# Determinants of Rural Poverty in Tanzania: Evidence from Mkinga District, Tanga Region

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## Abstract

Identification of factors that are strongly linked to poverty is an important aspect in developing successful strategies intended for poverty reduction. This study aimed at assessing the determinants of poverty in Mkinga district in rural Tanzania. Ordinal regression model was used to model events of observing scores of livelihood status in the area of study. The study revealed that nearly 93% of respondents in the area were poor. Gender, size of land the household owns, the size of farm used in farming, Household size and the dependency ratio were found to be related to poverty, hence influencing poverty in the area of study. While the government is responsible in providing proper infrastructural settings, this paper recommends that, people especially women in this area should be empowered to have positive attitudes towards participating into economic activities using resources around them.

Keywords: Rural poverty, Economic growth, Poverty determinants, and Mkinga district

## 1. Introduction

Poverty is still a major problem to majority of people in Tanzania, although about half of poor population in developing countries living below poverty line (\$1.25) dropped to 22% in 2008 and slightly more than half since 1990 (WBG, 2012). The Human development index (HDI) in the country has of recent been increasing. For example it increased from 0.451 in 2007 to 0.488 in 2014 (HDR, 2014). Although reports such as MDGs showed the number of people living in extreme poverty was reduced by 700 million during this period, it is clear that this massive success was unevenly shared because it was largely contributed by Eastern Asia and South Eastern Asia leaving the Southern Asia and sub Saharan Africa with very little contribution in poverty reduction.

In recent years, sub-Saharan African countries have experienced remarkable economic growth averaged 5.2% over the past decade between 2000 and 2011 (Kulundu, 2013). This is further projected in the outlook that a steady acceleration in growth to 5.1 per cent in 2014 and 5.3 per cent in 2015 will be seen in the developing economies (UN, 2014). Unfortunately, despite Africa's recent impressive economic records, this massive growth has not lead into significant reductions in poverty (UN, 2014; Pauw et al. 2011), particularly when compared to many other developing countries such as China, Brazil, Singapore, Botswana and UAE (Mpango, 2013). Instead, poverty is huge and continues to increase especially in rural areas where majority of population reside (Jehovaness, 2010; Minot, 2006). It is evident that malnutrition, food insecurity due to poor agricultural performance, environmental degradation and vulnerability to diseases such as malaria and HIV/AIDs substantiate extreme poverty in the region. High population increase in the region creates another challenge for economies to create enough jobs and food sustainability in order to lift many people out of poverty (Li *et al.* 2012).

Tanzania is one of sub-Saharan country and it is mentioned as one of the poorest countries in the world (Julie *et al.* 2008). Although it's economic growth was ranked 1<sup>st</sup> in East Africa and 8<sup>th</sup> in sub Saharan African. This is due to the fact that her growth rate was averaged 6.8% from 2005 to 2011 and in 2014 the GDP was expected to grow by 7.2% and continue growing at annual averaged rate of 7.7% in medium term (MOF, 2014). Despite this impressive economic growth, five decades after independence in 1961, Tanzania has been fighting poverty as among the key areas the country needed for improvement. However, although a number of government programmes, strategies, and projects were linked towards addressing the problem, the country still remains poor with about 84.1% of rural population living below poverty line (both food and basic need poverty line). The substantial hope in improvement of rural livelihood in the future remains to be little (Ayalneh *et al.* 2005). Among the challenges which were identified are internal and external shocks such as the war against Uganda to reclaim North-West part of the country (Kagera Region), increase in population of around 3% per year and income inequality in the country (Fleurent, 1980; Li *et al.* 2012). Available evidences point to the weak redistributive aspect of growth, especially the weak connection with rural areas where the majority of the population resides.

According to 2007 Household Budget Survey (HBS), the basic needs poverty ratio was 33%, representing only a modest decline from 35% in the 2000/01 HBS. The percentage of population below the food poverty line and the basic need poverty line declined from 22% to 9.7% and 39% to 28.2% from 1991/92 to 2011/12 respectively. Income inequality appears to have remained unchanged as reflected in the Gini Coefficients. The low income and poverty continue to be a critical economic problem for Tanzania especially to rural dwellers. The question that remains to be unanswered is why then poverty is still a major issue to most people especially to those residing in rural areas even when each year there is government budget on development expenditure that focuses on poverty reduction. It is evident that, little is documented on specific determinants of poverty in rural areas of Tanzania. Therefore this study aimed at assessing the determinants of poverty in Rural Tanzania. In this study, categorization of poor from non-poor with their characteristics associated with such poverty is deemed useful in refining the understanding of the causes of poverty which is essential for designing more effective policy interventions.

#### 2. Literature Review

#### 2.1 Theoretical review

Jehovanes (2010) discussed two popular phenomena of poverty which are behavior/cultural and structural/economic. In cultural aspect, poverty is associated with individual behavior of the poor or government that keeps them dependent (Lewis, 1970). Hence economic wellbeing tends to be weakened. Due to that, poverty tends to continue to the next generation. As a result children of the poor people will have little opportunity to escape from poverty cycle. On the other hand theorists associate structural poverty and situation of structural factors in an economy or institutional environments that favor one group over the others (Jordan, 2004).

Poverty can be traced back to structural factors inherited to the economy. The discrimination based on race and gender create the most insidious obstructions in the economy. For example in most of African countries high rate of poverty among women may be viewed as the consequence of a patriarchal society that continues to resist their inclusion in a part of society (Alex, 2014). That has been historically dominated by men, and as a consequence, welfare programs have been designed in ways that stigmatize public support for women as opposed to marital support. Karl marx in his work " the Protestant Ethics and the spirit of capitalism" pointed out how the economic system of capitalism created the "the reserve army of the unemployed" as a concientious strategy to keep wages low and the workers poor. The relationship between income and poverty support the argument that productive work is the proper mechanism for lifting poor people out of poverty. Most of the studies on poverty adopted structural theory because strategies to expand economic opportunities and promote income growth are necessary for sustained poverty reduction (Johaveness, 2010; Omang, 2013).

