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A Gender Analysis of Poverty among Rural Farming Households in North Central Nigeria

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Abstract

This study carried out a gender analysis of poverty status of rural farming households in North Central Nigeria using a randomly selected 510 farming households. The data generated were analysed using descriptive statistics, the Foster, Greer and Thorbecke poverty measures and Tobit regression model. The results of the study show the incidence of poverty to be 63 per cent and 59 per cent respectively for the female and male-headed households. The results further show that 94 per cent of the widow-headed sub-group of the farming households was poor. At varied poverty lines of 70-145% of the estimated line, the female-headed households were still poor. Using social and livelihood characteristics, the female-headed households were again found to be poorer than their male-headed counterpart. The results of the Tobit regression model show that farm size, years of schooling of the household heads, access to farm land, number of extension visits and amount of non-farm income were poverty reducing. On the other hand, household size, age of the household heads and major occupation of the household heads contributed positively to poverty level of the rural farming households in the study area. Safety net in form of monthly emolument was recommended for the widow sub-group of the farming households.

Keywords: Rural poverty, poverty measures, gender analysis, male and female-headed households, Tobit regression

Introduction

Poverty is a plague that has persistently affected the world for long, about 1.4 billion of the world's people lived on $1.25 a day in 2005 (Human Development Report, 2008). The world's increase in rural and urban poor is exacerbated by the world's food and economic crisis which together with other factors make food unavailable to 1.02 billion people of the world (FAO, 2009). This, in absolute terms increased the proportion of the world poor (World Bank, 2010). In Nigeria, the incidence of poverty is on the increase with rural households being the worst hit (HDR, 2007/2008). UNDP, (2009) reported that a whopping 70.8 per cent of the Nigerian populace lived below $1.25 in 2005. Poverty is also more pronounced in agricultural sector than other sectors of the economy (FAO, 2009). There has also been an established correlation between gender and poverty (Olorunsanya, 2009 and FAO, 2009).

Programme interventions nationally have been directed towards reduction in the prevalence of poverty in the country. In the 1970s, poverty eradication strategies were considered important in fostering growth and redistribution and for meeting the basic minimum needs of the populace through focused government policies. The 1980s witnessed the shift of the government and international development agencies away from redistribution but toward structural adjustment and market oriented economic reforms for the nation. Poverty eradication was therefore given minimal attention. The 1990s and the first decade of 2000 witnessed the emergence of a new poverty agenda as a counterpart to the structural reforms. Examples of these reforms include Poverty Alleviation Programme (PAP); Poverty Eradication Programme (PEP); National Economic Empowerment and Development Strategy (NEEDS) and Millennium Development Goals (MDGs) amongst others.

All these government policies and reforms have however not fully translated into reduction of poverty in the rural settlements of the nation. This study therefore carried out a gender analysis of the poverty status of rural farming households in North Central Nigeria using Kwara State as a case study. Specifically we examined the expenditure pattern of the rural farming households and profiled their poverty status using social, economic and living condition characteristics. We also examined the effects and extent of some demographic, socio-economic and living condition characteristics on the poverty level of the rural farming households based on gender of the household heads.

Methodology of the Study

The Study Area

The study was carried out in North Central Nigeria using Kwara State as a case study. Kwara State is essentially an agrarian state with about 80 per cent of the populace living in the rural areas. The state has a good blend of cultural and ethnic diversities representative of the north central zone of the country. It is bounded by Niger State in the North, Osun and Ondo States in the South, Kogi State in the East and Oyo State in the West. It also has an international boundary with Benin Republic. The State is located between latitudes 7^0 45'N and $9^0$30'N and longitude $2^0$30'E and $6^0$25'E with a topography that is mainly plain lands to slightly gentle rolling. The climate in the state is tropical with two main seasons and an intervening cold harmattan period occurring mostly from December to January. The rainfall pattern is bimodal and runs from April through early October with a slight dry period of about a fortnight in August. The annual rainfall ranges from 800mm to 1500mm and varies from 1000mm to 1500mm in the south-western part. Maximum average temperature ranges from 30^0 C to 35^0C across the state while the minimum is between 21.1^0C and 25^0C.

