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Socio-Economic Characteristics and Poverty among Small-Scale Farmers in Apa Local Government Area of Benue State, Nigeria

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Abstract. The effect of socio-economic characteristics on small scale farmers in Apa Local Government Area of Benue State, Nigeria was examined**.** Respondents (120) were selected based on multi-stage sampling procedure, and structured questionnaire was used to generate appropriate data. Descriptive and inferential statistics were employed to analyze data. The respondents were predominantly male (79.80%) between 41 – 50 years and with more than twenty years farming experience. About 45% of them have households comprising 6-10 people and implies large family size. About 48.70% of them had only primary school education and 65.80% have dependents of between 1- 5 people. A large proportion (44.50%) of respondents does not have off-farm income, and majority (62.20%) was poor. Logistic regression results showed that age (0.336) and farm size (0.415) significantly and positively affect poverty status of respondents. Years spent in formal school (-2.138) and farming experience (-0.349) were also significant. Most (62.20%) of the farmers live on less than one US dollar per day. Human capital development and training opportunity if provided will not only enhance the acquisition of more human capital, but also more income that will combat poverty.

Keywords: Poverty, effect, small-scale farmers, logit regression, socioeconomic characteristics

1. Introduction

It has been observed over the years that factors that encourage poverty have constituted serious obstacles to economic growth and development of many economies of the world [1]. These factors have eaten deep into the economic systems of the affected countries, and thus, succeeded in lowering the quality of life of the inhabitants.

Nigeria is one of the countries in Sub-Saharan Africa, where there is substantial difficulty in meeting basic human necessities for larger percentage of the population [2]. Despite Nigeria's plentiful agricultural resources and oil wealth, poverty is wide spread in the country and has increased since the late 1990s [3] with over 70 percent of Nigerians now classified as poor and 35 percent live in absolute poverty. Poverty has been a serious challenge to the government in Nigeria [4]. It is especially severe in rural areas where up to 80 percent of the population lives below the poverty line and engage in agricultural enterprise. Here also the social services and infrastructure are limited [5].

The country's poor rural women and men depend on agriculture for food and income. One of the serious effects of rural poverty, of course, is food and nutrition insecurity, and its attendant social economic and political costs. The income dimensions of poverty define poverty as a situation of low income and low consumption. This has been used for constructing poverty lines. Thus, poverty is an overall condition of inadequacy, destitution and deficiency of economic, political and social resources. Accordingly, people are counted poor when their measured standard of living in terms of income or consumption is below the poverty line. However, poverty has both income and non-income dimensions usually intertwined [6].

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Household and Individual Level Characteristics include the age, structure of household members, education, gender of the household head, and the extent of participation in the labour force. In recent times, other components that fall under this category have included domestic violence prevention, and gender-based anti-discrimination policies. Indicators of household size and structure are important, in that, they show the positive correlation between the level of poverty and household composition. Household composition, in terms of the size of the household and characteristics of its member(such as age, educational level, sex, year of farming experience, farm size in hectare, occupational status, non-farm income and farm income in Naira) is often quite different for poor and non-poor households. The Cambodian CSES (1993/1994) shows that the poor tends to have larger households, with an average family of 6.6 persons in the poorest quintile compared to 4.9 in the richest quintile. Similar patterns are found in most countries.

The specific objectives of this study are to examine the socio-economic characteristics of the small scale farmers in Nigeria; determine the poverty status among the households. It was hypothesized that socioeconomic characteristics do not significantly affect poverty status of respondents in the study area. P=poverty -poverty line is equal to one dollar (i.e. ₦160) per day [1]. It implies that people that live on less than $1 per day are poor while those that live above $1 per day are non-poor.

2. Methodology

The study was carried out in Apa Local Government Area of Benue State, Nigeria. The area has vast agricultural potential and high density of farmers. Apa Local Government has a total population of 130,000 [7]. It is situated entirely within the Northern tropical region of Nigeria with two marked seasons, namely; dry season and rainy season. The dry season commences from November to March, and rainy season from April to October. Therefore it has 7 months of rainfall and 5 months of non-rain fall.

The Local Government is known as a "GREEN LAND" of Benue State because of its soil that is fertile for the growth of arable crops such as yam, cassava, rice, pepper, cow peas, guinea corn, and leafy vegetables. The common perennial crops grown in this area are; orange, oil palm, mango, and cashew.

Multistage random sampling technique was use for sample selection. The first stage involves a random selection of two zones (i.e. 2/3) out of the total of three zones. The second stage of sampling procedures involves a random selection of three council wards from zone A and two from zone C, and this gives a total of 5 council wards. From these council wards, two communities were also randomly selected which gives a total of 10 communities. The final stage involves a random selection of 12 households (respondents) from each community and this gives a total of 120 respondents selected for the purpose of analysis. Questionnaire was designed and used for data collection.

