



ANALYSIS OF MULTIDIMENSIONAL POVERTY AMONG RURAL FARMING HOUSEHOLDS IN TARABA STATE, NIGERIA

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ABSTRACT

Rural farming households are facing high incidence of poverty which have adversely affected their standard of living. This study analysed multidimensional poverty of rural farming households in Taraba State, Nigeria. Multi-stage sampling procedure was used to sample 240 respondents. Data were analyzed using descriptive statistics, multidimensional poverty index (MPI) and Tobit regression models. Results revealed that 70.4% of the respondents were female, 53.8% of the respondents were married and 79.6% had some level of formal education. Mean household size and mean years of experience were 12 persons and 18 years respectively. Only 26.7% and 31.7% of the respondents were members of cooperative society and had access to credit respectively. Result further shows that, 57.1% of the respondents were multidimensional poor with poverty headcount of 0.571. The intensity of multidimensional poverty was 0.682 while the MPI was 0.389. The deprivation in standard of living contributed 43.5% to the overall multidimensional poverty in the study area in the period studied. The determinants of multidimensional poverty status were; sex (0.851), education (0.011), income (-1.840), access to credit (0.252) and membership of cooperatives (-0.227). This study thus recommends that rural farming households are encouraged to form or join the existing cooperative societies to enable them reaps the economies of scale within agricultural sector while reducing resource access constraints.

Key words: Multidimensional poverty, Rural, Farming households, Taraba State.

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INTRODUCTION

Poverty is a multidimensional phenomenon which has been examined by many scholars and development associates in diverse ways (United Nations, 2014; Deinne and Ajayi, 2018; Ozughalu and Ogwumike, 2018; Megbowon, 2018; Fonta *et al.*, 2019; Chen *et al.*, 2019; Oyekale *et al.*, 2019; Michael *et al.*, 2019; Gallardo, 2020; Khan *et al.*, 2020; Sulaimon, 2020). This phenomenon has over time created difficulty in reaching a definition that is bereft of biasedness and universally accepted. More specifically, there exist little agreement among researchers and policy makers on the definition of poverty (Laderchi *et al.*, 2003). Although generally accepted definition is missing, narrow and broader perspectives of poverty exist in

the literature with variations linked to diverse perceptions of well-being (Rohwerder, 2016).

Chen *et al.* (2019) perceived poverty as a set of interrelated forces which are limited resources, need, pattern of deprivation, lack of entitlement and basic security, exclusion, dependency, social class, inequality, economic position and unacceptable hardship. According to Alkire *et al.* (2015), poverty is powerlessness, insecurity, low self-confidence, malnutrition, inadequate health facilities and low social relations. Also, Michael *et al.* (2019) sees poverty as deprivation of, or insufficient access to resources is low to certain acceptable standard in the society. This study follows the Oxford Poverty and Human Development Initiative (OPHI) broader perspective and multiple deprivations in health, education and living standards.

In Nigeria, multidimensional poverty is especially severe in rural areas where social services and infrastructural facilities are inadequate (IFAD, 2012). Multidimensional poverty is higher in rural areas, where 72% of people are poor, compared to 42% of people in urban areas and the intensity of rural poverty is also higher (42%) in rural areas compared to 37% in urban areas (NBS, 2022). The scale and complexity of poverty in Nigeria differs with location (Ifelunini *et al.*, 2013). For instance, the North-East sub-region has a very high incidence of both income and multidimensional poverty (NBS, 2017; OPHI, 2017). Currently, in the South West, the MPI of 0.151 shows that poor people experience 15% of possible deprivations, while and North West, the MPI of 0.324 shows they experience over 32% of possible deprivations (NBS, 2022). Overall, 65% of poor people represent 86 million people live in the North, while 35% nearly 47 million live in the South. In general, a disparity between North and South is evident in both the incidence and intensity of multidimensional poverty, with the North being poorer.