Sampling Procedure

Primary data generated from rural farming households in Kwara State, North Central Nigeria were used for the study. Multi-stage random sampling technique was adopted for selecting 540 representative rural farming households for the study. Kwara State is stratified into four agricultural zones by the State's Agricultural Development Project (KWADP). The four zones which comprise of 16 Local Government Areas (LGAs) which are Zone A: 2 LGAs, Zone B: 2 LGAs, Zone C: 5 LGAs and Zone D: 7 LGAs were used for the study. The first stage entails a random selection of 50 per cent of the LGAs based on proportionality; this approximates nine LGAs for the study. Each of the selected LGAs was stratified into two strata and two farming communities were randomly chosen from each stratum to give a total of 36 farming communities for the study, this is the second stage. The last stage involves a random selection of 15 farming households in each of the selected 36 farming communities to give a total of 540 farming households used for the study. 510 of the questionnaire were however found useful for data analysis. The cooking pot definition of household was adopted and as such households that conformed to this consumption-based definition of households were used.

Analytical Procedures

The analytical techniques used for the study include descriptive statistics, the Foster, Greer and Thorbecke (FGT), (1984) poverty measures and Tobit regression model.

1. Poverty Assessment

Poverty refers to the lower decile or quintile of the distribution of economic welfare which is consumption expenditure per adult equivalent for this study. Foster, Greer and Thorbecke (1984) class of weighted poverty indices were used to profile the poverty status of the rural farming households in the State. The formula, following Foster *et al*. (1984) and adapted by (IFAD, 1993), is given as:

$$P_\alpha = 1/n \sum_{i=1}^{q} (z - y_i / z)^\alpha \quad (1)$$

Where P_α is the weighted poverty index; n is the number of households; y_i is the expenditure per adult equivalent of *ith* household; z is the poverty line defined as 2/3 of mean consumption per adult equivalent of the sampled population (FOS, 1999); q is the number of the sampled household population below the poverty line; α is the aversion to poverty (a coefficient reflecting different degrees of importance accorded to the depth of poverty and it ranges from 0 to 2.

2. Effects of Socio-Economic and Livelihood Characteristics on Poverty

In order to examine the effects of some socio-economic and livelihood characteristics on the poverty level of the rural farming households in the study area the Tobit regression model (Tobin, 1958) was used. The censored regression model is given as:

$$\text{Si} = S_i^* = \beta X_i + e_i \text{ if } S_i^* > 0 \quad (2)$$

$$0 = \beta X_i + e_i \text{ if } S_i^* < 0 \quad (3)$$

$$i = 1, 2, 3.....20 \quad (4)$$

Where: S_i is the limited dependent variable, it is discrete when the households are not poor (it assumes zero value in this case) and continuous when they are poor that is equal to S_i^*. S_i^* is the poverty gap defined as $(Z - Y_i / Z)$ and Z is the poverty line; X_i is the vector of explanatory variables; Y_i consumption expenditure per adult equivalent; β vector of unknown parameters; e_i is independently distributed error term. The independent variables hypothesized to affect the poverty level of the households following Haddad and Ahmed (2003) and with some modification are classified into demographic, farm related, institutional and living condition. They are presented in Table 1. The empirical models were used to draw inferences on the probability of and the effects of poverty for the two categories of households.

Table 1: Fitted Variables for the Tobit Regression Model

	Age of household head X_1	**Gender of the household head X_2**	**Average years of schooling of adult household members X_3**	**Male-monogamous X_4**
Demographic Variables	Measured in years. It is assumed to be positively related to poverty (Roosen et al., 2009). D=1if the head is a male, 0 if otherwise.	Expected to be negatively related to poverty D=1 if head is a male, 0 if otherwise (Martins and Fernandes, 2008).	Average years of schooling completed by adult household members that is, those above 15 years of age, is expected to be negatively related to poverty (Fagernas and Wallace, 2007)	A dummy indicating the gender and marital status of the household head. D=9 if male and has one wife, 0 if otherwise.

