counterparts.

Land (which herein refers to as soil) as part of natural resources is more vulnerable than is generally thought, yet it remains the very basis of human existence and the foundation of our food chain (Sheng, 1989). Man's activities directly or indirectly depend on the soil. Thus, according to Aromolaran (1998), man's attitude towards soil and his treatment of it determined his degree of success in feeding his family and maintaining his home.

In Nigeria, Adewale (1994) claimed that women's efforts in the management of land as a natural resource have to a large extent been unrecognized and neglected in comparison with their male counterparts by government in the planning, devising and implementation of environmental programmes.

The problem facing Nigerian women over land, the basic resource, is that women do not have control and clear access over land. With rapidly increasing population, fallow period is now shortened in Nigeria. This leads to continuous use of the land and rapid deterioration of the natural resources, thus worsening the already low socio-economic status of women. This paper

therefore aimed at ascertaining the socio-economic characteristics of women farmers; identifying the various methods of land acquisition available to women farmers as well as determining the factors affecting their land management decisions. The study hypothesized that there is no significant relationship between farm income accruable to women farmers and the amount they spent on soil conservation. The results of the study will lead to better and increased appreciation of women farmers roles in the management of agricultural land resource.

METHODOLOGY

Study Area: The study was conducted in Boripe Local Government Area (LGA) of Osun State, Nigeria. The LGA has its headquarter at Iragbiji. The LGA is located on latitude $4^0 53^{\text{¢}}$east of the equator and longitude $7^0 38.5^{\text{¢}}$ north of the equator. Major crops grown in the area include maize, millet, yam, cassava, oil palm, cocoa and kolanut.

Sampling Procedure: Multi-stage sampling procedure was adopted for the study. The first stage involved purposive selection of 5 towns which have a number of villages under them with adequate number of women farmers in such villages. Major towns such as Iragbiji, Iree, Ada, Aagba and Ororuwo were purposely selected. The second stage involved simple random selection of 2 villages from each of the major towns selected making a total of 10 villages while the third and last stage involved simple random selection of 10 women farmers from each of the 10 villages selected. In all 100 representative sample of women farmers were used for the study.

Source of Data: Both primary and secondary data were used in the study. Primary data were collected with the use of structured questionnaire. Secondary data on women farmers' involvement in natural resource management were sourced from relevant literatures such as journals, magazines and conference proceedings. Data on socio-economic characteristics of farmers, input-output, methods of access to farmland and amount spent on land conservation were obtained from the respondents.

Data Analysis: Data analysis involved the use of descriptive statistics (frequencies, percentages and means) to describe major socio-economic characteristics of respondents, while multiple regression analysis was used to determine the factors affecting land management decisions of women farmers.

Empirical Model

Regression Analysis: In order to find out the factors determining women farmers' land management decisions, four functional forms of the model were fitted to the data obtained. The functional forms of the model are explicitly stated as follows:

Linear:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

Semi-Log:

$$Y = \ln b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + e$$

Exponential:

$$\ln Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e$$

Cobb-Douglas:

$$\ln Y = \ln b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + e$$

Where,

Y = amount spent on soil conservation (naira per annum)
X_1 = age of women farmers (years)
X_2 = family size
X_3 = education level
X_4 = farm size (hectares)
X_5 = farm income (naira per annum)
X_6 = socio-economic status (SES)
e = error term

SES in this study refers to the respondents' cultural and material possessions and social participation (Adewale et al, 2000). In this study, amount spent on soil conservation which was used as proxy for land management decisions, indicates the amount of naira spent on buying fertilizers and other land improvement inputs.

RESULTS AND DISCUSSION

Socio-economic Characteristics: Table 1 below shows the results of the socio-economic characteristics of respondents. It could be seen from table 1 that majority (75.0%) of the women farmers were within the age range of 30 and 49 years with average age of about 41 years. This implies that a larger percentage of women farmers are capable of engaging in active farm work and are also capable of taking decisions on land management techniques to boost their agricultural production which consequently enhances their income.

