SOCIO-ECONOMIC DETERMINANTS OF FARMLAND MANAGEMENT PRACTICES IN UMUAHIA NORTH LOCAL GOVERNMENT AREA, ABIA STATE, NIGERIA

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ABSTRACT

The study examined the Socio-economic Determinants of Farmland Management Practices in Umuahia North Local Government Area, Abia State, Nigeria. Specific objectives of the study were to ascertain Farmland Management Practices of the farmers and to determine the relationship between socio-economic characteristics and farmland management practices of the farmers. Multi-stage random sampling technique was used to select one hundred and fifty farmers for the study.. Data collection was through the use of structured questionnaire. Descriptive statistics and regression analysis were employed in the data analysis. The result showed that 58% of the farmers were females; 53% were within age range of 41 and 50 years; 60% were literate at primary school level; 56% were married; 53% had household size between 6 and 10; 40% had farm size of 0.1 and 2.5 ha., while 52% had between 1 and 15 years of farming experience. The regression analysis using double log as lead equation showed positive and significant relationship between farmer's income, household size, level of education and farmland management practices at given level. The study recommended Environmental Education, Legislation, Strict Enforcement of Agro-Land Laws, and Establishment of Agro-Land Management Departments/Units in the Ministries of Agriculture as necessary for enhancement of Farmland Management Practices

Key Words: Farmland management practices, biological resources

INTRODUCTION

In Africa, two-third of the population depends on agriculture for livelihood. Agriculture cannot be practiced except on land (Henao and Baanante, 2001). The African continent over the decades, witnessed increased population growth rate. This led to unprecedented population pressure on land, which resulted to agricultural expansion, intensification, and inappropriate farming practices by farmers (Fakoya, 2001; Madu, 2001). The inappropriate farming techniques triggered the problem of land degradation commonly evident on virtually all farming areas. In south-eastern Nigeria, land degradation constitutes a chronic problem where almost every community is threatened. Madu (2001) highlighted negative impacts of land degradation to include loss of soil fertility, low yield from farms, reduced cultivable and grazing lands, disruption of roads, loss of homes and farm crops, diversion of huge sums of money from other social needs, devastation of settlement which may render indigenes refugees in their home land. Research confirmed that farmers engage in practices which promote degradation of land resources, depletion of forest and aquatic resources. This has left diversity of biological resources (plants and animals) under serious threat. Against this backdrop, this study sought to investigate the Socio-Economic Determinants of the Farmland Management Practices of arable crop farmers in Umuahia North Local Government Area, Abia State, Nigeria. Specific objectives of the study are to: ascertain Farmland Management Practices of the farmers; determine the relationship between socio-economic characteristics and Farmland management practices of the farmers.

METHODOLOGY

The study area was Umuahia North Local Government Area, Abia State, Nigeria. It occupies a total area of about 253, 979 sq. km. with a land mass of about 423, 290 sq. km. It also has a population of 220, 660 people (National Population Census – NPC, 2006). Umuahia North Local Government Area is located within South-East agro-ecological zone of Nigeria. The agro-ecological climatic condition of the study area is typical of the tropics. It has an annual rainfall range of 2000-2,500mm, average annual temperature of 27^0C and relative humidity range of 80-90% in the wet season (National Root Crop Research Institute – NRCRI, 2002). Umuahia North lies between 5^o30" and 5^o40" North of equator and longitude 7° 25" and 7° 32" East of Greenwich meridian.

Multi-stage random sampling technique was used to select respondents for the study. In first stage, ten communities were randomly selected out of thirty-four (34) communities that make-up the study area. In second stage, fifteen farmers were also randomly selected from each of the communities. Thus, the sample size was 150. Data for the study were obtained from primary source. The data were obtained by use of structured questionnaire. Questionnaires were administered to farmers by extension agents in the study area. Each questionnaire covered a package of 10 Farmland Management Practices and the farmer's personal profile.

Descriptive statistics and multiple regression analysis were used to realize the results. Descriptive statistics was used to realize objectives i and iii while objective i was used to realize objective ii.

Measurement of Variables

The dependent variable is the Farmland Management Practices. Ten Farmland Management Practices were provided (Table 2). The Farmland Management Practices of the farmers were measured by assigning the ten practices equal weight of one point each if used by a farmer and zero if otherwise. The total number of practices in use by a farmer was expressed with the maximum score obtained being 10 while the minimum score was 1. The Socio-economic characteristics of the farmers measured (independent variables) are farmer's income, farm size, age, farming experience, household size and level of education. Data collected were subjected to descriptive and inferential statistics. The model for the regression analysis is implicitly stated as follows:-

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, e)$$

Where, Y = Farmland Management Practices of farmers.

