

Rural Household Poverty and Vulnerability to Poverty in Oromiya, Ethiopia

Dereje Fekadu

Department of Economics, College of Business and Economics, Wollega University,
Post Box No: 395, Nekemet, Ethiopia

Abstract

This study is based on secondary data from HICES and WMS 2004/05 collected by CSA. The study has tried to examine the extent of poverty and vulnerability of households in rural Oromiya. It further looks through the determinants of poverty and vulnerability. Using the Foster, Greer and Thorbecke (FGT) poverty indices, the descriptive analysis of poverty indices revealed that 38.84% of the sampled households in the region are poor. A measured household poverty is decomposed into transient and chronic poverty and majority of the poor are chronically poor. The vulnerability to poverty of households in the region is also found to be high as a substantial share of those currently above the poverty line are highly vulnerable to poverty in the future. The Logit model is used to investigate the determinants of poverty and vulnerability. From the estimation result educational attainment of the head, household size, location of residence in the region, are found to be the key determinants of poverty in the region. The results show that poverty is not the same as vulnerability. So in designing policies one should take note of the diverse nature of poverty and vulnerability. For the chronically poor who lack economic assets, priority should be given to reduction of consumption fluctuations and building up assets through a combination of protective and promotional programmes. On the other hand, the transient poor and high vulnerable non-poor households are most likely to benefit from combination of prevention, protection, and promotion which would give them a more secure base to diversify their activity into higher-return, higher risk activities. Therefore ex ante measures to prevent households from becoming poor as well as ex post measures to alleviate those already in poverty should be combined in evaluating poverty reduction strategies.

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***Corresponding Author:**

Dereje Fekadu

E-mail:

dfderessa@yahoo.com

INTRODUCTION

The problem of poverty and how to reduce it remains the most pressing dilemma in the international development debate. Although poverty reduction has become a central global agenda, there is still an ongoing debate on the policies that would help to attain the objective (Cashin *et al.*, 2001). As a result poverty reduction became a subject that has attracted serious international discussions for more than 20 years. This is evidenced by the attention poverty is receiving in the international development debate. For example, the World Development Reports (World Bank, 2001) focus on poverty. Further, in the year 2000, leaders from 189 countries endorsed a set of Millennium Development Goals (MDGs) to be achieved by 2015, one of which was to 'halve' the number of

people living in absolute income poverty relative to the 1990 levels (Maxwell, 2001).

Despite the progress in reducing poverty in some parts of the world, millions are still struggling to make ends meet. In southern and eastern Africa the breadth and depth of poverty and vulnerability are increasing as a consequence of increased exposure to natural and human induced shocks and stresses and the impact of HIV and AIDS. An increasingly large number of men and women are unable to cope with and recover from these because of a deteriorating asset base and inappropriate policies, institutions and processes. Understanding the severity and nature of poverty and how this influences and defines the capabilities and

capacities of people to overcome poverty is fundamental in defining interventions that support peoples' efforts to improve their own lives.

Poverty as a vulnerability concept is now seen as a dynamic process which allows for putting in place proper proactive policy interventions to address poverty. Scholars have increasingly recognized that exploring vulnerability is very necessary for understanding ex-ante poverty dynamics and policy interventions. The dimension of poverty as low level of security is not appropriately measured in Ethiopia (Tassew, 2004). People everywhere face risks and vulnerabilities but poor people, especially those living in rural areas dependant on agriculture and in tropical ecologies face more than others. This is true of a large proportion of Sub-Saharan Africa's (SSA's) population. There are a number of risks and vulnerabilities that drive and maintain poverty in SSA, including harvest failure, market failure and volatility, conflict, and health shocks.

Over the past decade Ethiopia has made significant strides in improving the living standards of its citizens. Household survey evidence suggests that between 1999/00 and 2004/05, real total consumption per capita grew by 19 percent (15 percent with respect to 1995/96). This has resulted in significant reductions in poverty: the head count fell by 12.4 percentage points between 1999/2000 and 2004/05, and by 18.5 percentage points since the mid-1990s (Table 1). Despite this progress population has grown with the result that the number of poor people in Ethiopia increased from 25.6 million in 1995/96 to 27.5 million in 2004/05 (MOFED, 2009). As a result poverty remains a significant challenge facing the nation.