Table 1: Fitted Variables for the Tobit Regression Model - continued

Demographic Variables	**Male-polygamous X_5**	**Female-married X_6**	**Female-divorced X_7**	**Female-widowed X_8**
	Also a dummy indicating gender and marital status of the head. D=1 if the head is married and has more than one wife.	A dummy indicating the marital status and gender of the household head. D=1 if the head is a female wit absentee husband that is away most of the time, 0 if otherwise.	A dummy indicating the gender and marital status of the household head. D = 1 if a female and a divorcee, 0 if otherwise.	A dummy indicating the marital status and gender of the household head. D=1 if female and widowed, 0 if otherwise.
	Child dependencyX_9	**Adult dependencyX_{10}**	**Adjusted household size X_{11}**	**Ratio of food expenditure to total expenditure X_{12}**
	Proportion of children under 15 years that are not drawn into household labour. It is expected to be positively related to poverty (Haddad and Ahmed, 2003)	Proportion of adults above 65 years in relation to the household size and also a measure of the level of dependency.	Measured in adult equivalent and expected to be positively related to poverty (Martins and Fernandes, 2008)	Engel index, it measures the ratio fraction of total expenditure spent on food. It is expected to be negatively related to poverty (Omonona, 2000)
				Remittance Access X_{13}
				A dummy indicating access to remittances from friends and relations. It is expected to be negatively related to poverty. D=1if there is access, 0 if otherwise.
Farm Related Variables	**Farm size X_{14}**	**Land access X_{15}**	**Amount of credit utilized for farming X_{16}**	**Number of income earners in the household X_{18}**
	Measured in hectares and is expected to be negatively related to poverty (Sunderji, 2007)	A dummy showing access of farming households to land D=0if yes and 0 if otherwise (Bigsten et al., 2003)	Amount of credit utilized for farming in naira per season, it is expected to be negatively related to poverty (Bird et al., 2002)	Shows the number of working members in the households, it is expected to be negatively related to poverty (HRSDC, 2006)
	Major occupation X_{17}		**Non-farm income X_{19}**	
	A dummy indicating the major occupation of the household head. D=1 if farming is the major occupation and 0 if otherwise.		Amount of non-farm income in naira per month.	
Institutional Variables	**Membership of cooperative society X_{20}**		**Number of visits by extension agents per month X_{21}**	
	A dummy indicating membership of a cooperative society. It is expected to be negatively related to poverty. D=1if yes, 0 if otherwise.		It is expected to be negatively related to poverty.	
Living Condition Variables	**Clinic Distance in kilometers X_{22}**	**Plastered wall X_{23}**	**Distance to potable water source in kilometers X_{24}**	
	Longer distance to source of medical facility might discourage utilization and result in low level of welfare (Omonona, 2000)	A dummy denoting if household place of dwelling is plastered it is expected to be negatively related to poverty (Dhanani and Islam, 2002). D=1 if yes, 0 if otherwise.	An indicator of welfare measure. The closer the source of water, the better for the households, measured in kilometres. It is expected to be positively related to poverty (Dhanani and Islam, 2002)	

Results and Discussion

Descriptive Statistics of Key Variables based on Gender of the Household Heads

Table 2 gives the summary of the descriptive statistics based on gender of the household heads. Expectedly male-headed households (84%) were more than female-headed households (16%) in the study area. The presence of female-headed households was due to death of male heads, migration, divorce and economic reasons. The mean age for the household heads for the two categories of households were 51.9 and 54.0 years for male and female-headed households respectively. In terms of years of schooling, 60 percent of adult household members in the female-headed households had informal education while only forty percent of adult household members in the male-headed households had no formal education. More adult members in the male-headed households had post primary and post secondary education (24% and 6%) than the female-headed households (17% and 4% respectively). This corroborates earlier reports by Deere and Leon, (2003); World Bank, (2005); and NBS, (2006). The gender differentials in education were also evident in the mean years of schooling of the adult members in the male-headed households (4.21 years) as against 3.50 years in the female-headed households. Generally, educational attainment is lower for females than for males in Nigeria, as in most of Africa; these inequalities persist but are also diminishing (NBS, 2005 and 2006).