Fifty two percent of the women farmers which constituted the majority attended primary school while only 30% of the respondents had no formal education. This might have implications on

Table 1: Socio-economic characteristics of women farmers

Variable	*Frequency*	*%*	*Mean*
Age (Years)			
20-29	10	10.0	
30-39	40	40.0	
40-49	35	35.0	
50-59	12	12.0	
60 and above	3	3.0	
Total	100	100.0	40.5
Education Level			
No formal education	30	30.0	
Primary education	52	52.0	
Secondary education	12	12.0	
Tertiary education	6	6.0	
Total	100	100.0	
Mode of Land Acquisition			
Rent	20	20.0	
Lease	16	16.0	
Communal	8	8.0	
Family land	12	12.0	
Temporary allocation by husband	29	29.0	
Permanent allocation by husband	15	15.0	
Total	100	100.0	
Farm Size (hectares)			
0.10-4.99	88	88.0	
5.00-9.99	10	10.0	
10.00 and above	2	2.0	
Total	100	100.0	3.3
Family Size			
1-5	11	11.0	
6-10	85	85.0	
11-15	4	4.0	
Total	100	100.0	7
Amount Spent on Soil Conservation (Naira Per Annum)			
500-5699	73	73.0	
5700-10899	76	16.0	
10900 and above	11	11.0	
Total	100	100.0	4750

Source: Data analysis

women farmers better understanding of use of modern land improvement techniques in the study area. A larger percentage (29%) of the respondents acquired their farmland through temporary allocation by their husbands. Only 15% of the respondents had permanent control over land resources. This might have negative implications on their soil conservation investment.

The average farm size cultivated by the respondents was about 3 hectares with majority of the respondents (88%) cultivating between 0.1 and 4.99 hectares of farmlands. This is an indication of the fact that the respondents are small holder farmers who require the use of land improvement techniques to meet their subsistence needs.

The average family size of 7 was obtained for the respondents with majority of the respondents (85%) having family size ranging between 6 and 10. This result implies that the respondents have large family size characterizing a developing country (Oladeebo, 2003). 73% of the women farmers which constituted the majority spent between 500 and 5699 naira per annum on soil conservation while the average amount spent per annum by respondents on soil conservation was 4,750 naira.

Regression Results of Determinants of Land Management Decisions

Based on econometric, economic and statistical criteria, the linear functional form was chosen as the lead equation in the estimation of the determinants of women farmers land management decisions (Table 2).

The variables included in the model explained 67% of the adjusted variability observed in the amount spent on soil conservation by women farmers in the study area. The value of -630.67 obtained for intercept indicates that all other relevant variables which were not included in the model will reduce the amount spent on soil conservation by about 631 naira. The F-ratio which was significant at 5% level of significance shows the adequacy of the variables included in the model. Parameter estimates for the model were evaluated at the 5% level of significance and two of the six explanatory variables included in the specification of the linear model were positive and significant. These variables were farm size (X_4) and farm income (X_5). Explanatory variables such as age, family size and education level had positive signs but insignificant . Socio-economic status variable had negative sign contrary to *a*

Table 2: Results of regression analysis showing the determinants of women farmers' land management decisions

Variable	*Coefficient*	*T-value*
Constant	-630.67	
Age of respondents (X_1)	7.1486	0.1993
Family size (X_2)	151.57	0.9296
Education level (X_3)	338.94	0.7189
Farm size (X_4)	192.14	2.1130*
Farm income (X_5)	0.4693	6.0244*
Socio- economic status (X_6)	-211.01	-1.4343
R^2	0.6914	
Adjusted R^2	0.6715	
F-value	34.741*	

Source: Data analysis
* Significant at 5%

priori expectation. However, it was not a significant explanatory variable.

The significant and positive effects of farm size and farm income on amount spent on soil conservation were indications that the more the hectarage of land cultivated by women farmers, the more their consciousness about maximizing the returns for farm investments. The women farmers will be more ready and willing to invest in land management decisions. Also, the positive farm income implies that higher incomes from farm production will increase women farmers' willingness to invest in soil conservation practices. The hypothesis of no significant relationship between farm income and amount spent on soil conservation was rejected.

CONCLUSION AND RECOMMENDATIONS

Major conclusions drawn in this paper are that majority of the women farmers have no permanent control over land resources and that factors such as age, family size, education level and socio-economic status had no significant influence on land management decisions by women farmers. However, factors such as farm size and farm income were the major significant factors influencing land management decisions by women farmers. The study therefore recommends that women farmers should be encouraged to expand their farm size by reviewing the existing land allocation laws such that women will have clear and permanent title to land resources. Extension agents should educate women farmers on modern techniques in soil conservation. Lastly, government should specifically incorporate women farmers into the agricultural development plannings and poli-cies, especially policies which will make women farmers have easy access to fertilizer at reduced cost.

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