Poverty alleviation will remain a crucial part of the overall development agenda in Ethiopia in the years to come. The Ethiopian government has been constantly pursuing development efforts addressing mainly rural poverty. Moreover, the government introduced Agricultural Development Led Industrialization (ADLI) as its major policy program to achieve higher growth and reduce both rural and urban poverty. This strategy is upheld with an emphasis on agriculture as the generator of primary surplus, taking advantage of backward and forward linkages, to fuel the transition of a more modern economy. The approach remains basically sound; it places an appropriate emphasis on raising the incomes of the rural population, who constitute 83% of the population, and over 90% of the poor, and who are almost exclusively engaged in agriculture. However, the full potential of agricultural growth has not yet been realized, and intensification of the strategy seems to be required. More broadly, the

overall growth performance has not yielded the hoped-for poverty-reduction results as yet. There are large entries into poverty compared to those who exit. This requires not only a deep look at the factors responsible for poverty but also the defenselessness of the poor.

Conventional poverty profiles and poverty status regressions are often criticized by policy makers for telling them a lot about who the poor are, but very little about what to do to combat poverty. Essentially this is because the correlates of poverty status are distinct from the dynamic processes that lead households to fall into or escape from poverty. An effective anti-poverty strategy should be based on intensity of vulnerability to poverty. To reduce poverty more effectively, anti poverty interventions should carry out from two essential aspects. One is ex-post poverty alleviation intervention such as providing subsidies, relief, and reducing taxes. The other is ex-ante poverty preventing interventions such as capacity building, education, offering opportunities of work to the poor, so as to reduce vulnerability to poverty. This research aims to provide evidence for setting different policy targets, and to suggest alternative policy interventions.

If policy makers design poverty alleviation policies in the current year on the basis of a poverty threshold of income in the previous year, "the poor" who receive income support may have already escaped from poverty and "the non-poor" who do not receive income may have slipped into poverty due to various unanticipated shocks (e.g. changes in relative crop prices or an illness incapacitating the main bread winner). Clarifying the distinction between poverty and vulnerability is also essential for focusing the attention of policy makers on the living conditions of the poor; in order to target interventions more generally; to be able to predict the effects of, and then evaluate, policies and programs designed to help the poor. The objective of the study is to analyze poverty and vulnerability and its determinants in rural Oromiya.

MATERIALS AND METHODS

The most difficult task in poverty analysis is setting the poverty line and which equivalence scales are used. There are a number of different approaches to the determination of poverty line. The most common ones are direct calorie intake, food energy intake and cost of basic need methods. The *direct calorie intake* method defines poverty line as the minimum calorie requirement for survival. Therefore, individuals who consume below a predetermined minimum level of calorie intake are taken to be under poverty. This relates poverty to malnutrition. The limitation of this method is that the

cost of acquiring such basic calorie requirement is not taken into consideration. Besides it overlooks the non-food requirements.

The other most popular method of setting poverty line that can overcome such problem is the food energy intake (FEI) method. This method of setting a poverty line tries to find consumption or income level at which a person's typical food energy intake (nutrient intakes) is sufficient to meet a predetermined food energy requirement (Ravallion and Bidani, 1994). Hence, in this method under nutrition is viewed as "food energy poverty" (Ravallion, 1992). The method also aims to measure consumption or income poverty rather than under nutrition because it takes not only the nutrient intakes in relation to requirements but also the incomes or consumption (Ravallion and Bidani, 1994).

Once the welfare measure and poverty line is determined, it remains for the construction of an index to summarize the available information on the poor. Unlike other issues in poverty, the measurement of poverty has recently attracted a large body of literature. Foster, Greer and Thorbecke (FGT) (1984) index is the most popular index in the recent literature for the fact that it captures the most desirable properties of a poverty index, and it is decomposable and sub-group consistent. The FGT index of general class is given by

$$P_i = \frac{1}{N} \sum_{i=1}^q \left[\frac{Z - Y_i}{Z} \right]^\alpha, 0 \leq \alpha \leq 2 \text{ if } Y_i < Z$$

0 otherwise

Where; P_α = the measure of poverty; Z is poverty line for the household, q is the number of the poor households, Y denotes household income and α is the poverty aversion parameter ($\alpha \geq 0$). It represents the weight attached to a gain by the poorest. Usually α takes the values of 0, 1, and 2. When we set α equal to 0, then P will be reduced to the headcount ratio, which measures the incidence of poverty (the proportion of poverty in the total population). When α equals to 1, P α gives the poverty gap. P1 shows how far the poor, on average, are below the poverty line (intensity of poverty). Setting α equal to 2 gives the severity of poverty. This particular poverty index gives greater weight to the poorest of the poor, as it is more sensitive to redistribution among the poor.