## 2.2 Empirical review

A study by Julie *et al.* (2008) was done in Kagera region Northwest part of Tanzania to evaluate the determinants of household welfare. Their analysis was done by using Probit and OLS model and then Quantile regression. They found out that, social economic variables such economic activities, age and gender was significant for the house hold to experience poverty. In their study they also argued that rural poverty in Kagera was contributed by the region being far from the coast and capital city of the country. Their argument was supported by Ravallion *et al.* (1999) who showed the evidence of geographic poverty traps in rural China. Another study by (Minot, 2006) revealed that poverty was higher in the rural areas of Tanzania where majority of population are concentrated. Gallup *et al.* (1999) went further to argue that, geographic location strongly predicted differences in level of economic development in countries. However, none of these studies validated their argument against poverty situation in coastal areas of sub-Saharan region, Tanzania in particular.

A study by (Johaveness, 2010) was conducted to observe the determinants of rural income poverty in Tanzania. In this study linear model was used to analyze data of 2005 from Tanzania Rural Investments Climate Survey (TRICS) obtained from National Bureau of Statistics. The findings in this study showed that, ownership of non-farm rural enterprise, size of household labor force, acreage of land use and human capital was significant to poverty situation of the household. He argued that the higher the education of household members, the low the possibility of being poor. In addition household heads with higher education were likely to have skills and opportunities to diversify to non-farming activities. The author further stressed that when households with high level of education remain in farming activities their production tends to be higher than others with low or no education. The education factor in poverty eradication was also reported to be significant in other studies such as that done in Tanzania by Huruma (2014), Nigeria by Obadan (1997) and another in Pakistan by Malik (2003). Although many studies focused in formal education Programme of Bangladesh Rural Advancement Committee (BRAC) in achieving basic education for children in rural Bangladesh. Their findings revealed that BRAC children did better in life skills and writing than others. Therefore it was concluded that non-formal education had also positive effect on poverty in rural area.

Tilman (2001) analyzed the effects of welfare of rural households in coping strategies in Mozambique's post war. Econometric techniques on an agricultural household survey were used in this study to analyse the data. Results revealed that war in the country which ended in 1992 had strong associations with the causes of poverty in rural areas as it hindered farmers' participation in food production and generation of income. On the other hand, the key determinants of rural poverty in India as summarized by Sing *et al.* (n.d) were lack of employments, poor natural resources inadequate land holdings, poor infrastructure and inadequate education.

The empirical literature on determinants of rural poverty has been broadly investigated, with mixed findings and observations (see for example Tilman, 2001; Ayalneh *et al.*, 2005; Apata *et al.*,2010; Baiyegunhi *et al.*, 2010; Samuel *et al.*, 2012; Sinnathurai, 2012; Alex, 2014; Huruma, 2014; Guogang *et al.*, 2015 and Sing *et al.* (n.d)). One of the reasons identified was diversified data coverage in most of African studies (Tobias 2013; Robert 2014; Guogang *et al.* 2015). Rural povery in Tanzania is relatively still very high entailing that the strategy to alleviate poverty in Tanzania by 2015 has not yet been attained. However, Johavaness (2010) demonstrates that poverty in most developing countries has been influenced by location disadvantaged together with low level economic infrastructure such as roads and other public amenities. This study aimed at investigating the determinants of poverty in Mkinga district in Tanga region, Tanzania. The district is located at a point connecting Kenya and Tanzania mainland through highway and marine transportation via Tanga, Mombasa, and Zanzibar ports which could have made it a highly developed region. Despite its unique location, majority of people in this area are still stumbling in extreme poverty.

#### 3. Materials and Methods

Mkinga is one of the eight districts of Tanga Region in Tanzania, other districts are Muheza, Lushoto, Tanga City, Handeni, Korogwe, Kilindi and Pangani. Mkinga split from Muheza District in July, 2007. The total area of the district is 2,947km<sup>2</sup> of which 85% is arable land. The total population of the district is 118,065 people, male 57,760 and female 60,305 (NBS, 2014). The main religions in this district are Islam and Christian, although the coastal area is occupied predominantly by Muslim communities. In the selected area almost all villagers are Muslims except few official workers in schools, dispensary and in the ward office. Mkinga has been chosen for analysis in this study because it is a relatively new district and a strategic bridge between the coast of Tanzania and Kenya. Furthermore it is a spring board to the islands of Zanzibar and Pemba. Its location presents a major advantage for investments in economic activity with easy highway road access to the rest of Tanzania and Kenya and to other overseas markets through the ports of Tanga City and Mombasa. Surprisingly the district has persistently remained poor over years.

## 3.1 Data collection and sampling process

In this study both primary and secondary data were used. The data was collected through the uses of structured questionnaires and document analysis. For the purpose of this study random sampling was employed to select 210 household head as respondents from Moa ward. If household head was not available, his spouse was interviewed instead.

