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Factors Influencing Severe Poverty of Subsistence Farming Families of Coastal Communities in Southern Nigeria

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Authors' contributions

Author NAE designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author GEE managed the analyses of the study, the literature searches and typesetting of the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

This study was conducted in coastal communities of southern Nigeria to identify the factors influencing severe poverty of farming families. Through the multi-stage sampling, 80 farming families involving 60 males and 20 females were selected and were subsequently interviewed using a questionnaire. Primary data were analyzed using Tobit regression model. Results of analysis revealed that while plot size, migrant remittance, farm income, education, access to modern farming resources related inversely to depth of poverty; years of experience in farming and family size were positively related to poverty. Poverty levels were lower among unmarried family heads and female headed families. Results further revealed that plot size, income from farming, access to modern farming resources and rooms per family member were negatively significant (P<.05) in relation to poverty. Conversely, marital status of family head and average walking time to nearest water source were positively significant (P<.05) in relation to poverty. The level of educational attainment and migrant remittance were significant (P<.10) and negatively related to poverty whereas family size and average walking time to nearest health facility were very significantly (P<.01) positively related to poverty. Findings further reveal that poverty was lower for families that received migrant earnings either in form of cash or goods to support the families. The results suggest the relevance of migrant remittances in

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lifting people out of poverty. Policies aimed at encouraging increase in cultivable areas and access to land; educational advancement and training; access to health care facilities and water supply; adequate housing facilities are some measures that are likely to reduce poverty in the coastal communities. Policy options that will ensure the sustenance of remittance flows should also be encouraged.

Keywords: Severe; poverty; farming; Nigeria.

1. INTRODUCTION

Today, there are about 1 billion extremely poor people in the developing world who subsist on less than US$ 1 a day. Of these, half a billion live on less than 75 cents a day and 162 million live on less than 50 cents [1]. Agriculture is the largest sector in many developing countries (Nigeria inclusive) in terms of shares of GDP and employment and majority of the world's poor live in rural areas and depend on agriculture for their livelihoods. Most of the world's poor are rural-based and, even when they are not engaged in their own agricultural activities; they rely on non-farm employment and income that depend in one way or another on agriculture [2]. Expenditure on public goods is one of the most important government instruments for promoting economic growth and alleviating poverty in rural areas of developing countries [3].

Nigeria has a population of more than 160 million–the largest in Africa and a fast growing economy. The agriculture sector employs approximately two–thirds of the country's total labour force and provides a livelihood for about 90 percent of the rural population. Nigeria is one of the most resource–endowed nations in the world but the country is among the poorest in the world [4] and [5]. Despite Nigeria's abundant agriculture and oil resources, poverty is widespread in the country and is especially severe in rural areas where up to 80 percent of the population lives below the poverty line. According to [6], there is a persisting paradox of a rich country inhabited by poor people which has been the subject of great concern for many years, but more especially in the last decade.

Although, agriculture in Nigeria has greatly improved in the past few years because of the advent of technology and other necessary infrastructure, most farmers in rural communities are still practicing subsistence farming. Subsistence agriculture is self-sufficiency farming in which the farmers focus on growing enough food to feed themselves and their families. According to [7], planting decisions are made principally with an eye towards what the family will need during the coming year and secondarily toward market price. IFAD [8] reported that women play a major role in the production, processing and marketing of food crops and yet, women and families headed solely by women are often the most chronically poor members of rural communities. Although the greater percentage of labour force in Nigeria are provided by women who work more number of hours than their male counterparts [5], some studies have claimed that more women seem to be affected by poverty than men. Empirical studies by [9] in India, [10] in Ghana, [11] and [1] in rural Ethiopia, [6], [12], [13] and [5] have provided evidences against widespread feminization of poverty. These studies have clearly shown that male-headed families had more poverty than the female-headed families. Rural women and men in coastal communities depend on agriculture for food and income and often eke out a subsistence living. But despite their participation in subsistence farming, they often experience food deficit and income shortage. This has led to poor human living conditions which manifest in poverty [14]. Consequently, for these households to increase their incomes and in order to meet family food requirements, their poverty level has to be

reduced. But to formulate policies and programmes aimed at reducing severe poverty in the communities, an empirical study and an understanding of specific determinants of severe poverty are required. This, however, requires identifying the factors which influence severe poverty of subsistence farming families in the communities.