The head-count ratio ($\alpha = 0$), measures the incidence of poverty, the proportion of the

population defined to be poor. The poverty-gap ratio ($\alpha=1$) measures the mean depth of poverty as the proportion of the poverty line multiplied by the head-count index, i.e., it is the mean proportion by which the welfare level of the poor falls short of the poverty line. And the squared poverty gap measures the severity of poverty among the poor.

Following Chaudhuri (2003) and Azam (2009), for a given household, the vulnerability is defined as the probability of its consumption being below the poverty line in the future

$$V_h = pr(\ln c_h < \ln z) \dots\dots\dots (1)$$

Where V_h vulnerability of household h, c denotes the per capita consumption of household h and z stands for the poverty line (national poverty line or food poverty line) of household consumption. The probability that a household will find itself poor depends not only on its expected (mean) consumption but also on the volatility (i.e., variance, from an inter-temporal perspective) of its consumption stream. Therefore, both estimates (household expected consumption and the variance of its consumption) are required to quantify the level of household's vulnerability to poverty. Assuming that for household h the data generation process for consumption is captured by the following equation:

$$\ln c_h = X_h \beta + \varepsilon_h \dots\dots\dots (2)$$

Where c_h stands for per capita consumption for household h, X_h represents a vector of observable household characteristics (containing both household and community elements) such as such as household size, gender of household head, educational attainment of the head of household etc, β is a vector of parameters, and ε_h is mean-zero disturbance term that captures household's idiosyncratic factors (shocks) contributing to differential level of per capita consumption for households that share the same characteristics. The vulnerability to poverty of household h with characteristics X_h can now be calculated by:

$$\hat{V}_h = \hat{pr}(\ln c_h < \ln z | X_h) = \phi \left[\frac{\ln c - X_h \beta}{\hat{\sigma}} \right] \dots\dots (3)$$

Where \hat{V}_h denotes predicted vulnerability to poverty, that is the probability that the per capita consumption level (c_h) will be lower than the poverty line (z) conditional on household characteristics X_h . $X_h \beta$, household's expected log consumption calculated from equation (2) Meanwhile, $\phi(\cdot)$ denotes the cumulative density of the standard

normal distribution and $\hat{\sigma}$ is the standard error of the error term in (2).

Two assumptions are necessary to make when vulnerability is estimated from a single cross-section. First, it is assumed that the idiosyncratic shocks to consumption are identically and independently distributed over time for each household. This implies that unobservable sources of persistence (arising for example, from serially correlated shocks or unobserved household-specific effects) over time in the consumption level of an individual household are ruled out. Second, it is also necessary to assume that the structure of the economy (captured by the vector β) is relatively stable over time, ruling out the possibility of aggregate shocks (i.e., unanticipated structural changes in the economy). By assuming a fixed β over time, it implies that the uncertainty about future consumption stems solely from the uncertainty about the idiosyncratic shock, Eh , that the household will experience in the future. The variance Eh however is not identically distributed across households and depends upon observable household characteristics.

To have a consistent estimate of the parameters, it is necessary to allow heteroskedasticity, that is, variances of the disturbance term to vary between households. This is appealing since the economic interpretation of the variance of the disturbance term is as intertemporal variance of log consumption in this setting. Assuming constant variance of the disturbance term means that the households have constant variance in log consumption. This is contrary to empirical evidence since poor households have more variance in consumption than their counterpart non-poor (Chaudhuari, 2003). This can take the following functional form:

$$\sigma^2_{e,h} = Z_h \theta = X_h \theta_{ij} + \eta_h \text{ ----- (4)}$$

A three-step Feasible Generalized Least Squares (FGLS) procedure can be used to estimate the parameter θ . Equation (2) is first estimated using an ordinary least squares (OLS) procedure. Then, the estimated residuals from the equation (2) are used to estimate the following equation, again by OLS:

$$e_{ols}^2 = Z_h \theta + \eta_h = X_h \theta_{ij} + \eta_h \text{ ----- (5)}$$

The estimate from above is then used to transform the equation (5) into the following:

$$\frac{\hat{e}^2_{OLS,h}}{Z_h \hat{\theta}_{OLS}} = \left[\frac{Z_h}{Z_h \hat{\theta}_{OLS}} \right] \theta + \frac{\eta_h}{Z_h \hat{\theta}_{OLS}} \text{ ----- (6)}$$

This transformed equation is estimated using OLS to obtain an asymptotically efficient FGLS estimate, $\hat{\theta}_{FGLS}$. $Z_h \hat{\theta}_{FGLS}$ is a consistent estimate of $\sigma^2_{e,h}$, which is the variance of the idiosyncratic component of household consumption.