A critical look at the incidence of multidimensional poverty in Taraba State increased from 65.1% in 2018 to 79.4% in 2021 (OPHI, 2018; NBS, 2022). Furthermore, the poverty incidence varied across the regions of the State. Northern, Central and Southern Taraba State has 83.6%, 75.5% and 78.6% of people were multidimensionally poor, respectively. In rural parts of the State where majority of the population live and practice agriculture as their main livelihood activity, the scale of such poverty and low human development could be much higher. However, a more worrisome consequence of poverty in the State aside the glaring underdevelopment in most rural areas is the issue of insecurity which has caused instability in most parts of the State. A case in point to this assertion is the challenge of Bandits, farmer-herder, and Junkun-Tiv conflicts affecting the State, especially, Takum, Ussa, Wukari, Donga, Karim-Lamido, Lau, Ardo-Kola, Gassol Local government areas. Over the years, these problems have contributed substantially in causing civil unrest leading to large scale humanitarian crisis, underdevelopment and loss of livelihoods for most residents of the State.

In a bid to reduce poverty and promote rural development, successive governments in Nigeria have over the years, been launching and implementing different agricultural programmes and policies at every tier to stamp out food insecurity and poverty. Some of the programmes and policies are National Accelerated Food Production Programme (NAFPP), National Poverty Eradication Programme (NAPEP), Agricultural Transformation Agenda (ATA), Subsidy Reinvestment Programme (SURE-P) and National Social Investment Programme (N-SIP), National Fadama Development Project, Community Social Development Projects, Seven Point Agenda, Vision 20:2020 and Millennium Development Goals (MDG). Each of these mechanisms deployed towards poverty alleviation had always ground to a standstill for one reason or the other. According to Adepoju and Yusuf (2012) and Agbaje *et al.* (2013), improper diagnosis of poverty is advanced prominently among the reasons for the country's inability to eradicate poverty over the years. This has caused poor targeting of interventions' beneficiaries resulting in lack of policy continuity (Onwuemele, 2015). An observation of the lifestyle and

set up of many community dwellers both in the rural, peri-urban and urban areas is a testimony that the poverty alleviation programmes in Nigeria have not achieved much (Ajiboye *et al.*, 2020).

Similarly, the issue of poverty in Taraba State has prompted numerous studies in recent years (Mailumo and Ajik, 2020; Gani and Adeoti, 2011; Yakubu *et al.*, 2021; Bulus and Madueme, 2022). However, in contrast to the multidimensional nature of poverty, most of these attempts considered poverty from a unidimensional angle (used income or expenditure as an indicator of poverty) whereas others only covered parts of the State. Having an understanding of the multidimensional nature of rural poverty especially the pattern and determinants is a necessity for effective pro-poor development strategies that will reduce poverty and improve people's wellbeing (Ifelunini *et al.*, 2013). Hence, there is need for a more detailed multidimensional analysis of poverty among rural farming households in the State. The specific objectives of the study were to; describe the socioeconomic characteristics of the rural farming households, determine poverty status of rural farming households and examine the determinants of poverty status of rural farming households in the study area.

METHODOLOGY

The Study Area

This study was conducted in Taraba State, Nigeria. The State is situated in the North-eastern part of Nigeria, and it lies between Longitudes $9^{\circ}30'E$ and $11^{\circ}45'E$ and Latitudes $6^{\circ}25'N$ and $9^{\circ}30'N$ with land area of 54, 473km² (Taraba State Diary, 2015). The State shares borders with Plateau, Nasarawa and Benue States to the West, Adamawa and Gombe States to the North and to the East with the Republic of Cameroon. The major tribes are Wurkum, Jukun, Mumuye, Fulfulde, Kaka and Jonjo (Taraba State Diary, 2015). The mean annual rainfall ranges from 1300mm in the south to 1000mm in the north. The raining season commences in April and ends in November with a maximum of 200 days (Taraba State Diary, 2015). Given the 3.2% projected annual growth of the population of Taraba State by National population Commission (2006), the population as at 2022 is estimated at 3,798,569 people.

The land is naturally good for agriculture with good weather for maximum yields. It is, therefore, no surprise that the state is nicknamed, "Natures Gift to the Nation" (Riki *et al.*, 2021). Agriculture is the major occupation of the people of the State employing over 70% of the total population. Crops produced in the State include coffee, tea, groundnut, cotton, maize, rice, sorghum, millet, cassava and yam. Livestock production such as poultry, cattle, goats, sheep and pig farming, are also done on fairly large scale.