## a) Determination of poverty line

This study follows the relative poverty line approach which was obtained from total household per capita consumption (expenditure) that is regarded as the basic unit of household welfare. Consumption as opposed to income measure of household welfare was used because consumption is the measure of welfare achievement whereas income is the measure of potential or opportunity welfare Baiyegunhi *et al.* (2010). Hence poverty levels were estimated based on Poverty line adopted from Deaton *et al.* (1980) as quoted by Baiyegunhi *et al.* (2010) and was constructed based on total households per capita consumption (expenditure) as the basic unit of household's welfare. The household's expenditure was corrected for household size and its demographic characteristics as follows:

 $E = (A + \alpha K)^{\theta}$ Where

Where,

E = Number of adult equivalents

A = Number of adults

K = Number of children

 $\alpha$  = Fractional representation of children in adult equivalence that is child cost ratio

 $\theta$ = Scale parameters

This study adopted values of  $\alpha = 0.5$  and  $\theta = 0.9$  from May *et al.* (1995) in their poverty study done in South Africa. Then the mean monthly per adult equivalent household expenditure (MPAEHE) of the sampled households was calculated as;

MPAEHE = Total per adult equivalent expenditure for all households

Total number of households sampled

Hence, poor, moderately poor and non-poor household were identified and grouped in such a way that,

households that spent less than 1/3 of MPAEHE were classified as poor, less than 2/3 moderately poor and those who spent 2/3 or more were non-poor.

## 3.2 The Ordinal Logit model

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Ordinal regression, known as cumulative odds ordinal logistic regression with proportional odds was used to model odds of observing scores of livelihood status as follows:

$$nl\left(\frac{\pi_{j}}{1-\pi_{j}}\right) = \alpha_{0j} - \left(\beta_{1}\chi_{1} + \beta_{2}\chi_{2} + \dots + \beta_{n}\chi_{n}\right).$$

Where  $\pi_i$  is the probability of being at or below category j of an ordinal variable with k categories,  $1 \le j \le K-1$ ;

 $\alpha_{0j} \rightarrow$  expected logodds of Y  $\leq j$  when all predictors are zero;  $\beta_n$  shows the amount of change in expected log

odds of being at or below any category of the dependent variable for each 1 unit increase in  $x_n$ . In this study, the dependent variable, y, was livelihood structure, while independent variables  $x_1, x_2, x_9$  were Age of household head, Marital status, gender, education level, household size, farm ownership, land size, access to finance, economic activities of household head and dependency ratio.

## 4. Empirical results and Discussion

#### 4.1 Socio economic characteristics of respondents

Socio economic characteristics considered in this study include age, gender, education level, marital status, occupation and household size. This type of information is considered important because they determine the functional roles of the individuals who head the households and how they influence livelihood of the family (Emanuel, 2009).

Table 1: Respondent's characteristics

Variables	Frequency	Percentage
Age of house hold head in years		
18-35	29	14
36-45	67	32
46-60	61	29
61 & Above	53	25
Gender of House hold head		
Male	161	77
Female	49	23
Marital status of House hold head		
Married	156	73
Divorced	26	13
Widow	24	12
Single	4	2
Education of House hold head		
No formal Education	94	45
Primary Education	111	53
Secondary Education	5	2
Economic activities of House hold head		
Agriculture & Livestock keeping	40	19
Fishing	83	40
Trade	78	37
traditional doctor	4	2
Employed	2	1
no activity	3	1
Household family size		
1-4	61	29
5-8	132	63
Above 8	17	8

Data from the study revealed that respondents that ranged between the ages of 18-35, 36-45, 46-60, and above 60 were 14%, 32%, 29% and 25% respectively (table 1).

The results suggested that most of the household head were at productive age. The study involved female and male households of which 23% were female and 77% were male headed house holds. Results showed that majority of house hold heads were males and few households were headed by females.

Furthermore, marital status of the household was investigated to understand the respondents' profile. Out of 210 respondents, 73% were married, 13% divorced, 12% widow and 2% were single households respectively. The findings provide some impression that most of the respondents involved in the study were mature and had obligations for taking care of their families. It was observed that in this part of coast in Tanzania, male household heads were providers of daily expenditure of the house hold while women stayed at home. If, according to religious tradition, a man had more than one wife, he had to provide the daily life needs to all on equal basis.

With regard to education level of respondents, three categories of education levels were considered. Household's head who had never been to school were 45%, while 53% had primary education and 2% completed ordinary secondary school education. The percentage of households having primary education was higher than other levels because in Tanzania primary education is compulsory to all citizens and it is free in public Schools owned by the Government and Communities.

Concerning the economic activities, respondents who were engaged in non-farming activities such as fishing, small business, formal employment and traditional healing as their main economic activities were 40%. 37%, 1%, 2%, and 1% while households involved in agriculture and livestock keeping were 19%. Many people in these villages were not farmers implying that majority of villagers buy food from nearby shops hence increasing the level of daily expenditure and the possibility of experiencing food insecurity. Finally results reveal that household having members between 1 to 4 were 29%, 5-8 were 63% while the families with members above 8 were 8%.

## 4.2 Model Fitting information

The model fitting results (table 2) showed that the Chi-square statistics for the difference between the null model and the final model was significant at  $\alpha$ =0.05, p=0.01 implying existence of association between dependent variable and independent variables. Hence we reject the hypothesis that there is no relationship between poverty structure and independent variables.

Table 2: Model fitt	ting				
Model Fitting Information					
Model	-2 Log Likelihood	Chi-Square	df	Sig.	
Intercept Only	335.630				
Final	297.186	38.444	21	.011	
Link function: Logi	t.				

## 4.3 Testing for goodness of fit

The likelihood ratio test was used to measure how the model fits the data with the null hypothesis that, the fitted model was consistent with the observed data. Results revealed we did not have sufficient evidence to reject the null hypothesis because the likelihood ratio test was insignificant (p=0.994), implying that the model was a good fit (table 3).

## Table 3: Goodness of fit

Goodness-of-Fit				
	Chi-Square	df	Sig.	
Pearson	313.468	337	.817	
Deviance	275.346	337	.994	
Link function: Logi	it.			

## 4.4 Test of parallel lines

The model adequacy was tested using the parallel lines assumption with the model null hypothesis stating that, the coefficients of slope in the model are the same throughout all response categories. Results indicated that the corresponding slope coefficients across response categories were not different, p=0.078>0.05 implying that, the parallel lines assumption was not violated (table 4).