X_1 = Farmer's income (₦)

X_2 = Farm size (ha.)

X_3 = Age (years)

X_4 = Farming experience (years)

X_5 = Household size (no. of persons)

X_6 = Level of education (years in school)

e = error term.

Various functional forms were tried. The best fitted model was chosen as the lead equation. That is, the equation was chosen on the basis of the performance of the coefficient of multiple determination (R^2); F – ratio and the performance of the regressor.

RESULTS AND DISCUSSION

Result of the socio-economic characteristics of the farmers is shown in Table 1. Majority (58%) of the respondents were females, an indication that farming is largely practiced by female gender as compared with the male sex. This conforms to the assertion of Ekumankama and Igbokwe (2002) that there is greater participation of females in agricultural activities than the males. About 53% of the farmers were within age range of 41 and 50 years. In essence, most of the respondents were middle aged. This is in tandem with Egbule (2004)

who posits that there is dwindling interest and participation of teenagers and adolescents in agricultural activities. Sixty percent (60%) of the farmers were literate at primary school level. Such literacy level may not enhance adoption and could as well limit ability of farmers to harness and search for resources on improved farm technology (Medina and Leyna, 2004). Education of farmers is therefore necessary for farmers' adoption of improved Farm Land Management Practices and reaction to policy issues (Ebii, 2000).

Married respondents accounted for 56%, while 53% had household size of 6 and 10 persons. Marriage in the study area is considered a sign of responsibility and maturity. The people also marry early in order to produce children who will assist in farm work. Forty percent (40%) of the respondents had farm size between 0.1 and 2.5 hectares of farmland. These farmers can be termed as small scale farmers based on the classification of Onumadu (2001) who categorized small scale farmers as those whose farm size ranges from 0.2 – 5.9 hectares. Majority (52%) of the respondents had between 1 and 15 years of farming experience. Previous farming experience encourages acquisition and utilization of farm innovations and hence, increases agriculture productivity. It also helps the farmer to make rational choices and decisions. Table 1 also reveals that 53% of the farmers earn less than one thousand naira (₦ 1000.00) monthly. Such income is very low, hence the farmers are poor.

Table 1:   Socio-economic characteristics of farmers in Umuahia North L.G.A.

Characteristics	Frequency	Percent (%)
A. Gender		
Males	63	42.0
Females	87	58.0
Total	**150**	**100.0**
B. Age (Years)		
20-30	12	8.0
31-40	38	25.3
41-50	80	53.3
51-60	13	8.7
61 and above	7	4.7
Total	**150**	**100**
C. Educational Level		
No formal education	30	20.0
Primary education	90	60.0
Secondary education	20	13.3
Tertiary education	10	6.7
Total	**150**	**100**
D. Marital Status		
Married	85	56.7
Single	20	13.3
Separated	5	3.3
Widowed	40	26.7
Total	**150**	**100**
E. Household Size		
1-5	40	26.7
6-10	80	53.3
11-15	20	13.3
16-20	10	6.7
Total	**150**	**100**
F. Farm Size (Hectares)		
0.1-2.5	60	40

2.6-5.0	40	26.7
5.1-7.5	35	23.3
7.6-10.5	8	5.3
10.6 and above	7	4.7
Total	**150**	**100**
G. Farming Experience (Years)		
< 5	15	10.0
5-10	30	20.0
11-15	79	52.7
16 and above	26	17.3
Total	**150**	**100.0**
H. Level of Income (₦)		
< 1000	80	53.3
1,000 – 2,999	35	23.3
3,000 – 4,999	10	6.7
5,000 – 6,999	15	10.0
7,000 and above	10	6.7
Total	**150**	**100**

Source, Field data

Table 2: Distribution of Respondents According to Land Management Practices used

Practices	Frequency	Percent (%)
Bush fallowing	150	100.0
Mulching	110	73.3
Cover cropping	104	69.3
Multiple cropping	150	100.0
Agro forestry	60	40.0
Crop rotation	121	80.0
Minimum tillage	150	100.0
Organic manuring	40	26.7
Plant residue/green manuring	87	58.0
Terracing	38	25.3

Source: Field data   multiple responses provided.