2. METHODOLOGY

2.1 Study Area

The study was conducted in Akwa Ibom State, Nigeria. The state is located at latitude 4°32' and 5°32' North of the Equator and longitudes 7°28' and 8°25' East of the Greenwich Meridian and occupies a total land area of 7,246Km^2. With an estimated population of 3.9 million [15], the state is bounded to the North by Abia State, to the East by Cross River State, to the West by Rivers State and to the South by the Atlantic Ocean. For administrative convenience, the state is divided into 31 Local Government Areas and has 6 Agricultural Development Project (ADP) zones viz: Oron, Abak, Ikot Ekpene, Etinan, Eket, Uyo. The study area is in the tropical rainforest region and has two distinct seasons namely: the rainy and short dry season. The annual precipitation ranges from 2000-3000mm per annum. Most of the inhabitants of coastal communities in the study area are fishermen, artisans and farmers who grow crops such as cassava, oil palm, yam, cocoyam, fluted pumpkin, okra, water-leaf, bitter leaf. In addition, some micro livestock such as rabbits, guinea pigs and grass cutters are usually raised at backyards of most homesteads.

2.2 Data Source and Method of Data Collection

Primary data were used for this study and farm level intensive itinerary survey provided the basic cross-sectional data from 80 farming families in the study area. Data were collected from farming family heads for a period of 6 months using questionnaire. Primary data included data on family income, demographic, socio-economic characteristics of family heads, farm specific variables, environmental and living condition variables.

2.3 Sampling Procedure

Multistage sampling technique was used for selecting the representative subsistence families that were used for this study. The first stage was the random selection of 2 coastal communities viz: Ibeno and Mbo Local Government Area of Akwa Ibom State. The second stage sampling was the random selection of 40 families per community to make a total of 80. The research involved 60 males and 20 females.

2.4 Analytical Techniques

The Tobit regression model which is, a hybrid of the discrete and continuous dependent variable was used to determine the impact of the explanatory variables on the probability of being poor. The model is expressed based on [16].

$$\begin{aligned} q_1 &= P_1 = X_i\beta + e_i \text{ if } P_i > P_i^* \\ &= O = X_i\beta + e_i \text{ if } P_i \leq P_i^* \\ i &= 1, 2 \ldots\ldots\ldots\ldots\ldots\ldots 80 \end{aligned} \quad (1)$$

Where q_1 is the dependent variable. It is discrete when the households are not poor and continuous when they are poor. Pi is the poverty depth/intensity defined as $(Z-Y_i/z)$ and Pi* is the poverty depth when the poverty line (z) equals the expenditure per adult equivalent. Xi is a vector of explanatory variables, β is a vector of unknown coefficients and e_i is an independently distributed error term.

The explanatory variables specified as factors influencing severe poverty are:

X_1 = Gender of the household head (D=1 if female, O if otherwise)
X_2 = Age of the family head in years
X_3 = Marital status of the family head (D=1 if married, O if otherwise)
X_4 = Tertiary education (measured as number of years spent in tertiary institution)
X_5 = Secondary education (measured as number of years spent in secondary school)
X_6 = Primary education (measured as number of years spent in primary school)
X_7 = Family size (number of family members)
X_8 = Migrant remittance (D=1 if yes, O if otherwise)
X_9 = Plot size in hectares
X_{10} = Experience in farming in (years)
X_{11} = Family labour in mandays
X_{12} = Farm income in naira
X_{13} = Agricultural credit (D=1 if yes, O if otherwise)
X_{14} = Non-farm income in Naira
X_{15} = Access to technical assistance (D=1 if yes, O if otherwise)
X_{16} = Access to modern farming resources (D=1 if yes, O if otherwise)
X_{17} = Rooms per family member (number of rooms per family member)
X_{18} = Average walking time to the nearest water source in minutes
X_{19} = Average walking time to the nearest health facility in minutes
X_{20} = Average walking time to the nearest market in minutes
X_{21} = Average walking time to the nearest recreational centre in minutes

The empirical model above was used to draw economic implications for poverty reduction strategies for subsistence farming families of coastal communities in Southern Nigeria. Following a Tobit Decomposition Framework suggested by [17] and adapted by [18] [5], the effect of changes in the explanatory variables (Xi) on the probability of being poor and the depth or intensity of poverty were obtained for subsistence farming families in the study area.