## Table 4: Test of parallel lines

Test of Parallel Lines <sup>a</sup>					
Model	-2 Log Likelihood	Chi-Square	df	Sig.	
Null Hypothesis	297.186				
General	266.464 <sup>b</sup>	30.723 <sup>c</sup>	21	.078	

#### 4.5 Poverty level of respondents

Findings as observed from the factor summary (table 5) showed that, 57.6% of respondents were Extremely Poor, 36.2% were Moderately Poor and 6.2% were Non Poor.

36.2% were Moderately Poor and 6 <b>Table 5: Factor summary</b>	2% were Non Poor.		
v		Ν	Marginal Percentage
LIVELIHOOD STRUCTURE	Extremely Poor	121	57.6%
	Moderately Poor	76	36.2%
	Non Poor	13	6.2%
Age	18-35	29	13.8%
C	36-45	67	31.9%
	46-60	61	29.0%
	Above 60	53	25.2%
Gender	Female	49	23.3%
	Male	161	76.7%
Education	No formal Education	94	44.8%
	Primary Education	111	52.9%
	Secondary Education	5	2.4%
Do you Borrow Money?	Yes	108	51.4%
	No	102	48.6%
size of the land	1-4	86	41.0%
	5 and above	30	14.3%
	0	94	44.8%
economic activity	Agric &Livestock	40	19.0%
	Fishing & Salting	83	39.5%
	Trade	78	37.1%
	traditional doctor	4	1.9%
	employed	2	1.0%
	no activity	3	1.4%
farm ownership	yes	111	52.9%
	No	99	47.1%
Household size group	1-4	61	29.0%
	5-8	132	62.9%
	Above 8	17	8.1%
Dependent ratio	low DR	83	39.5%
-	High DR	127	60.5%
Total		210	
The female to male resp	condent's ratio was 23.3% to	76.7% depic	ting that there were very

The female to male respondent's ratio was 23.3% to 76.7% depicting that there were very few households in the area that were headed by females. The average dependency ration in the area of study was 104.85 which is above the average dependency ratio of 93.8 in Tanzania (www.TheGlobalEconomy.com). Majority of households (61%) had dependency ratio above 104.85, while 39% had below this average. Most households (71%) had average to large family sizes of members between 5 and above while few (29%) had small family sizes with members below 5. More than half of respondents had primary education (52.9%), very few (2.4%) had post primary education while nearly 45% of respondents had no formal education. Although most respondents owned land (52.9%), Fishing and salting was the major economic activity practised by most respondents in the area (39.5%), followed by small businesses (37.1%) with only 19% relying solely on farming and livestock.

## 4.6 Parameter estimates

Results showed that, five factors were found to be related to poverty hence influencing poverty in the area of study. These were gender, size of land the household owns, the size of farm used in farming, Household size and the dependency ratio (table 6).