Sampling Procedure and Sample Size

A multistage sampling procedure was used for this study. The first stage involved purposive selection of six (6) LGAs namely; Wukari, Takum, Lau, Gassol, Karim-Lamido and Jalingo in the State. In the second stage, two rural farming communities were randomly selected from each of the selected Local Government Area making a total of twelve (12) rural communities. The selected communities were; Rafin Kada, Gidin-Dorowa, Manya, Tampwa, Lau, Garin-Dogo, Tella, Sabon-Gida, Amache, Mutum-Daya, Kona and Mayo-Dasa. Finally, 50% of the rural farmers were proportionately selected from sample frame obtained from each of the communities selected which formed the sample size for the study.

Sources and Method of Data Collection

This study made use of primary data collected through the administration of structured

questionnaires to rural farming households.

Data Analysis

Data collected for the study were analyzed using descriptive statistical tools, multidimensional poverty index (MPI) and Tobit regression model.

Multidimensional Poverty Index (MPI)

A multidimensional poverty index (MPI) was used to measure rural farming households' poverty status. It complements money-based measures by considering multiple deprivations and their overlap based on the MPI (Alkire *et al.*, 2011). In line with World Bank Report (2010) three dimensions of poverty; education, health and standard of living were used to compute the multidimensional poverty indices (MPI) of the households as depicted in Table 1. The three dimensions are made up of 11 indicators and associated with each indicator is a minimum level of satisfaction, which is based on international consensus (such as the Millennium Development Goals (Aboaba *et al.*, 2019). This minimum level of satisfaction is called a deprivation cut-off.

Table 1: Components of MPI

Dimension	Indicator	Household's Deprivations (Yes =1, No = 0)	Weight
Education	Children schooling	If any school-aged child is not attending school	1/6
	Years of schooling	Any household member that has not attended at least six years of formal education	1/6
Health	Nutrition	If the household cannot eat three times a day throughout a year.	1/6
	Child Mortality	a child has died in the household within the five years prior to the survey	1/6
	Safe drinking water	If household have access to protected and clean drinking water (i.e. boreholes, tap water, covered well and it is within a distance of 30 minutes' walk (round-trip).	1/6
Standard of living	Consumption expenditure	Household (HH) is deprived if expenditure per capita falls short of the poverty line	1/18
	Sanitation	If households toilet is not flush or ventilated	1/18
	Electricity	If the household don't use electricity	1/18
	Cooking fuel	If Household uses "dirty" cooking fuel (dung, wood or charcoal)	1/18
	Living house	If households are leaving in a non-corrugated, uncemented, mud or thatched floor.	1/18
	Assets	If the household do not own more than one of: radio, TV, sprayer, thresher, telephone, bike, car, Refrigerator.	1/18

Source: Adapted with modification from World Bank (2010) and Alkire and Santos (2014)

Multidimensional Poverty Indices Computation

The MPI is an international measure of acute poverty which identifies the level of deprivations that people face at the same time at the household level, and shows the number of multidimensionally poor people. Computation of MPI begins with scoring of each of the indicators so that zero is assigned when not deprived and 1 when deprived. The weighted scores

of these indicators is computed as:

$$C_i = w_1 I_1 + w_2 I_2 + \dots + w_n I_n \dots\dots\dots (1)$$

where $I_i = 1$ if the person is deprived in indicator i and $I_i = 0$ otherwise, and w_i is the weight attached to indicator i with $\sum_{i=1}^d w_i = 1$.

A poverty cut-off point (k) was defined in order to identify those who are multidimensionally poor. Applying the Alkire and Foster (2011) method, the k was set at 0.33 in this study. According to Alkire and Santos (2011), the MPI combines two key pieces of households' information:

First, is the prevalence of poverty, or the proportion of people (within sampled farming households) who experienced multiple deprivations, also known as multidimensional head-count ratio (H). The equation is written as:

$$H = \frac{q}{n} \dots\dots\dots (2)$$

Where: q is the number of households who are multidimensionally poor and n is the total sample size of the households.