Table 2: Descriptive Statistics based on Gender of the Household Heads

ITEMS	MALE-HEADED	FEMALE-HEADED	ALL HOUSEHOLDS
	n=430	**n=80**	**n=510**
Gender	430 (84)	80 (16)	510 (100)
Age:			
25-44	73(17)	15 (19)	88 (17)
45-64	328 (76)	49 (61)	477 (74)
>64	29 (7)	16 (20)	45 (9)
Mean Age	51.9	54.03	52.19
Standard deviation	9.46	9.61	9.15
Marital Status			
Single	17 (4)	-	17 (3.3)
Married	411 (96)	32 (40)	443 (87)
Widowed	1 ().5)	46 (58)	47 (9.2)
Divorced	1 (0.5)	2 (2)	3(0.6)
Educational Status			
No formal education	175 (41)	48 (60)	223 (44)
Arabic	104 (24)	3 (4)	107 (20)
Primary	54 (13)	15 (19)	69 (14)
Secondary	70 (16)	11 (13)	81 (16)
Tertiary	27 (6)	3 (4)	30 (6)
Mean years (Eng. Lang.)	4.21	3.5	4.09
Standard deviation	5.18	4.91	5.19
Post Primary Education			
Yes	102 (24)	14 (17)	116 (23)
No	328 (76)	66 (83)	394 (77)
Post Secondary Education			
Yes	27 (6)	3 (4)	31 (6)
No	403 (94)	77 (96)	479 (94)
Major Occupation			
Farming only	280 (65)	42 (53)	322 (63)
Farming and Trading	45 (10)	35 (44)	80 (16)
Farming and artisan	81 (19)	-	81 (16)
Civil service and farming	24 (6)	3 (4)	27 (5)
Farm Size			
<1 Ha	21 (5)	14 (18)	35 (7)

Table 2: Descriptive Statistics based on Gender of the Household Heads - continued

1-2 Ha	343 (80)	66 (82)	409 (80)
Extension Access			
No visit	286 (66)	56 (70)	342 (67)
1-2 visits	137 (32)	21 (26)	158 (31)
>2	7 (2)	3 (4)	10 (2)
Mean	0.48	0.45	0.47
Standard deviation	0.76	0.83	0.77
Loan Amount per Cropping Season			
Nil	257 (60)	51 (64)	308 (60)
<25,000	85 (20)	14 (17)	99 (19)
25,000-50,000	70 (16)	15 (19)	85 (17)
>50,000	18 (4)	-	18 (4)
Mean	10,725	14,293.02	13,733
Standard deviation	15,648.01	26,480.46	25,113.64
Cooperative Membership			
Yes	140 (33)	17 (21)	157 (31)
No	290 (67)	63 (79)	353 (69)
ITEMS	**MALE-HEADED**	**FEMALE-HEADED**	**ALL HOUSEHOLDS**
	n=430	**n=80**	**n=510**
Farm Income			
Nil	87 (20)	27 (34)	114 (22)
0-25,000	133 (31)	28 (35)	161 (32)
25,001-100,000	148 (35)	18 (23)	166 (32)
>100,000	62 (14)	7 (8)	69 (14)
Mean	108,526.57	64,054.19	101,550.51
Standard deviation	117,131.01	74,434.69	112,629.28
Non-Farm Income (₦) per month			
Nil	302 (70)	55 (69)	357 (70)
0-2,500	99 (23)	17 (21)	116 (23)
2,501-5,000	17 (4)	8 (10)	25 (5)
>5000	12 (3)	-	12 (2)
Mean	992.56	630	767.06
Standard deviation	2,069.52	1,131.42	1,952.42
Household Size			
Small (1-5)	35 (8)	28 (35)	63 (12)
Medium (6-10)	216 (50)	49 (61)	266 (52)
Large >10	179 (42)	3 (4)	181 (36)
Mean	10.10	6.39	9.52
Child dependency Ratio			
Nil (0)	10 (2)	2 (3)	12 (2)
0.01-5	271 (63)	37 (46)	308 (60)
0.51-1.0	149 (35)	41 (51)	190 (37)
Mean	0.49	0.54	0.50
Standard deviation	0.18	0.19	0.18
Adult Dependency Ratio			
Yes	56 (13)	6 (8)	62 (12)
No	374 (87)	74 (92)	448 (88)
Remittance Access			
Yes	194 (45)	61 (76)	255 (50)
No	236 (55)	19 (24)	255 (50)
Ratio of Food Expenditure to Total Expenditure			
0-0.5	39 (9)	5 (6)	44 (9)
0.61-1.0	391 (9)	5 (6)	44 (9)
Mean	0.64	0.64	0.64
Standard deviation	0.14	0.16	0.15