LocationEstimateStd EWalddfSig.95% Confidence Interval L.Bound $[Age=1]$ .458.570.6471.421.6591.576 $[Age=2]$ .519.4511.3241.250.3651.403 $[Age=3]$ .077.451.0291.865.808.961 $[Age=4]$ 0°00000[Gend=1]-1.728.7455.3831.020**-3.188.268[Edu=2].0011.974-1.9571.8931[Edu=2]027.976.0011.978-1.9401.886[Edu=3]0°001.978-1.9401.886[Edu=3]0°001.978.1.9401.886[Edu=3]0°001.978.1.9401.886[Edu=3]0°001.978.1.9401.886[Edu=3]0°001.277.931.267[Brrw=1]332.3061.1821.277.931.267[Brw=2]0°001.429.1.626.085[Land=1]771.4363.1181.077***.1.626.085[Land=3]0°001.202.202.202[Activ=4]-1.2031.575.6811.409.4.3861.787 <trr<tr>[Acti</trr<tr>		ameter estima						
	Location	Estimate	Std E	Wald	df	Sig.	95% Confidence Interval	
$ \begin{bmatrix} Age=2 \\ Gend=1 \end{bmatrix} & .519 & .451 & 1.324 & 1 & .250 &365 & 1.403 \\ \begin{bmatrix} Age=3 \\ 0^{a} & 0 \end{bmatrix} & .865 &808 & .961 \\ \hline \begin{bmatrix} Age=4 \\ 0^{a} & 0 \end{bmatrix} & .3188 & .268 \\ \hline \begin{bmatrix} Gend=1 \\ -1.728 & .745 & 5.383 & 1 & .020** & .3.188 & .268 \\ \hline \begin{bmatrix} Gend=2 \\ 0^{a} & 0 \end{bmatrix} & .020** & .3.188 & .268 \\ \hline \begin{bmatrix} Edu=1 \\ -0 & 0 \end{bmatrix} & .032 & .982 & .001 & 1 & .974 & .1.957 & 1.893 \\ \hline \begin{bmatrix} Edu=2 \\ -027 & .976 & .001 & 1 & .978 & .1.940 & 1.886 \\ \hline \begin{bmatrix} Edu=3 \\ 0^{a} & 0 \end{bmatrix} & 0 \end{bmatrix} & .1893 & .1940 & 1.886 \\ \hline \begin{bmatrix} Brrw=1 \\ -332 & .306 & 1.182 & 1 & .277 & .931 & .267 \\ \hline \begin{bmatrix} Brrw=2 \\ 0^{a} & 0 \end{bmatrix} & .077*** & .1.626 & .085 \\ \hline \begin{bmatrix} Land=1 \\771 & .436 & 3.118 & 1 & .077*** & .1.626 & .085 \\ \hline \begin{bmatrix} Land=2 \\474 & .599 & .626 & 1 & .429 & .1.649 & .700 \\ \hline \begin{bmatrix} Land=3 \\ 0^{a} & 0 \end{bmatrix} & .0700 \\ \hline \begin{bmatrix} Activ=1 \\ -1.300 & 1.575 & .681 & 1 & .409 & .4.386 & 1.787 \\ \hline \begin{bmatrix} Activ=2 \\ -1.293 & 1.578 & .672 & 1 & .412 & .4.385 & 1.799 \\ \hline \begin{bmatrix} Activ=3 \\ -1.122 & 1.558 & .519 & 1 & .471 & .4.177 & 1.932 \\ \hline \begin{bmatrix} Activ=4 \\ -1.203 & 1.890 & .405 & 1 & .255 & .4.908 & 2.502 \\ \hline \begin{bmatrix} Activ=5 \\ -20.222 & 0.000 & 1 & .20.222 & .20.222 \\ \hline \begin{bmatrix} Activ=6 \\ 0^{a} & 0 \\ \\ \hline \end{bmatrix} & 0 \\ \hline \begin{bmatrix} HHsz=1 \\ 1.041 & .790 & 1.736 & 1 & .188 & .507 & 2.589 \\ \hline \end{bmatrix} \\ \hline \begin{bmatrix} HHsz=3 \\ -1 \end{bmatrix} & .744 & .368 & 4.101 & 1 & .043** & .024 & 1.465 \\ \hline \end{bmatrix}$							L.Bound	U.Bound
$ \begin{bmatrix} Age=3 \\ Age=4 \end{bmatrix} & 0.77 & .451 & .029 & 1 & .865 &808 & .961 \\ \begin{bmatrix} Age=4 \\ Q^a \end{bmatrix} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 &$	[Age=1]	.458	.570	.647	1	.421	659	1.576
$ \begin{bmatrix} Age=4 \end{bmatrix} & 0^a & 0 \\ \begin{bmatrix} Gend=1 \end{bmatrix} & -1.728 & .745 & 5.383 & 1 & .020** & -3.188 &268 \\ \begin{bmatrix} Gend=2 \end{bmatrix} & 0^a & 0 \\ \begin{bmatrix} Edu=1 \end{bmatrix} &032 & .982 & .001 & 1 & .974 & -1.957 & 1.893 \\ \begin{bmatrix} Edu=2 \end{bmatrix} &027 & .976 & .001 & 1 & .978 & -1.940 & 1.886 \\ \begin{bmatrix} Edu=3 \end{bmatrix} & 0^a & 0 \\ \\ \begin{bmatrix} Brrw=1 \end{bmatrix} &332 & .306 & 1.182 & 1 & .277 &931 & .267 \\ \\ \begin{bmatrix} Brrw=2 \end{bmatrix} & 0^a & 0 \\ \\ \begin{bmatrix} Land=1 \end{bmatrix} &771 & .436 & 3.118 & 1 & .077*** & -1.626 & .085 \\ \\ \begin{bmatrix} Land=2 \end{bmatrix} &474 & .599 & .626 & 1 & .429 & -1.649 & .700 \\ \\ \begin{bmatrix} Land=3 \end{bmatrix} & 0^a & 0 \\ \\ \begin{bmatrix} Activ=1 \end{bmatrix} & -1.300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ \\ \begin{bmatrix} Activ=3 \end{bmatrix} & -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ \\ \begin{bmatrix} Activ=3 \end{bmatrix} & -1.203 & 1.890 & .405 & 1 & .525 & .4.908 & 2.502 \\ \\ \\ \begin{bmatrix} Activ=6 \end{bmatrix} & 0^a & 0 \\ \\ \\ \begin{bmatrix} Farm=1 \end{bmatrix} & .857 & .432 & 3.943 & 1 & .047** & .011 & 1.704 \\ \\ \\ \begin{bmatrix} Farm=2 \end{bmatrix} & 0^a & 0 \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	[Age=2]	.519	.451	1.324	1	.250	365	1.403
$ \begin{bmatrix} Gend=1 \\ Gend=2 \end{bmatrix} \begin{array}{c} -1.728 \\ [Gend=2 \\ Gend=2 \end{bmatrix} \begin{array}{c} 0^a \\ 0 \\ \\ [Edu=1 \\ ] \\ -0.32 \\ [Edu=2 \\ ] \\ -0.27 \\ ] \\ -0.27 \\$	[Age=3]	.077	.451	.029	1	.865	808	.961