The second component is the intensity of their deprivation—the average proportion of (weighted) deprivations they experience (A):

$$A = \frac{\sum_{i=1}^n C_i(k)}{q} \dots\dots\dots (3)$$

Where $C_i(k)$ is the censored deprivation score of individual household i , and q is the number of households who are multidimensionally poor.

Following Alkire *et al.* (2011) and Aboaba *et al.* (2019), the Multidimensional Poverty Index is mathematically expressed as:

$$MPI = H \times A \dots\dots\dots (4)$$

A household was identified as non-poor if the weighted indicator is < 0.33 , multidimensional poor if the weighted indicator of poverty ranges from > 0.33 to < 0.50 , but severely poor if MPI is \geq to 0.50 of the weighted indicators.

Tobit Regression Model

In order to estimate the determinants of poverty among rural farming households, Tobit regression model was adopted because of the censored nature of the indicator with $0 \leq MPI \leq 1$. That is, the values of the endogenous variable lie between 0 and 1. It is preferred because it better handles censored dependent variables and it is superior to the Logit and Probit models as it measures the probability and the intensity of multidimensional poverty.

Following Tobin (1958), and as applied by Popoola (2021), the model is specified as follow:

$$y_i = y_i^* = X_i \beta_i + e_i \dots\dots\dots (5)$$

$Y_i^* = 1$ if Y_i if $0.33 \leq Y_i \leq 1$ (poor)

$Y_i^* = 0$ if $Y_i < 0.33$ (non-poor)

The model is explicitly specified as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_8 X_8 +$$

$$e_i \dots \dots \dots (6)$$

Y = Multidimensional Poverty Index of each household assumes zero value (discrete) when the household is not multidimensionally poor, and continuous when they are poor, that is equal to Y_i^* .

α = intercept term, X_i is the vector of explanatory variables, β_i = parameters of explanatory variables and e_i = disturbance term assumed to be independently and normally distributed with zero mean and constant variance. The explanatory variables are as follows;

X_1 = sex of farming household head (male =1, female = 0), X_2 = age of farming household head (years), X_3 = marital status of the respondent (married =1, single=2, widowed =3, divorced=4), X_4 = years of formal education, X_5 = household size (number of persons), X_6 = income (₦), X_7 = access to credit (yes =1, no = 0), X_8 = membership of cooperative (yes =1, no = 0).

RESULTS AND DISCUSSION

Socio-economic Characteristics of Rural Farming Households

The results of socio-economic characteristics of the respondents are presented in Table 2. The findings show that 70.4% of the respondents were female while only 29.6% were male. This finding is in line with that of Opaluwa *et al.* (2021) who assessed multidimensional poverty in Zone A agricultural development project area of Kogi State, Nigeria and found that majority (51.26%) of the respondents were female.

The average age of the respondents was 40 years with a standard deviation of 10. This implies that the respondents were young, agile and energetic enough to engage in various livelihood activities that will contribute towards improved household well-being. This agrees with the findings of Michael *et al.* (2019) who found that most of the respondents are relatively young with an average age of 46 years in rural Adamawa State, Nigeria.

Marital status of the respondents indicated that most (53.8%) of the respondents were married, while the single, widowed and divorced comprised 6.7%, 27% and 12.5%, respectively. This implies that poverty assessment is based on household sustainability level which was the reason for majority of the respondents been married and single respondents had little or dependency but rather part of the family that also depends on the head of the household in the study area. This finding goes in line with that Oyekale *et al.* (2019) who analysed multidimensional poverty among rural households in Ogun State, Nigeria and found that majority (58.22%) of rural household studied were married.

With respect to schooling, 79.6% of the respondents attained one form of formal education or the other. This indicates that households in the study area were more likely prone to accepting innovations, and hence, enhanced incomes. This is expected to have a positive effect on rural household's poverty as education is an advantage for training and skills acquisition as well as knowledge sharing through extension agents (Abah *et al.*, 2015). This is in consonance with the view of Adeniyi and Akande (2015) who opined that education is highly necessary in the adoption of new technology and the various technical operations involved in the use of mechanized systems.