Let the expected value of the dependent variable across all observation be represented as E(qi), the expected value of the dependent variable conditional on the farming family being below the limit (zero poverty depth) be given as E(qi*) and the probability of the farming family being the threshold (i.e. probability of poverty) be represented as F(z) where z is Xβ/σ. The relationship between the variables are shown to be

$$E(q_i) = F(z)\, E(q_i^*) \quad (2)$$

For a change in the level of the independent variables, the effect on farming family poverty was broken down into two parts by differentiating equation (2) with respect to the specific poverty attribute changes shown in equation (2)

$$\delta E(q_i)/\delta X_i = F(z)\, [\delta E(q_i^*)\delta/X_i] + E(q_i^*)\, [\delta F(z)\delta X_i] \quad (3)$$

Multiplying through by $X_i/E(q_i)$, the relation in equation (3) was converted into elasticity forms as shown below:

$$\frac{\delta E(q_i)}{\delta X_i} \bullet \frac{Xi}{E(q_i)} = F(z) \bullet \frac{\delta E(q_i)}{\delta X_i} + E(q_i^*) \bullet \frac{\delta E(z)}{\delta X_i} \bullet \frac{X_i}{E(q_i)} \quad (4)$$

Rearranging equation (4) by using equation (2) we have

$$\frac{\delta E(q_i)}{\delta X_i} \bullet \frac{Xi}{E(q_i)} = \frac{\delta E(q_i^*)}{\delta X_i} \bullet \frac{Xi}{E(qi^*)} + \frac{\delta E(z)}{\delta X_i} \bullet \frac{X_i}{F(z)} \quad (5)$$

Equation (5) shows that the total elasticity of a change in the level of any independent variable consist of 2 effects:

(i) The change in the elasticity of poverty intensity for the poor households; and
(ii) The change in the elasticity of the probability of being in poverty. These elasticities were therefore computed from equation (5) above.

2.5 Test for Collinearity of Variables Used in the Model

Multi-collinearity is one of the important econometric problems of cross sectional data analysis. In this study, multicollinearity was tested between the dependent variable and independent variables to ensure the consistency and unbiasedness of the Tobit model estimates. The variance inflation factor (VIF) was employed. The VIF has a minimum possible value of 1.0. Value greater than 1.0 indicates a probably collinearity problem between the dependent variable and the dependent variable under consideration. VIF was estimated using the formula stated below:

$$VIF_j = {}^{1}\!/\!_{\{1 - R_j^2\}}$$

Where R_j^2 is the multiple correlation co efficient between dependent variable j and the independent variable under consideration.

3. RESULTS AND DISCUSSION

3.1 Test Result for Collinearity among Specified Variables in the Model

Table 1 presents the VIF test result for multi collinearity between the dependent variable and the explanatory variables used in the Tobit equation. The result revealed that there was no significant collinearity between the independent and the dependent variables in the model. The result implies that the estimates of the Tobit model have minimum variance, consistent and probably unbiased.

Table 1. The variance inflation factors (VIF) test result for multi collinearity of variables used in the analysis

Variable	VIF Estimates
Age	2.124
Family size	1.862
Tertiary education	3.537
Secondary education	1.946
Primary education	3.283
Plot size	3.611
Experience	2.373
Family labour	1.266
Non-farm income	2.686
Farm income	4.242
Rooms per family member	1.887
Walking time to water source	1.452
Walking time to health centre	3.261
Walking time to market	2.369
Walking time to recreational centre	2.718

3.2 Factors Influencing Severe Poverty of Subsistence Families

The Tobit analysis reveals that the coefficient of the gender of families' head is -0.0251. This means that relative to the male-headed families, the degree of poverty depth (0.6659) will be curb by 0.6659 for female-headed families. Thus, having a poverty depth of 0.6408 as against 0.6659 for male headed families. This could be attributed to the fact that women are often engaged in various off-farming and income generating activities that tend to increase their income and purchasing power. Besides, in Nigeria, greater percentage of labour force in farming is provided by women meaning that women work more number of hours than their male counterparts thereby increasing their incomes [5]. Evidence against widespread feminization of poverty was reported by [9] in India, [10] in Ghana, [11] and [1] in rural Ethiopia, [6,12,13,5] in Nigeria. It is revealed from these studies that male-headed families had more poverty than the female-headed families.