$ \begin{bmatrix} [Gend=2] & 0^a & & 0 \\ [Edu=1] &032 & .982 & .001 & 1 & .974 & -1.957 & 1.893 \\ [Edu=2] &027 & .976 & .001 & 1 & .978 & -1.940 & 1.886 \\ [Edu=3] & 0^a & & 0 \\ [Brrw=1] &332 & .306 & 1.182 & 1 & .277 &931 & .267 \\ [Brrw=2] & 0^a & & 0 \\ [Land=1] &771 & .436 & 3.118 & 1 & .077^{***} & -1.626 & .085 \\ [Land=2] &474 & .599 & .626 & 1 & .429 & -1.649 & .700 \\ [Land=3] & 0^a & & 0 \\ [Activ=1] & -1.300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ [Activ=2] & -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ [Activ=3] & -1.122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ [Activ=4] & -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ [Activ=5] & -20.222 & 0.000 & 1 & -20.222 & -20.222 \\ [Activ=6] & 0^a & 0 \\ [Farm=1] & .857 & .432 & 3.943 & 1 & .047^{**} & .011 & 1.704 \\ [Farm=2] & 0^a & 0 \\ [HHsz=1] & 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ [HHsz=2] & 1.271 & .695 & 3.340 & 1 & .068^{***} & .092 & 2.634 \\ [HHsz=3] & 0^a & 0 \\ [DR=1] & .744 & .368 & 4.101 & 1 & .043^{**} & .024 & 1.465 \\ \end{bmatrix}$	[Age=4]	$0^{\mathrm{a}}$			0			
$ \begin{bmatrix} \operatorname{Edu} 1 \\ [\operatorname{Edu} 2 \\ ] &032 \\ .027 \\ .976 \\ .001 \\ [\operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ 0 \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} 3 \\ ] & 0^{a} \\ \end{bmatrix} \\ \begin{bmatrix} \operatorname{Edu} $	[Gend=1]		.745	5.383	1	.020**	-3.188	268
$ \begin{bmatrix} Edu=2 \\ 0^{a} \\ [Edu=3 \\ 0^{a} \\ 0 \\ \end{bmatrix} $	[Gend=2]	$0^{\mathrm{a}}$			0			
$ \begin{bmatrix} Edu=3 \\ 0 \\ Brrw=1 \end{bmatrix} &332 & .306 & 1.182 & 1 & .277 &931 & .267 \\ Brrw=2 \\ 0^a & 0 \\ \begin{bmatrix} Land=1 \\771 & .436 & 3.118 & 1 & .077^{***} & -1.626 & .085 \\ \begin{bmatrix} Land=2 \\474 & .599 & .626 & 1 & .429 & -1.649 & .700 \\ \begin{bmatrix} Land=3 \\ 0 \\ 0 \\ \end{bmatrix} & 0^a \\ 0 \\ \begin{bmatrix} Activ=1 \\ -1.300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ \begin{bmatrix} Activ=2 \\ -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ \begin{bmatrix} Activ=3 \\ -1.122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ \begin{bmatrix} Activ=4 \\ -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ \begin{bmatrix} Activ=5 \\ -20.222 & 0.000 & 1 & & -20.222 & -20.222 \\ \begin{bmatrix} Activ=6 \\ 0^a & 0 \\ \end{bmatrix} & 0 \\ \begin{bmatrix} Farm=1 \\ Bs57 & .432 & 3.943 & 1 & .047^{**} & .011 & 1.704 \\ \begin{bmatrix} Farm=2 \\ 0^a & 0 \\ \end{bmatrix} & 0 \\ \begin{bmatrix} HHsz=1 \\ 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ \end{bmatrix} \\ \begin{bmatrix} HHsz=2 \\ 1.271 & .695 & 3.340 & 1 & .068^{***} &092 & 2.634 \\ \end{bmatrix} $	[Edu=1]	032	.982	.001	1	.974	-1.957	1.893
[Brrw=1] 332  .306  1.182  1  .277 931  .267    [Brrw=2]  0 <sup>a</sup> 0  0  0  0  0  0    [Land=1] 771  .436  3.118  1  .077***  -1.626  .085    [Land=2] 474  .599  .626  1  .429  -1.649  .700    [Land=3]  0 <sup>a</sup> 0  0  0  0  0  0  0    [Activ=1]  -1.300  1.575  .681  1  .409  -4.386  1.787    [Activ=2]  -1.293  1.578  .672  1  .412  -4.385  1.799    [Activ=3]  -1.122  1.558  .519  1  .471  -4.177  1.932    [Activ=4]  -1.203  1.890  .405  1  .525  -4.908  2.502    [Activ=5]  -20.222  0.000  1  -20.222  -20.222  .20.222    [Activ=6]  0 <sup>a</sup> 0  0  0  0  0  0    [Hhsz=1]  1.0	[Edu=2]	027	.976	.001	1	.978	-1.940	1.886
$ \begin{bmatrix} Brrw=2 \\ 0^{a} & 0 \\ [Land=1] &771 & .436 & 3.118 & 1 & .077^{***} & -1.626 & .085 \\ [Land=2] &474 & .599 & .626 & 1 & .429 & -1.649 & .700 \\ [Land=3] & 0^{a} & 0 \\ [Activ=1] & -1.300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ [Activ=2] & -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ [Activ=3] & -1.122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ [Activ=4] & -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ [Activ=5] & -20.222 & 0.000 & 1 & -20.222 & -20.222 \\ [Activ=6] & 0 & 0 \\ [Farm=1] & .857 & .432 & 3.943 & 1 & .047^{**} & .011 & 1.704 \\ [Farm=2] & 0^{a} & 0 \\ [HHsz=1] & 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ [HHsz=2] & 1.271 & .695 & 3.340 & 1 & .068^{***} &092 & 2.634 \\ [HHsz=3] & 0^{a} & 0 \\ [DR=1] & .744 & .368 & 4.101 & 1 & .043^{**} & .024 & 1.465 \\ \end{bmatrix} $	[Edu=3]	$0^{\mathrm{a}}$			0			
$ \begin{bmatrix} Land=1 \\ I771 & .436 & 3.118 & 1 & .077^{***} & -1.626 & .085 \\ \begin{bmatrix} Land=2 \\ I474 & .599 & .626 & 1 & .429 & -1.649 & .700 \\ \begin{bmatrix} Land=3 \\ I1300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ \begin{bmatrix} Activ=1 \\ I293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ \begin{bmatrix} Activ=3 \\ I122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ \begin{bmatrix} Activ=4 \\ I203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ \begin{bmatrix} Activ=5 \\ I-20.222 & 0.000 & 1 & I-20.222 & -20.222 \\ \begin{bmatrix} Activ=6 \\ I-122 & I293 & I790 & I736 & I188 &507 & 2.589 \\ \begin{bmatrix} HHsz=1 \\ I041 & .790 & I736 & I188 &507 & 2.589 \\ \hline HHsz=2 & I271 & .695 & 3.340 & I068^{***} &092 & 2.634 \\ \begin{bmatrix} HHsz=3 \\ I271 & .695 & 3.340 & I043^{**} & .024 & I.465 \\ \end{bmatrix} $	[Brrw=1]		.306	1.182	1	.277	931	.267