The mean household size of the respondents was 12 persons. This is an indication that the households may not need to involve paid labour for farming activities since the family labour

if not engaged elsewhere, could be effectively utilized to boost level of production, increased income and household food security. This is similar to the research outcome of Mgbakor *et al.* (2014) who reported that large family labour, due to large family sizes enhances optimality in both aspects of production and processing since the cost of hired labour is reduced or avoided.

The majority (73.3%) of the respondents were not members of any cooperative organization whereas only 26.7% were cooperative members in the study area. According to the respondents, the existing cooperative societies in the area were not effective and had not made the desired impact in the life of its members, hence discouraging such members and those who might be willing to join them. This was considered a major setback since membership of such associations usually provides avenues to access services they may not be able to access on individual basis to boost their business. According to Phillip *et al.* (2018) being member of an association or a group gives opportunities to benefit more from business through sharing of risk, access to credit facilities and inputs.

The results of access to credits shows that about 68.3% of the respondents in the study area did not having access to credit facilities while 31.7% had access. The respondents reported that some of the constraining factors were the stringent collateral requirements in obtaining credit from the financial institutions, coupled with delays in approval and disbursement of loan. The implication is that the major sources of finance among the respondents were personal savings, friends or relatives and associates, who are non-institutional credit sources. Credit is considered an important policy tool necessary to ease technology adoption, stimulate productivity, create employment and increase income (Oladimeji *et al.*, 2015).

Table 2: Socio-economic Characteristics of Rural Farming Households in Taraba State

Variables	Frequency	Percentage	Mean	Minimum	Maximum	Std. Dev
Sex						
Male	71	29.6				
Female	169	70.4				
Age			39.92	20	65	9.79
Marital status						
Married	129	53.8				
Single	16	6.7				
Widow/widowers	65	27.0				
Divorced	30	12.5				
Educational level						
No formal education	49	20.40				
Primary education	31	12.90				
Secondary education	85	35.40				
Tertiary education	75	31.30				
Household size			12	2	20	4.16
Cooperative membership						
Yes	64	26.7				
No	176	73.3				
Access to credit						
Yes	76	31.7				
No	164	68.3				

Source: Field Survey, 2022

Multidimensional Poverty Status of the Farming Households

The results on multidimensional poverty is presented in Table 3. The result shows that the

poverty headcount (H) in the study area was 0.571. This indicates that about 57.1% of the sampled respondents were poor whereas 42.9% % were non-poor. This means that the SDG goal of zero poverty by 2030 is yet to be fully attained in the study area. This finding goes in line with that of Amao *et al.* (2017) who found that the multidimensional headcount ratio in southwest Nigeria was 67.4%. Furthermore, Emeka and Justin (2021) reported the Nigeria's poverty headcount ratio of 0.64 when the deprivation cutoff is 1, implying that roughly 64% of Nigerians are poor in at least one of the four areas studied.

The intensity of multidimensional poverty (A) which shows the average proportion of indicators in which the poor people were deprived was 0.682. This means that on average, the poor households were deprived in 68% of the weighted indicators. This result is higher than the level reported by Oxford Poverty and Human Development Initiatives (OPHI) (2017) and Oyekale *et al.* (2019) that poverty intensity in Ogun State was 42.5% and 41%, respectively. The higher percentage (68%) of intensity of multidimensional poverty in study area is due to the insecurity and low growth rate of economic activities in Taraba State compare to that of Ogun State. The finding from this study also aligns with the report of Opaluwa *et al.* (2021) on assessment of multidimensional poverty in Zone A Agricultural Development Project area of Kogi State, Nigeria. They found that poverty headcount (0.158) was less than the poverty intensity (0.366).

The multidimensional poverty index (MPI) was found to be 0.389. This result shows a moderate multidimensional poverty situation in the study area as MPI (0.389) was less than 0.50 of the weighted indicators. This implies that efforts aimed at alleviating poverty in the study area should focus more on alternative income generating activities instead of relying on farming only to reduce the deprivation share of each of the dimension of poverty than on reducing the number of the poor. This finding confirmed the report of National Bureau of statistics (2022) that Taraba State is the 8th among the ten poorest states in Nigeria with MPI of 0.340. Similarly, Oyekale *et al.* (2019) and Amao *et al.* (2017) found that the multidimensional poverty status in Ogun State and southwest Nigeria were 0.28 and 0.318, respectively.