Source: Field Survey, 2007

Sixty-five per cent of the male-headed households engaged in full time farming; while 42 per cent of the female-headed households took farming as means of livelihood. The percentage of livelihood diversification varied with gender of the household heads. Forty-four per cent of the households headed by females were into farming and trading while ten per cent of the households-headed by male engaged in farming and trading. Rural farming households' involvements in civil service were relatively small in the study area; 6% and 4% respectively for male and female-headed households. Nonetheless, farming as a means of livelihood is still the major occupation in rural Kwara for the two categories of households. NBS, (2005) reported a similar finding.

Expenditure Pattern of Rural Farming Households based on Gender of the Household Heads

The various identified sub-groups of households based on gender and marital status in the study area were: male single, male monogamous, male polygamous, male divorced, male widowed, female married, female widowed and female divorced. The sub-groups of households headed by widows had the lowest significant mean expenditure per adult equivalent of ₦1, 459 (Table 3). The male single sub-group however recorded the highest monthly consumption expenditure per adult equivalent of ₦6, 447. Those households headed by married women enjoyed a significant higher level of consumption than other sub-groups in the female-headed category. Widow-headed households had significantly lower consumption than widower-headed ones; conversely, households headed by married women had significantly higher per adult equivalent consumption than those headed by married men. Female-headed households with divorced heads resembled those with widowed heads in that they appeared to suffer from a gender disadvantage: they were worse off than male-headed households with divorced heads, but were not particularly poor; their living standards were fairly comparable to those of female-headed households with married heads.

Table 3: Disaggregation of Consumption Expenditure by Gender and Marital Status of Household Heads

Items	All Households n=510	Male-Headed n=430	Female–Headed n=80
Mean Real Consumption Expenditure Per Adult Equivalent(MPAEHE) :			
Single	6,447	6,447‡	-
Married	2,355	2,415	3,765‡
(i) Monogamous	3,360	3,360	-
(ii) Polygamous	1,662	1,662‡	-
Widowed	1,514	5,060	1,459‡
Divorced	3,433	5,033	2,633†

Source: *Field Survey, 2007.* The tests are for differences by gender of the household head. ‡, denotes significant at 1%, † denotes significant at 5%.

The large variations in consumption per adult equivalent were more vivid based on disaggregation by gender and marital status of household heads. The mean per adult equivalent household expenditure for all households was ₦2, 557.11.

Poverty Profile of Rural Households in Kwara State based on Gender of the Household Heads

The results of the poverty indices of the rural farming households in the study area are presented in Table 4 based on gender of the household head. The head count indices were 63 and 59 per cent respectively for the female and male-headed households. The indices were significantly different from the whole group indices at 1%. This is in conformity with Martin and Fernandes (2008) for Cape Verde. The widow-headed households recorded the highest incidence of poverty (94%). Widows are usually one of the vulnerable groups in Africa where cultural and religious beliefs put this category of households at a disadvantage (Buvinic and Gupta, 1996). On the three counts, the polygamous households were the second poorest with 82%, 22% and 8% head count, poverty depth and dispersion respectively.

Table 4: Foster, Greer and Thorbecke Poverty Indicators for Rural Farming Households in Kwara State based on Gender of the Household Head

ITEM	P_0	P_1	P_2	q	n	Contribution to		
						P_0	P_1	P_2
Gender								
Female	0.63**	0.18**	0.06**	50	80	0.17	0.18	0.19
Male	0.59**	0.16**	0.05**	251	430	0.83	0.82	0.81
All Households	0.58	0.15	0.05	301	510			
Household Type								
Male-divorced	-	-	-	0	1	0.00	0.00	0.00
Male-monogamous	0.30**	0.07**	0.02**	49	163	0.16	0.14	0.11
Male-polygamous	0.82**	0.24**	0.08**	202	248	0.68	0.67	0.75
Male-single	-	-	-	-	17	-	-	-
Male-widowed	-	-	-	-	1	-	-	-
Female-married	0.19**	0.06**	0.02**	6	32	0.02	0.06	0.01
Female-widowed	0.94**	0.26**	0.09**	43	46	0.14	0.04	0.13
Female-divorced	0.51	0.18	0.06	1	2	0.00	0.00	0.00

Source: Field survey, 2007. The tests are for differences from whole group.**denotes significance at 1% level, * denotes significant at 5% level.