$ \begin{bmatrix} Land=2 \\ Iand=3 \end{bmatrix} \begin{array}{ccccccccccccccccccccccccccccccccccc$	[Brrw=2]	$0^{\mathrm{a}}$			0			
$ \begin{bmatrix} Land=3 \\ 0^{a} & 0 \\ [Activ=1] & -1.300 & 1.575 & .681 & 1 & .409 & -4.386 & 1.787 \\ [Activ=2] & -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ [Activ=3] & -1.122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ [Activ=4] & -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ [Activ=5] & -20.222 & 0.000 & 1 & -20.222 & -20.222 \\ [Activ=6] & 0^{a} & 0 \\ [Farm=1] & .857 & .432 & 3.943 & 1 & .047** & .011 & 1.704 \\ [Farm=2] & 0^{a} & 0 \\ [HHsz=1] & 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ [HHsz=2] & 1.271 & .695 & 3.340 & 1 & .068*** &092 & 2.634 \\ [HHsz=3] & 0^{a} & 0 \\ [DR=1] & .744 & .368 & 4.101 & 1 & .043** & .024 & 1.465 \\ \end{bmatrix} $	[Land=1]	771	.436	3.118	1	.077***	-1.626	.085
$ \begin{bmatrix} Activ=1 \\ -1.300 \\ 1.575 \\ .681 \\ .409 \\ .4.386 \\ .4.385 \\ .799 \\ \begin{bmatrix} Activ=2 \\ -1.293 \\ .1.793 \\ .1.22 \\ .1.293 \\ .1.22 \\ .1.558 \\ .519 \\ .4.71 \\ .4.12 \\ .4.12 \\ .4.385 \\ .1.799 \\ .4.385 \\ .1.799 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .4.177 \\ .1.932 \\ .2.0222 \\ .20.22 \\ .20.22 \\ .2$	[Land=2]		.599	.626	1	.429	-1.649	.700
$ \begin{bmatrix} Activ=2 \\ -1.293 & 1.578 & .672 & 1 & .412 & -4.385 & 1.799 \\ [Activ=3 \\ -1.122 & 1.558 & .519 & 1 & .471 & -4.177 & 1.932 \\ [Activ=4 \\ -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ [Activ=5 \\ -20.222 & 0.000 & 1 & -20.222 & -20.222 \\ [Activ=6 \\ 0 & & & & & & & & & & \\ [Farm=1 \\ .857 & .432 & 3.943 & 1 & .047^{**} & .011 & 1.704 \\ [Farm=2 \\ 0^a & & & & & & & & \\ [HHsz=1 \\ 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ [HHsz=2 \\ 1.271 & .695 & 3.340 & 1 & .068^{***} &092 & 2.634 \\ [HHsz=3 ] & 0^a & & & & & \\ [DR=1 ] & .744 & .368 & 4.101 & 1 & .043^{**} & .024 & 1.465 \\ \end{bmatrix} $	[Land=3]	$0^{\mathrm{a}}$			0			
$ \begin{bmatrix} Activ=3 \\ -1.122 \\ Activ=4 \end{bmatrix} -1.203 \\ 1.890 \\ .405 \\ 1 \\ .525 \\ .4.908 \\ .525 \\ .4.908 \\ .2.502 \\ .20.22 \\ .20.22 \\ .2$	[Activ=1]	-1.300	1.575	.681	1	.409	-4.386	1.787
$ \begin{bmatrix} Activ=4 \end{bmatrix} & -1.203 & 1.890 & .405 & 1 & .525 & -4.908 & 2.502 \\ \begin{bmatrix} Activ=5 \end{bmatrix} & -20.222 & 0.000 & 1 & -20.222 & -20.222 \\ \begin{bmatrix} Activ=6 \end{bmatrix} & 0^{a} & 0 \\ \begin{bmatrix} Farm=1 \end{bmatrix} & .857 & .432 & 3.943 & 1 & .047** & .011 & 1.704 \\ \begin{bmatrix} Farm=2 \end{bmatrix} & 0^{a} & 0 \\ \begin{bmatrix} HHsz=1 \end{bmatrix} & 1.041 & .790 & 1.736 & 1 & .188 &507 & 2.589 \\ \begin{bmatrix} HHsz=2 \end{bmatrix} & 1.271 & .695 & 3.340 & 1 & .068*** &092 & 2.634 \\ \begin{bmatrix} HHsz=3 \end{bmatrix} & 0^{a} & 0 \\ \begin{bmatrix} DR=1 \end{bmatrix} & .744 & .368 & 4.101 & 1 & .043** & .024 & 1.465 \\ \end{bmatrix} $	[Activ=2]	-1.293	1.578	.672	1	.412	-4.385	1.799
[Activ=5]  -20.222  0.000  1  -20.222  -20.222    [Activ=6]  0 <sup>a</sup> 0  0  0  0    [Farm=1]  .857  .432  3.943  1  .047**  .011  1.704    [Farm=2]  0 <sup>a</sup> 0  0  0  0  0  0    [HHsz=1]  1.041  .790  1.736  1  .188 507  2.589    [HHsz=2]  1.271  .695  3.340  1  .068*** 092  2.634    [HHsz=3]  0 <sup>a</sup> 0  0  0  0  0  0    [DR=1]  .744  .368  4.101  1  .043**  .024  1.465	[Activ=3]	-1.122	1.558	.519	1	.471	-4.177	1.932
[Activ=6]  0 <sup>a</sup> 0    [Farm=1]  .857  .432  3.943  1  .047**  .011  1.704    [Farm=2]  0 <sup>a</sup> 0  0  0  0  0    [HHsz=1]  1.041  .790  1.736  1  .188 507  2.589    [HHsz=2]  1.271  .695  3.340  1  .068*** 092  2.634    [HHsz=3]  0 <sup>a</sup> 0  0  0  0  0  0    [DR=1]  .744  .368  4.101  1  .043**  .024  1.465	[Activ=4]	-1.203	1.890	.405	1	.525	-4.908	2.502
[Farm=1]  .857  .432  3.943  1  .047**  .011  1.704    [Farm=2]  0 <sup>a</sup> 0  0  0  0  1  1.041  1.704    [HHsz=1]  1.041  .790  1.736  1  .188 507  2.589    [HHsz=2]  1.271  .695  3.340  1  .068*** 092  2.634    [HHsz=3]  0 <sup>a</sup> 0  0  0  1  .043**  .024  1.465	[Activ=5]	-20.222	0.000		1		-20.222	-20.222
[Farm=2]  0 <sup>a</sup> 0    [HHsz=1]  1.041  .790  1.736  1  .188 507  2.589    [HHsz=2]  1.271  .695  3.340  1  .068*** 092  2.634    [HHsz=3]  0 <sup>a</sup> 0  0  0  1.465	[Activ=6]	$0^{\mathrm{a}}$			0			
	[Farm=1]		.432	3.943	1	.047**	.011	1.704
[HHsz=2]  1.271  .695  3.340  1  .068*** 092  2.634    [HHsz=3]  0 <sup>a</sup> 0  0  0  1  1.465    [DR=1]  .744  .368  4.101  1  .043**  .024  1.465	[Farm=2]	$0^{\mathrm{a}}$			0			
[HHsz=3] 0 <sup>a</sup> 0 [DR=1] .744 .368 4.101 1 .043** .024 1.465	[HHsz=1]	1.041	.790	1.736	1	.188	507	2.589
[DR=1] .744 .368 4.101 1 .043** .024 1.465	[HHsz=2]		.695	3.340	1	.068***	092	2.634
	[HHsz=3]	$0^{\mathrm{a}}$			0			
$[DR=2]  0^{a}  0$	[DR=1]		.368	4.101	1	.043**	.024	1.465
	[DR=2]	$0^{\mathrm{a}}$			0			