Table 3: Multidimensional Poverty Indices of Farming Households

Variables	Value
Multidimensional head-count ratio (H)	0.571
Intensity of poverty (A)	0.682
Multidimensional poverty index (MPI)	0.389
MPI Poor	57.1%
MPI Non-poor	42.9%

Source: Computed from Survey Data, 2022

Contribution of Dimensions to MPI

The dimensional contribution to multidimensional poverty provides relevant information as it can single out the effect of each dimension on poverty. The contribution of each dimension to multidimensional poverty is shown in Table 4. Standard of living, health, and education stand in their order of contribution to the multidimensional poverty index. As can be seen in Table 5, the highest incidence of deprivation was seen in standard of living contributed about 43.5% to overall multidimensional poverty in the study area in the period under consideration. The higher contribution of the standard of living dimension to MPI in the study area indicates that rural farming households lack the most in infrastructural facilities that support welfare of life. Moreover, poverty was however more intense and widespread among households lacking

access to credit to acquire the basic needs of living. This paradoxical situation signals poor government spending on critical infrastructures in the area and acute deprivation of households that account for a larger proportion of the study population. This is similar to the finding of Alkire and Santos (2010), where the standard of living was found to be the top contributor to multidimensional poverty in the examined MPI of 55 countries out of 104 countries. This is also in line with the findings of Sulaimon (2020) and Tigre (2018) who found that the decomposed MPI showed that Living standards dimension contributed the most to multidimensional poverty whereas education and health dimensions contributed the least in Nigeria and Ethiopia respectively. Furthermore, Megbowon (2018) found that standard of living dimension contributing the most to household multidimensional poverty in both urban and rural province of South Africa.

This study also revealed high deprivation in term of health, with an average score of 31.8%. Generally, health quality in the area is low, which was reflected in the low health status of the respondents and the inability of most of them to pay hospital bills, access clean drinking water, cannot eat three times a day among others. This can frequently cause food and livelihood insecurity, and perpetuate vulnerability (UNDP, 2018). The finding is in line with the finding of Popoola (2021) who found that 88% of the poor poultry farmers lacked access to clean water and quality healthcare. And about 36% were deprived of capacity for asset acquisition while about 23% of poultry farmers used substandard cooking fuel in Oyo State, Nigeria.

The study further revealed that 24.7% of the poor households were deprived of education in the study area. The study is in line with the findings of Michael *et al.* (2019) which revealed a very high level of educational deprivation with an average score of 30.1% y in rural Adamawa State, Nigeria. Also, Mosasane and Oyekale (2021) reported that education attainment contributed 84.4% to the MPI Rural South Africa.

Table 4: Relative Contribution of Dimensions to MPI

Variables	Percentage
Education	24.7
Health	31.8
Standard of living	43.5

Source: Computed from Survey, 2022

Determinants of Multidimensional Poverty Status among Rural Farming Households

The log likelihood estimates for the determinants of multidimensional poverty index among sampled rural farming households are presented in Table 5. The result shows that sigma ($\bar{\sigma}$) was 0.542 with a t-value of 15.79. Thus, sigma was statistically significant at 1% level of probability ($P \leq 0.01$), LR χ^2 (9) was 114.12 on 9 df and prob. $> \chi^2$ was 0.000 which indicates that the model fits the data used. The value of pseudo R squared was 0.229, implies that 22.9% variation in poverty status of the farming households was jointly explained by the significant variables. Out of the eight explanatory variables included in the model, five variables namely; gender, education, income, access to credit and membership of cooperatives were the significant variables that explained the variation in poverty status of rural farming households in the study area.

Sex of respondents had a positive coefficient (0.851) and significant at 1%, implying that being a female headed household increased the likelihood of becoming multidimensional poor. The reason for this is that women are more prone to poverty in the society considering their basic needs of life due to discrimination against women in the labor market, lack of opportunity to own assets and access to productive capital. This reduces their ability to accumulate assets and

income which can be invested in other key household needs. Therefore, engaging in rice value addition activities could aid their household's welfare, thereby making them less open to poverty. Sustainable poverty reduction can only be achieved and managed effectively if people's vulnerability is reduced (Agbaje *et al.*, 2013). This is contrary to the findings of Anyanwu (2014) who argued that arising from the continued presence of discrimination against women in the labour market, lower education, lower salaries and the poor access to assets and resources by men, men are likely not to fall into poverty when compared to their female counterparts. Moreover, Megbowon (2018) opined that having a male as the head that has control over resources of the household, utilization of resources by them does not have any significant impact on the welfare of household members.