This might be as a result of large family size and large number of dependants in such sub-group of households. Snyder, McLaughlin and Findeis, (2006) recorded large family size as a determinant of poverty.

Effects Socio-Economic and Livelihood Characteristics on Households Poverty Based on Gender of the Households Heads

The twenty-four variables for the Tobit regression model specified in the methodology (excluding gender of the household heads) were fitted for the male and female-headed households independently to isolate the factors affecting the poverty status of the two categories of households (Table 5). The regression results revealed the following fourteen variables to have effects on poverty level of the male-headed households in the study area. These are average years of schooling of adult household members, membership of cooperative societies by the household head, farm size, child dependency ratio, ratio of food expenditure to total expenditure, farming as the only occupation of the households, access to farm land, quality of accommodation of the households, household size, monogamy, polygamy, distance to water and medical facilities and amount of non-farm income earned per month by the households.

Table 5: Maximum Likelihood Estimates of Tobit Regression for Poverty based on Gender of the Household Heads

Item	Male-Headed		Female-Headed	
Demographic Variables	**Coefficients**	**Marginal Effects**	**Coefficients**	**Marginal Effects**
Age X_1	0.002 (1.760)	0.002(1.770)	0.005***(2.014)	0.004*** (2.032
Years of Schooling X_2	-0.078**(-3.103)	-0.053**(-3.143)	-0.033***(-2.700)	-0.028***(-2.708)
Child Dependency X_3	0.174**(3.201)	0.118** (3.201)	0.057 (0.691)	0.049 (0.693)
Adult Dependency X_4	0.221 (1.101)	0.150 (1.103)	-0.669 (-1.264)	-0.579 (-1.284)
Adjusted-Household Size X_5	0.020*** (6.652)	0.014***(6.527)	0.036***(4.531)	0.031*** (4.574)
Food RatioX_6	0.281*** (4.233)	0.190*** (4.250)	0.344*** (3.518)	0.297*** (3.571)
MarriedX_7	–	–	-0.150**(-2.420)	0.083**(-2.562)
MonogamousX_8	-0.128**(-2.001)	-0.720**(-2.000)	–	–
PolygamousX_9	0.273***(4.590)	0.162***(4.653)	–	–
Divorced$_{10}$	–	–	-0.045 (-1.889)	-0.032(-1.927)
Widowed X_{11}	–	–	0.234*** (3.097)	0.142*** (3.101)

Table 5: Maximum Likelihood Estimates of Tobit Regression for Poverty based on Gender of the Household Heads - continued

Socio-Economic Variables				
Farm Size X_{12}	-0.078*** (-4.436)	-0.053***(-4.646)	-0.192***(-3.830)	-0.166***(-3.938)
Major OccupationX_{13}	0.021*** (2.965)	0.014*** (2.996)	0.0186*** (2.549)	0.0161*** (2.549)
Cooperative X_{14}	-0.086*** (-4.192)	-0.058***(-4.210)	-0.056 (-1.430)	-0.048 (-1.437)
Land Access X_{15}	-0.045** (-2.276)	-0.030 (-2.272)	-0.026(-0.849)	-0.022 (-0.856)
Extension X_{16}	-0.015 (-1.250)	-0.010(-1.250)	-0.056***(-2.345)	-0.035***(-2.555)
Other working membersX_{17}	-0.028 (-1.892)	-0.019 (-1.884)	-0.091*** (-3.605)	-0.079***(-3.938)
Non-Farm Income X_{18}	-0.135E-2** (-2.597)	-0.112E-2** (-2.604)	-0.304E-2**(-2.142)	-0.263E-2** (-2.191)
Loans Amount X_{19}	0.326E-3 (-0.95)	0.221E-3 (0.95)	-0.1098E-3(-1.200)	-0.9498E-3 (-1.197)
RemittancesX_{20}	-0.031 (-0.653)	-0.026 (-0.660)	-0.023** (-2.097)	-0.20**(-2.423)
Living Condition Variables				
Clinic Distance X_{21}	0.036*** (6.495)	0.025*** (6.567)	0.049*** (3.797)	0.042*** (3.918)
Plastered Wall X_{22}	-0.035** (-2.024)	-0.023** (-2.060)	-0.008 (-0.294)	-0.022 (-0.356)
Water Distance X_{23}	0.158 *** (4.339)	0.109*** (4.309)	0.164*** (2.093)	0.085***(2.120)
Constant	0.411*** (2.975)		0580*** (2.858)	
Sigma (σ)	0.438***(22.452)		0.872*** (21.921)	