The coefficient of the intercept dummy of the marital status of family head is 0.0521 as revealed in Table 2. This shows that the poverty level of families headed by married persons will be increased by 5.21 percent to become 0.718 while families headed by unmarried persons will remain as 0.6659. This is so as married family heads tend to have a larger family size than the unmarried ones, which subsequently raises the family size. This result is similar to earlier and recent empirical finding by [5].

The elasticity of family size is 0.1526, meaning that a unit increase in family size will raise the poverty depth by 15.26 percent. This is obvious since most dependents particularly children contribute less to family labour and income and the family on the other hand, spends money in educating and training them in school and crafts respectively. Result agrees with earlier empirical findings by [19,20,21,22,18] and [5] whose findings showed that a larger sized family is associated with greater incidence of poverty.

The coefficient of tertiary education is -0.5442. This means that the poverty depth is decreased by 54.42 percent for individuals in families whose heads have attained tertiary education to become 12.17. Family heads without formal education have a poverty depth of

0.6659. This may be due to the fact that highly educated family heads have the tendency to adopt improved farming techniques earlier and faster than the uneducated ones. This raises the productivity and incomes of the educated heads with subsequent improvement in welfare. This result conforms with earlier empirical finding of [1] that access to public services such as health, education and transfers are important in reducing the likelihood of poverty and hunger.

Table 2. Maximum likelihood estimates of the factors influencing severe poverty of subsistence farming families

Variable	Coefficient	Standard Error	Z-value
Demographic			
Gender of family head (x_1)	-0.0251	0.0128	-1.9609**
Age of family head (x_2)	0.1887	0.1396	1.3517
Marital status of family head (x_3)	0.0521	0.0212	2.4575**
Tertiary education (x_4)	-0.5442	0.3121	-1.7437*
Secondary education (x_5)	-0.0921	0.0492	-1.8720*
Primary education (x_6)	-0.1566	0.0928	-1.6875*
Family size (x_7)	0.1526	0.0911	1.6751*
Socio-Economic			
Migrant Remittance (X_8)	-0.0720	0.0417	-1.7266*
Farm Specific			
Plot size (x_9)	-0.5100	0.2221	-2.2963**
Experience in farming (x_{10})	0.3011	0.1779	1.6925*
Family labour (x_{11})	-0.0013	0.0244	-0.0533
Farm income (x_{12})	-0.1121	0.0528	-2.1231*
Agricultural credit (x_{13})	0.1338	0.2887	0.4635
Non-farm income (x_{14})	-0.2209	0.1966	-1.1236
Access to technical assistance (x_{15})	-0.0558	0.0397	-1.4055
Access to modern farming resources (x_{16})	-0.4100	0.2055	-1.995**
Environmental and living condition			
Rooms per family member (X_{17})	-0.4840	0.2066	-2.3427**
Average walking time to nearest health facility (X_{18})	0.3137	0.1698	1.8475*
Average walking time to nearest market (X_{19})	0.5176	0.4006	1.2921
Average walking time to nearest water source (X_{20})	0.3881	0.1711	2.268**
Average walking time to nearest recreational centre (X_{21})	0.2992	0.1500	1.9947**
Constant	0.6659	0.2132	3.1234***
Sigma	0.4056	0.1963	2.0662**

****, **, * denote significance at 1%, 5% and 10%*

The coefficient of secondary education is -0.0921. This implies that families whose heads have secondary educational attainment will have a lower poverty depth of 0.5738 relative to 0.6659 for those whose heads lack formal education. Again, the reason may be that educated family heads have a higher receptivity to new agricultural methods.

Primary education has a coefficient -0.1566. This means that the level of poverty will be reduced by 15.66 for individuals whose head of families have primary education to become 0.5093 as against 0.6659 for individuals whose heads have no formal education. These results agree with earlier empirical findings by [23] and [6] that people with low levels of human capital that is, people among whom the rate of illiteracy is high and school education is low are particularly more susceptible to poverty.

The coefficient of the intercept dummy for access of families to migrant remittance is -0.0720. This indicates that the level of poverty will be reduced by 0.0720 for families having access to migrant remittances to become 0.5939 as against 0.6659 for families having no access to remittances. Remittances are private income transfers from migrants to family members in their home country which are good news for the families that receive them. Result conforms to earlier empirical findings of [24,25] and [26] who reported that remittances increase disposable income and help lift huge number of people out of poverty.