Data were collected on age, sex, marital status, religion, household size, formal educational level, primary occupation, farm size, annual farm income, annual non-farm income, sources of farm capital, major crops grown, type of animals kept and their uses, means of communication, transportation medium, sources of electricity, sources of water, monthly household expenditure, cost of inputs used, outputs taken for home consumption, volume of output sold among others.

Objectives 1 and 2 were analyzed and interpreted using descriptive statistics such as mean, percentage and frequency distributions. The hypothesis was tested using Logit regression analysis and the factors that affect poverty status of farming households were identified. The model is a binary choice technique, which follows prediction variables or independent variables on the dependent variables. The Logit model for this study is specified as:

$$\frac{P_i}{(1-P_i)} = \frac{1+\exp(Z_i)}{1+\exp(-Z_i)} \tag{1}$$

Because the equation is nonlinear, one can linearlize the model by taking the natural log. This gives the following linear Logit model:

$$Li = \ln\left[\frac{P_i}{(1-P_i)}\right] = Z_i = \beta_0 + \beta_1 X_1 + ... + \beta_7 X_7 + e \tag{2}$$

Where $\frac{P_i}{(1-P_i)}$ is the ratio of the probability that a household is poor to the probability that a household is non – poor. Hence, the dependent variable is binary and its value is 1 for poor households and 0 for non-poor household. As Z_i range from -∞ to +∞, P_i range from 0 –1 and p_i non – linearly related to Z_i. The logic of the unknown binomial probabilities is the logarithms of the odds modeled as a linear function of X_i, in estimation form.

β_0 = Constant term
β_i = (i = 1, 2 …. 7 = vector of parameters to be estimated (regression coefficients)
X_i = (i = 1, 2 … 7) = Independent variables
i = ith observation or farm household
X_1 = Age (years)
X_2 = Sex (1=male, 0=female)
X_3 = Household size (number of people)
X_4 = Dependency ratio (the number of dependents below 18years and above 60 years per household of working age)
X_5 = Farm size (hectares)
X_6 = Farming experience (years)
X_7 = Formal education level (years)

3. Results and Discussions

The results showed that a greater percentage of the respondents (79.80%) were male, and suggests that farming activities in the study area are dominated by the male gender (Table 1).

Table 1: Distribution of Respondents According to Socioeconomic Characteristics

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Sex		
Male	95	79.80
Female	24	20.20
Age (years)		
< 20	2	1.70
21 – 30	8	6.70
31 – 40	36	30.30
41 – 50	47	39.50
> 50	26	21.80
Household Size		
1 – 5	23	19.30
6 - 10	54	45.40
11 - 15	34	28.60
16 – 20	8	6.70
Marital status		
Single	2	1.70
Married	94	79.70
Divorced	7	5.90
Widowed	15	12.70
Education		
Informal education	22	18.50
Primary education	58	48.70
Secondary education	36	30.30
ND/NCE	2	1.70
HND/Degree	1	0.80
Number of dependents		
1-5	77	65.80
6-10	39	33.30
11-15	1	0.90
Farm size (hectares)		

CHARACTERISTICS	FREQUENCY	PERCENTAGE
< 2	12	10.20
2.01 – 4	42	35.60
4.01 – 6	35	29.70
6.01 – 8	26	22.00
> 8	3	2.50
Farming experience (years)		
1 – 5	3	2.50
6 - 10	16	13.60
11 – 15	24	20.30
16 – 20	22	18.60
> 20	53	44.90
Annual farm income (Naira)		
1 – 20, 000	6	5.00
21, 000 – 40, 000	21	17.60
41, 000 – 60,000	14	11.80
61, 000 – 80,000	26	21.80
81, 000 – 100, 000	30	25.20
101, 000 – 200, 000	19	16.00
> 200, 000	2	1.70
Annual non-farm income (Naira)		
0	53	44.50
1 – 20, 000	21	17.60
21, 000 – 40, 000	19	16.00
41, 000 – 60,000	8	6.70
61, 000 – 80,000	5	4.20
81, 000 – 100, 000	8	6.70
101, 000 – 200, 000	5	4.20

Source: Field survey, 2012

Distributions of respondents by age showed that majority (39.50%) of the respondents are between the ages of 41- 50 years, and suggest that youth participation in farming is low. However, the farming population is still dominated by those that are still agile, strong and in the most productive stages of their lives, and undoubtedly increasing household farm productivity.

About 45% of the respondents have household sizes between 6-10 people implying that most farm households have large family sizes. This is in line with the report of Ogbonna [8] that farm households tend to maintain large family size, obviously to meet the large labour needs during the farming season. The results further revealed that greater percentages (79.70%) of the respondents were married thus populating the household and re-enforcing the family labour.