This is then used to transform equation (2) into:

$$\frac{\ln c_h}{\sqrt{Z_h \hat{\theta}_{FGLS}}} = \left[\frac{X_h}{\sqrt{Z_h \hat{\theta}_{FGLS}}} \right] \beta + \frac{e_h}{\sqrt{Z_h \hat{\theta}_{FGLS}}} \text{ ----- (7)}$$

OLS estimation of equation (7) yields a consistent and asymptotically efficient estimate of β . Finally, the estimates of β and θ obtained through this FGLS method can be used to estimate the vulnerability to poverty of household h through the following generalization of the equation (3):

$$\hat{V}_h = \phi \left[\frac{\ln c - Xh \hat{\beta}}{\sqrt{Xh \hat{\theta}_{ij}}} \right] \text{ ----- (8)}$$

This is an ex ante vulnerability measure that can be estimated by cross-sectional data. Equation (8) will provide the probability of a household becoming poor given the present distribution of consumption. A merit of this vulnerability measure is that it can be estimated by cross-sectional data. However, the measure correctly reflects a household's vulnerability only if the distribution of consumption across households, given the household characteristics at one time, represents the time-series variation of consumption of the household. Hence this measure requires a large sample in which some households experience a good period and others suffer from negative shocks.

RESULTS AND DISCUSSION

Poverty studies usually measure living standards using consumption (or income) per capita. As discussed in Chapter three, because needs vary among household members, and because there are also economies of scale in consumption, poverty measures based on per capita welfare indicators may not be good estimates. An alternative is to base our poverty measures on consumption (or income) *per adult equivalent*. If poverty estimates are not affected by the adult equivalence weights that we choose, it is safe to say that those poverty estimates are not biased as a consequence of the

weighting procedure used. In addition the household consumption has been adjusted based on the regional CPI. Hence real consumption per adult equivalent calculated as the ratio of real consumption (adjusted consumption for inflation) to adult equivalent scale is used in this study.

In search of the conditions of poverty, vulnerability to poverty and the related determinant factors in rural Oromiya the data is analyzed by both descriptive statistics and econometric analysis techniques. The descriptive methods are employed to explain the level and extent of poverty among the different demographic and socio economic variables in the study area. The econometric analyses enlighten the determining factors for poverty and vulnerability hence give empirical evidences for the basic research questions of this thesis.

Table 1: Poverty indices for rural Oromiya.

Poverty index	Proportion	SE
Head count ratio (P0)	0.3884	0.0101
Poverty gap (P1)	0.0936	0.0031
Poverty severity (P2)	0.0322	0.0014

As one can see from table 1 the head count ratio of 38.84 percent of the households are poor. This is an evidence for high incidence of poverty in Oromiya where more than 90% of populations live in rural area. As a result, 38.84% of the rural population in the region live below meeting basic consumption requirement or cannot afford to buy a basic basket of goods and essential non-food items. Poverty levels in Oromiya is a little bit below the national rural average head count ratio(39.3), One plausible explanation is that the basket of goods and services or consumption that defines the poverty line is likely to have a substantial share of food items. With a relatively better resource endowment and the dominance of subsistence agriculture, households in Oromiya are more likely to meet their minimum food requirements from own production (except of course for those households who could be net purchasers of food), thereby resulting in lower measured poverty rate.

Oromiya is the largest region and this figure is high as it contributes to the lion's share of national poverty incidence. The poverty gap which is the percentage of the poverty line needed to bring the entire population who are below the poverty line at least to the poverty line is found to be 9.3 percent and it is slightly greater than the national average of 8.5 percent in rural area of the country. Similarly the poverty severity index 0.032 is also a little bit more than that of the national average for rural area (0.027). Poverty gap and poverty severity for rural

Oromiya are relatively larger than the national average for rural area while poverty measured in terms of head count is found to be low. So spatial comparison of poverty only based on head count ratio might be misleading.