The coefficient of education (0.011) was positive and significant at 10% probability level. This implies that the respondents without formal education were likely to become multidimensionally poor and those that are more educated are less likely to become multidimensionally poor. The reason is that education is an enabler which empowers one with skills and requirements for employment opportunities, adoption of new innovations and earning a living. Moreover, a low level of education could hamper the ability of farming households to accumulate wealth and could lead to a vicious cycle of multidimensional poverty, which can affect the household's income generation. This goes in line with the findings of Felix *et al.* (2018) who found that smallholder fish farming household heads without formal education had poverty depth of 0.4146 in the Niger Delta region of Nigeria.

The income coefficient (-1.840) was negative and statistically significant at 1% level. This implies that, if other variables are held constant, the probabilities of becoming multidimensional poor are reduced if household income increases. The magnitude of effect is that income earned can allow household to achieve desired welfare. This finding is in agreement with that of Megbowon (2018) who worked on Multidimensional poverty analysis of urban and rural households in South Africa and found that rural household monthly income parameter (-0.0009) was negative and statistically significant at 5% level.

Access to credit (0.252) was positive and statistically significant at 1%. This means inaccessibility to credit by respondents will increase their likelihood to become multidimensional poor by 26.1%. This is because access to credit invested in farming and others livelihood means, would lead to increased income, which in turn will enhance the ability of the respondents to acquire the basic needs of life. The coefficient of the membership of cooperative (-0.227) was negatively significant at 5% probability level. This implies that membership of cooperative societies will likely reduce poverty of respondents by 22.3%. This could be linked to the effects of various benefits accessible through cooperatives, such as access to credit, improved farm inputs and training. These would invariably enhance their farming activities which can to improve their livelihood thereby reducing poverty. This is in consonance with the findings of Popoola (2021) who found that coefficient of cooperative membership of farming households in Oyo State, Nigeria was negative and significant at 10% level.

Table 5: Tobit Regression Estimates for Determinants of Multidimensional Poverty

Variables	Coefficient	Standard Error	t-value	P. value
Constant	-0.040057	0.2244103	-0.18	0.858
Sex	0.851336***	0.0802039	10.6	0.000
Age	0.0021241	0.0036105	0.59	0.557
Education	0.0111045*	0.0057893	1.92	0.056
Marital status	0.0182571	0.0370314	0.49	0.622
Household size	0.0016166	0.0084456	0.19	0.848
Income	-1.84e-07***	7.10e-08	-2.59	0.010
Access to credit	0.2517808***	0.1021995	2.46	0.014
Membership of cooperative	-0.2273181**	0.1127842	-2.02	0.045
Diagnostic test				
Sigma	0.541889***	0.0343093	15.79	
LR Chi ² (9)	114.37			
Prob > chi2	0.000			
Pseudo R ²	0.2292			
Log likelihood	-192.2547			

Significance level *** P≤0.01, **P≤0.05, *P≤0.10

Source: Field survey, 2022

Conclusion and Recommendations

The study found that multidimensional poverty is prevalent among rural farming households in Taraba State, and this trend will continue to worsen lest tangible efforts are made towards bettering it. Prioritizing the reduction of multidimensional poverty will stimulate and improved livelihoods for rural farmers while supporting peace and stability in these areas.

Based on the findings of this study, the following recommendations were made:

- i. There is need for adequate investment in physical infrastructure that will encourage diverse economic activities in rural areas;
- ii. Provision of adequate security for life and property will reduce household vulnerabilities to stress/shock which contributes immensely to the people's poverty in the study area; and,
- iii. Rural farming households are also encouraged to form or join the existing cooperative societies to enable them reaps the economies of scale within agricultural sector while reducing resource access constraints. This would go a long way owing to the positive reduction effect on multidimensional poverty.

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