Distribution of respondents according to educational qualification revealed that larger percentage (48.70%) of them only had primary school education. This might be because of the increase in the minimum requirement for employment, which has made primary school graduate unemployable, causing them to revert to farming for survival. According to [9], education tends to reduce poverty, implying that the more educated the households are, the better skilled and productive they will be and be less poor. This may be responsible for the poverty of most households in the study area.

The distribution of respondents based on dependency ratio revealed that majority (65.80%) of them have between 1- 5 dependents. This ratio poses a threat on their farm income, as those that belong to this group do not make any contribution to farming activities within the household and are just depending on the household head for their needs.

Research results revealed that about 35.60% of the respondents have farm size range of 2.01- 4.00 hectares, and implies that majority of the respondents is small scale farmers. The small farm size can limit the ability of the farmers to generate tangible income and other benefits.

The Table further shows the distribution of respondents according to the farming experience. Many (44.90%) of them have farming experience of more than 20 years. This is not surprising as farming in the

study area is dominated by people above 40 years and one will literally expect majority of the them to have been farming for a long time.

The results revealed that annual farm income of the respondents is fairly distributed with households whose income range between ₦81,000 - ₦100,000 taking the lead with 25.20%. Lastly, the distribution of respondent based on their non-farm income revealed that a higher percentage (44.50%) of them does not have off-farm income. This means that majority of the household largely focus on farm enterprise.

The farmers' annual incomes were divided to a daily income, and those whose daily income was not up to one US dollar per (₦160) day were classified as poor, and those whose daily income was above one US dollar were classified as non-poor (Table 2), and this is in line with World Bank's Report [1]. Poverty is largely a rural phenomenon, and efforts are needed to lift more people out of poverty [5] and [10]. People are counted poor when their measured standard of living in terms of income is below the poverty line (one dollar per day) [6].

Table 2: Determination of Poverty Status, among the Respondents

Variable	Category	Frequency	Percentage (%)
Poverty status	Non-Poor	45	37.80
	Poor	74	62.20

Source: Field survey, 2012

The regression coefficients of age (0.336) and farm size (0.415) of respondents are positively and significantly related to the respondents' poverty status, while years spent schooling (-2.318) and farming experience (-0.349) are negatively and significantly related to the respondents' poverty status (Table 3).

Table 3: Factors Affecting Poverty Status of the Respondents

Variables	Coefficient	Standard Error	Wald	P-Value
Constant	12.187	6.075	4.024**	0.045
Age (X_1)	0.336	0.184	3.330*	0.068
Sex (X_2)	-0.329	2.794	0.014	0.906
Household size (X_3)	0.342	0.367	0.872	0.350
Dependency ratio (X_4)	-0.409	0.435	0.885	0.347
Farm size (X_5)	0.415	0.231	3.245*	0.072
Farm experience (X_6)	-0.349	0.161	4.690**	0.030
Years spent schooling (X_7)	-2.318	0.858	7.295***	0.007
Log likelihood	17.594			

Model Chi-square = 134.437(P>0.01)
Nagelkerke R Square = 0.940
*** Significant at 0.01 level of probability
** Significant at 0.05 level of probability
* Significant at 0.10 level of probability

Farm size was positively and significantly related to the probability of farmers' being poor, and means that respondents with higher farm size are more likely to be poor.

The results showed that farm experience is negatively related to household poverty status. It therefore means that the higher the farming experience the lower the probability of the household being poor. This is because increase in farming experience is associated with increase in farm income. This will definitely reduce their probability of being poor. This result is consistent with Olubanjo *et al.* [11] and Owuor *et al.* [9], and Ogbonna [8].

Years spent in school are negative and significant at 0.01 level of probability. It therefore means that an increment in the number of years spent in schooling will reduce the probability of respondents being poor. Increase in the numbers of years schooled, will help the farmers adopt innovations that will bring about increased yield and better organization of the farm. All this will reflect on their total income and help households fight poverty. This result agreed with Akghir *et al.* [12], who found out that increase in level of education will lead to a reduction in the log likelihood of being poor.

Based on the significant Chi-square model and some significant explanatory variables (age, farm size, education and farming experience), the null hypothesis that socioeconomic characteristics do not significantly affect poverty of respondents is therefore rejected, and the alternative hypothesis accepted. The implication is that socio – economic characteristics of respondents have significant effect on poverty.

4. Conclusion and Recommendations

Socio-economic characteristics of the poor households have significant influence on the poverty status of the household. Age, farm size, farm experience and years spent in school are key socio-economic variables which policy makers should infuse into the poverty alleviation programmes to evolve tangible solutions to the Nigerian poverty reduction projects which have defiled resolution.

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