The coefficient for farming experience of the family head is 0.3011 and is positively significant (P<.10) implying that a year increase in farming experience of the head of family will result in 0.3011 unit increase in poverty depth. This could be attributed to the fact that as the years of farming experience increase, the age of these families also increase. And since agricultural labour involve a lot of drudgery, the strength available for such work decreases as the experience in farming increases. This results in a reduction of plot holding with consequent reduction in farming income and increase in poverty. Plot size would be decreased as farming experience increases due to the paucity of labour in coastal areas. This result is in conformity with earlier empirical work of [13].

The variable plot size has a coefficient of -0.5100 and is negatively significant (P<.05). This implies that a hectare increase in plot size would decrease poverty depth by 0.5100. Since the quantity of farm output relates directly with the plot area under cultivation, an increase in output is likely to increase income with consequent welfare improvement. Similar result was obtained by [1].

Farm income variable with an elasticity of 0.1121 is negative and significant (P<.05). The result implies that for every naira increase in farm income, the level of poverty will be reduced by 11.21 percent. Farming families are likely to generate more income and improve their wellbeing since an increase in the level of income accruable to them from farming activities increases the capacity to consume more and re-invest in farming and other economic activities. This result agrees with [13,5].

The coefficient of modern farming resources of -0.4100 is negative and significant (P<.05). This means that poverty depth will be decreased by 41.00 percent to become 0.2559 for families having access to modern farming resources. The poverty level for families without access to modern farming inputs is 0.6659. The reason for this is because the use of improved farming inputs invariably increases the yield of farmers which raises farm income and improves wellbeing. FOS (1999) reported that the incidence of poverty was less among farmers who use improved farming inputs.

The elasticity of -0.4840 for the variable rooms per family member is significant (P<.05) meaning that a room increase per person will reduce the poverty level by 0.4840 units. The reason for this is because overcrowded houses associated with larger family are linked to poor households who lack the financial capacity to acquire larger houses or rent spacious apartment. This invariably increases the likelihood of poverty.

The average walking time to nearest water source has coefficient 0.3881 meaning that for every minute increase in the walking time to the nearest water source, poverty depth will be increased by 0.3881 units. Hence, the nearer a family is located to water source, the less poor the family is likely to be. Result is in conformity with recent finding by [5].

The elasticity of average walking time to the nearest health facility is 0.3137 and is significant (P<.10) meaning that the level of poverty will be increased by 0.3137 unit provided there is a minute increase in the walking time to the nearest health facility. This may be attributed to the fact that families located nearer health facilities have a higher propensity to access these facilities more readily than those farer from these facilities who may be incapacitated due to deplorable nature of roads and high transportation cost. Results are synonymous with empirical finding of [1] and [5] who in their study found that access to public services like health, education and transfers is important in reducing the likelihood of poverty and hunger.

The elasticity of the average walking time to the nearest recreational center is 0.2991 and is positively significant (P<.05) implying that the level of poverty will be increased by 0.2992 unit for every minute increase in the walking time to the nearest recreational center. Thus, the nearer a family is located to a recreational center, the less likely the family will be in poverty.

3.3 Elasticity of Severe Poverty among Subsistence Farming Families

The response of subsistence families poverty to changes in every significant factor influencing it is better captured when expressed in percentage rather than the unit of measurements of the variable. Following the Tobit decomposition framework suggested by [17], the effect of changes in the explanatory variables (X_i) on the probability of being poor and the intensity of poverty were obtained as stated in the methodology. Table 2 shows the coefficients of the elasticities of the probability and intensity.

The elasticity of poverty with respect to family size is 0.1281 which shows that 100 percent rise in family size would lead to 12.81 percent rise in the probability of poverty and is inelastic. The responsiveness of the intensity of poverty to an increase in family size is 0.054 and is inelastic. This means that 100 percent increase in family size would raise the intensity of poverty by 5.11 percent. The analysis in Table 3 reveals that an increase in family size increases the probability of being poor than its intensity.

The elasticity coefficient of the probability of being poor due to increase in family heads' years in farming as shown in Table 3 is 0.3110 (inelastic) implying that for 100 percent increase in farming experience, the probability of poverty depth increases by 31.10 percent. Similarly, a 100 percent increase in years of farming results in 9.82 percent rise in the intensity of poverty (inelastic). An increase in years of farming is likely to increase the probability of poverty more than its intensity.