**Table 2: Parameter estimates** 

Note: \*\*, \*\*\*statistical significance at 5 and 10 per cent levels, respectively.

Gender and land size had negative coefficients while dependency ratio, household size and Owning a farm had positive coefficients. Results indicated that, females were less likely to be non-poor than males. Also, decrease in land size was less likely to make farmers non-poor. On the other side, owning a farm was more likely to assign higher ratings implying that households with farms were more likely to be non-poor than those without farms. Also, results indicated that, households with small size families were more likely to assign high ratings than those with large sizes. This implies that, small sized families were more likely to be non-poor than large size families.

Finally, results revealed that, households with low dependency ratio were more likely to assign high ratings than otherwise, implying that, such households were more likely to be non-poor than households with low dependency ratio.

## 5. Discussion

Gender of household head determines the responsibility of an individual for economic wellbeing of the family. Findings from the study area revealed that females were poorer than men. Traditionally women in this area, especially the married ones had few opportunities outside their homes because men in the area were regarded as the main providers of household consumables. And, since the economic activity in the area was mainly fishing; it is hard for most of them to engage in such undertaking. This makes women in the area more vulnerable to poverty than men. Similar results were reported in Nigeria, by Apata *et al.* (2010). They observed that, gender gap in accessing resources in Africa lead to static inefficiency and also reduce possibility of efficient investments in new technologies. Women continue to be disadvantaged; hence empowering them is essential for rural livelihood improvement.

Results also showed that people with small size of land could not produce enough food to carter for the household consumption and income earning. Therefore holding a large farm size in the area increased the possibility of diversifying in planting varieties of crops livestock rearing, leasing unused land to other people and using it as collateral for accessing loans. Hence the households with large sizes of land had possibilities of being non poor than those with small land size. These results are contrary to the findings in Ethiopia by Ayalneh *et al.* (2005) who found out that, although land size is important for rural household their effect was not found to be statistically significant.

On the other side, owning a farm was more likely to assign higher ratings, implying that households with farms were more likely to be non-poor than those without farms. That means, land is among the key factors in the area determining the poverty situation. Land holding is a means of generating livelihoods, vehicle for investment, wealth accumulation and transferring assets between generations. Farm land ownership reduces the household expenditures/expenses by avoiding paying rent to the land lord.

Also, results indicated that, households with small size families were more likely to assign high ratings than those with large sizes. These results were contrary to the theory that large families reflect availability of labor, an important factor of production. The large families in the area implied presence of more dependants in the household hence increasing vulnerability of large family sizes to poverty. Poverty can be experienced in a family where the number of income earners are few than the number of household members. A large amount of income is required by the large family size to provide for the basic necessities such as food, school fees, medical services, transport and other daily expenses than for a small sized family. Therefore small sized families were more likely to be non-poor than large size families.

With regards to the dependency ratio, dependents were regarded in this study as family members below 18 years and elderly above 60 years. The results showed that, households with low dependency ratio were more likely to be non-poor than otherwise. Therefore majority of households fell in poverty because of having large families with many dependants being children or elderly at unproductive age.

## 6. Conclusion

The study findings revealed that most people in the study area were extremely poor. The factors that influenced poverty in the area were identified to be five. These were gender and land size with females and land size being more vulnerable to poverty. Other factors were farm ownership, family size and dependency ratio. Households with small family size, dependency ration and those owning farms were more likely to be non-poor. This paper recommends that, people should be educated to do away with some of the cultural backgrounds that prevent them especially women to participate in economic activities. More effort should be made to educate people especially children and women in the area so as to increase literacy level in the area. Giving proper education to people may have a positive effect on minimizing family sizes hence reducing the problem of having more dependents in the household. The little participation of local people in agriculture provides a room for further research towards investigating potential alternatives that will attract more people in the area to engage in commercial farming and diversification into higher-value-added production as a way of increasing incomes and fighting poverty.

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