Table 2 shows that all the farmers (100%) engage in bush fallowing, multiple-cropping and minimum tillage. Eighty percent (80%) of others practiced crop rotation, while 73% and 69% were involved in mulching and cover-crop planting respectively. The result is in conformity with Adekoya and Ajayi (2000) who reported that farmers are aware, and do engage in various Farmland Management Practices,

Table 3: Result of the multiple regression analysis.

Co-efficient of independent variable	Linear	Semi log	Double log
Constant	40.73074* - (8.8433)	23.72035 (30.26183)	2.52921* (0.56635)
Farmers' Income (X_1)	0.00202 (0.00117)	5.74251 (2.99215)	0.11577* (0.5600)
Farm Size(X_2)	0.08525* (0.03178)	0.97125 (1.27285)	-0.04826* (0.02382)
Age (X_3)	0.14151* (0.20864)	6.38613 (7.48305)	0.06831 (0.14005)

Farming experience (X_4)	-0.24412	-3.13328	-0.07189
	(0.48367)	(4.88669)	(0.09145)
Household size (X_5)	0.56606	8.28004*	0.15908*
	(0.411370)	(2.40365)	(0.04498)
Level of education (X_6)	1.36929	-2.15785	1.03917*
	(0.38545)	(1.72091)	(0.3221)
R^2	**0.3546**	**0.3734**	**0.4647**
F-ratio	**4.36**	**4.89**	**7.60**

* Means significant at 5% level. Figures in parentheses represent the standard errors. N=150.
Source: Field data.

Table 3 shows the result of the regression analysis. The double log function was selected as "lead equation" because it had more significant regression coefficients that were appropriately signed, had higher value of coefficient of multiple determinations (R^2) and F-ratio. The coefficient of multiple determinations (R^2) was 0.4647. This implies that 46.47% of variation in the Farmland Management Practices of farmers is accounted for by the socio-economic variables investigated. The coefficients of income (X_1), household size (X_5) and level of education (X_6) were positive and significant at 5% probability level, while the coefficient of farm size (X_2) was negative but significant at the same level. This implies that these variables are important socio-economic variables influencing Farmland Management Practices of the farmers. Thus, increase in income will lead to increase in the use of sustainable Farmland Management Practices. That is higher income will give the farmers more money for possible adoption of Farmland Management Practices. Farmer's income is therefore very crucial in affecting the farmer's decision with regard to Farmland Management. This agreed with a prior expectation that farmers' incomes are positively related to their Farmland Management Practices.

The positive coefficient of household size agreed with the fact that farmers with larger household size have probability of adopting Farm land Management Practices because of the extra available labour for farm work (Fakoya, 2001). Level of education was positively related to Farmland Management Practices implying that framers with higher level of education are more likely to adopt sustainable Farmland Management Practices than those with lower educational attainment. This could be attributed to the fact that education increases the level of human understanding and capacity to acquire skills. This result is therefore consistent with the findings of Ervin and Ervin (1982) and Feder et al. (1985). They opined that higher education levels are associated with greater information on conservation measures (Farmland Management Practices inclusive) and the productivity consequences of erosion (land degradation). Education is therefore very necessary in order to increase the adoption of Farm-land Management Practices by farmers. This is because education helps to break the renowned conservation attitudes of farmers (Ebii, 2000).

Farm size had a negative but significant coefficient. This connotes that farmers with larger holdings have lower probability of using Farmland Management Practices. This could be attributed to the fact that a smaller land holding would easily be amenable to adoption of some practices as compared to large ones. Small-scale farmers are therefore more likely to adopt Farmland Management Practices. Coefficient of age (X_3) was not significant. This disagrees with the findings of Fakoya (2001) while agreeing with Garcia (2000) and Olatunji (2003) who reported that adoption of innovation (e.g. Farmland Management Practice) is hardly influenced by age. The hypothesis that stated there is no significant relationship between socio-economic characteristics and Farmland Management Practices of farmer was rejected with respect to the significant variables.

CONCLUSION AND RECOMMENDATIONS

The study was designed to investigate the Socio-economic Determinants of the Farmland Management Practices of farmers in Umuahia North Local Government Area, Abia State, Nigeria. The results of this study show that farmers engage in Farmland Management Practices especially bush fallowing, multiple cropping and minimum tillage. A positive and significant relation exists with the farmers' income, household size and level of education. Higher income, household size and level of education of farmers would therefore significantly increase farmers' use of Farmland Management Practices.

The result implicated the need for environmental education, legislation and enforcement of Farmland management laws. This is to be in addition to the establishment of Agro-land Management Department or units in the Ministries of Agriculture. Effective implementation of this would enhance Farmland Management Practices of farmers leading to increased productivity of the land.

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