Results of the Tobit Regression for Poverty.*** Denotes Parameters significant at 1%, ** Denotes significant at 5% and* Denotes significant at 10%. Figures in parentheses are robust Z-statistics.

Age of the household head, distance to water and medical facilities, child and adult dependency ratios, farming as the only occupation of the households, polygamy as well as ratio of food expenditure to total expenditure had positive relationship with poverty status of male-headed farming households in North Central Nigeria. The remaining significant variables however affected their poverty status negatively. Average years of schooling of adult household members and the size of the household had significant negative and positive marginal contribution of -0.053 and 0.014 respectively to poverty status of rural male-headed households in the study area. Male-headed households in the study area had large household size (42% had above 10 members per household, Table 2). Large household size had been reported as a positive correlate of poverty, Omonona (2000) confirmed this assertion. High educational attainment on the other hand had a negative relationship with poverty in the study area. Households with more educated members will be able to adopt new yield improving technologies and have better ability to manage farm effectively and efficiently *ceteris paribus.* Such households will also be able to engage in off-farm activities. This could result in high level of income and eventual higher level of consumption for such households.

The variables that affected the poverty status of the female-headed households are age and marital status of the household head, widowhood, average years of schooling of adult household members, farm size, ratio of food expenditure to total expenditure, adjusted household size, number of extension visits per month, farming as the only occupation of the household head, amount of non-farm income per month, distance to water and medical facilities, number of income earners in the household and access to remittances from friends and relations. Other included variables were not statistically significant in influencing the poverty status of the female-headed households in the study areas. Surprisingly however adult dependency ratio though not statistically significant affected the poverty status of the female-headed households negatively in the study area. It had a negative marginal value of -0.5790, indicating a negative relationship with poverty status of the rural female-headed households. This might be due to the fact the aged in rural setting help out in child rearing and home-based enterprises that could help off-set part of households' expenditure and also release the young for more rigorous income generating activities. Similarly, the marital status of the female-headed households significantly influenced their poverty status negatively with significant marginal value of -0.083 at 5% level. This gave an indication that marriage reduced the poverty status of the female-headed households in the study area.

Conclusion

Poverty a multi-dimensional phenomenon affects male and female differently all over the world. This study as a result examined the effects of some socio-economic and livelihood characteristics on poverty level of male and female-headed households in north central Nigeria using Tobit regression model on randomly selected 510 representative farming households. The results of the Tobit regression model show that the following variables significantly affected the poverty status of the male-headed households without significant effect on the female-headed ones. These are child dependency ratio, household type, membership of cooperative societies, access to farm land and quality of dwelling place of the male-headed households. Conversely however, in the female-headed households, age and marital status of the household head, widowhood, number of visits by extension agents per month and access to remittances from friends and relations significantly influenced their poverty status without significant influence on the male-headed households' poverty status. The gender specific variables should be targeted for poverty reduction in the male and female-headed household categories accordingly. Removal of inequalities in access to education, living condition facilities, assets, productive resources and off-farm income will also ensure economic and consumption parities among the two categories of households. A multi-pronged approach to poverty reduction should therefore be adopted for meaningful poverty reduction in the study area. The widow-headed sub-group of households should specially be the focus of policy targeting through provision of safety-nets to reduce their impoverishment.

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