The coefficient of elasticity of the probability of being poor to increase in plot size which is inelastic is -0.3452. Result means that for every 100 percent increase in plot size, the probability of being poor is decreased by 34.52 percent. The elasticity of the intensity of poverty among farming families with respect to plot size is -0.1021. This means that poverty intensity can be reduced by 10.21 percent provided the size of farmland is increased by 100 percent. Both elasticity coefficients shows that they are inelastic to increase in plot size but

on the whole, an increase in plot size results in a higher percentage reduction in the probability of being poor than its intensity.

Table 3. Coefficients of elasticities of probability and intensity of severe poverty among farming families

Variables	Elasticities of		Total elasticity
	Probability of poverty	Intensity of poverty	
Family size	0.1281	0.0511	0.1792
Experience in farming	0.3110	0.0982	0.4092
Plot size	-0.3452	-0.1021	-0.4473
Farm income	-0.0717	-0.0130	-0.0847
Rooms per family member	-1.0085	-0.2110	-1.2195
Walking time to nearest water source	0.1122	0.0582	0.1703
Walking time to nearest health	0.1642	0.1350	0.2992
Walking time to nearest recreational family	0.2557	0.0389	0.2946

The elasticity coefficient of the probability of poverty to increase in farm income is 0.0717 and is inelastic. This is an indication that a 100 percent increase in farm income leads to 7.17 percent reduction in the probability of being poor. Conversely, the intensity of poverty has an elasticity coefficient of -0.0130, meaning that intensity of poverty will be reduced by 1.30 percent if income increases by 100 percent. Irrespective of the inelastic nature of both probability and intensity of poverty, an increase in farm income decreases the probability of poverty more than its intensity.

The elasticity coefficient of the probability of poverty to an increase in number of rooms per family member is -1.0085 meaning that the probability of poverty will be reduced by 100.85 percent provided number of rooms per family member is increased by 100 percent. This is the case of unitary elasticity. But the elasticity coefficient of the intensity of poverty as a result of increase in number of rooms per family is -0.2110. This implies that for every 100 percent increase in rooms per family member, the intensity of poverty will decrease by 21.10 percent. The analysis reveals that an increase in the number of rooms per member decreases the intensity of poverty less than the probability of being poor.

The elasticity coefficients of the probability of poverty as a result of increase in walking time to nearest water source and health facility are 0.1122 and 0.1642 respectively. This implies that every 100 percent increase in the walking time taken to reach the nearest water source and health facility will result in 11 and 16.42 percent increase in the probability of poverty among subsistence families. Conversely, the intensity of poverty has elasticity coefficients of 0.0582 and 0.1350 due to increase in walking time taken to reach the nearest water source and health facility respectively. Results imply that if the walking time taken to reach the nearest water source and health facility is increased by 100 percent, the intensity of poverty will be increased by 5.82 and 13.50 percents respectively. Although the coefficients are inelastic, the probability of being poor responded more to increases in walking time taken to reach both the nearest water source and health facility.

The coefficient of elasticity of the probability of poverty due to increase in walking time to nearest recreational center is 0.2557. This means that every 100 percent increase in walking

time to the nearest recreational facility will result in 25.57 percent increase in the probability of being poor. Conversely, with an elasticity co-efficient of 0.0389 for the intensity of poverty, every 100 percent increase in the walking time to the nearest recreational park will result in 3.89 percent increase in the intensity of poverty. The coefficient of intensity of poverty responded less to increase in walking time to the nearest recreational facility.

5. CONCLUSION

The study identified the factors influencing the chronically poor subsistence families using the Tobit model. The analysis shows that the most important factors influencing severe poverty in the study area were gender, marital status of family head, level of educational attainment, migrant remittances, plot size, farming experience, farm income, access to modern farming resources, rooms per family member, average walking to the nearest health facility and water source and number of rooms occupied per family member. Results further reveal that the probability of poverty responded more to increase in years of farming, family size and walking time to the nearest water and health facility than its intensity while the probability of poverty responded less than its intensity to increases in plot size, farm income and number of rooms per member. Because poverty decreases with increase in plot size, policy options that encourage increased cultivable hectarages should be formulated. Policies aimed at improving access to land among families would be an effective panacea to reduce severe poverty. Aside from these, since poverty decreases with increase in educational opportunities, policy decisions that provide training for the poor should be encouraged.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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