Table 2: Poverty indices by gender of the household head in rural Oromiya.

Poverty indices	FHHs		MHHs		T
	INDEX	SE	INDEX	SE	
P0	0.2110	0.0181	0.4378	0.0116	2.25*
P1	0.0406	0.0045	0.1083	0.0038	4.10**
P2	0.0118	0.0018	0.038	0.0018	4.55***

Source: Author's computation based on CSA data

*, ** and *** significant at 10, 5, and 1 respectively.

No study of poverty is complete without some discussion of the robustness of the findings. When comparing poverty measures over time or group, using stochastic dominance technique can help in establishing the robustness of poverty comparison using summary measures. To that end, Figure 1 presents the stochastic dominance analysis for the poverty comparisons between FHHs and MHHs.

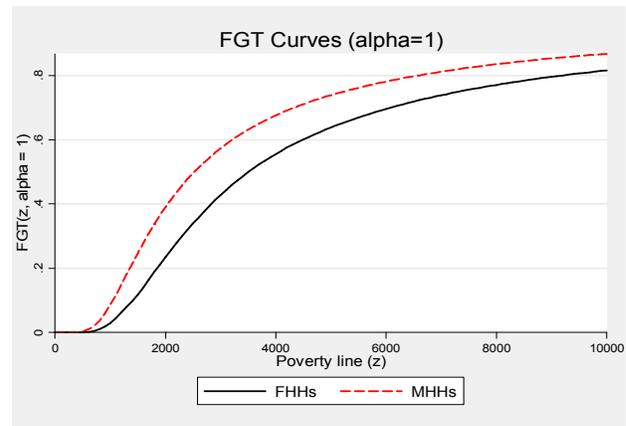


Figure 1: Comparison of poverty gap between MHHs and FHHs.

As it is shown in figure 1 depth of poverty is drawn across multiples of poverty lines for both MHHs and FHHs in one graph to conduct stochastic dominance analysis. And at all levels of these poverty lines, the depth of poverty indices of FHHs are below than that of MHHs verifying that consumption poverty is consistently higher for MHHs than FHHs. It is to be noted that the stochastic dominance analysis reveals the same result as the statistical test. Therefore, given these results one can conclude that MHHs experience more poverty than their male counterparts in rural Oromiya.

As discussed in the methodology section a regression model of the relationship between a household's consumption level and its characteristics. However, as some types of households may experience bigger fluctuations in their consumption levels than others, we allow the residual error term of the regression (which considers transitory fluctuations among other things) also to vary with (a potentially different set of) household characteristics. This model is used as the basis for assessing vulnerability of households to consumption poverty. The poverty line used in the estimation is the already described absolute total poverty line. The results summarize vulnerability to poverty (i.e., the probability that a household will be vulnerable), and amongst the vulnerable we distinguish those whom we term the relatively low vulnerable (i.e., those who have an estimated vulnerability level less than 0.5); and those whom we term the highly vulnerable because we estimate that they are more likely to experience poverty (i.e., those who have an estimated vulnerability level greater than 0.5).

Households with vulnerability index greater or equal to 0.5 are grouped as high vulnerable group (HVG) and households with vulnerability index less than 0.5 are grouped as low vulnerable group (LVG). Non poor households with vulnerability index greater or equal to 0.5 are grouped as high vulnerable non poor (HVNP). 47.66 percent (1108) of households out of the total sampled households are highly vulnerable to poverty (has a vulnerability index greater or equal to 0.5 or has a probability of 50 percent and above to fall in to poverty in the near future) and 17.93 percent of the non poor are highly vulnerable to poverty. But based on the data used for this study only 37% of households in rural Oromiya are poor in the year 2004/5. This shows that expected poverty is much higher than the point-in-time estimates of poverty, which connote the importance of forward looking poverty analysis. Arguably, this indicates that point-in-time estimate poverty might be underestimated.

Table 3: Category of households in to relative vulnerability group.

Vulnerability category	Households	Percent
LVNP	1167	95.89***
LVP	50	4.11***
TOTAL LVG	1217	52.34*
HVNP	255	17.93****
HVP	853	94.46**
TOTAL HVG	1108	47.66*

*out of the total households, **out of poor households, ***out of low vulnerable group **** out of non poor households.

The mean vulnerability of households with vulnerability index greater or equal to 0.5(HVG) is found to be 0.62 for rural Oromiya. This means highly vulnerable households who are not currently poor have on average a probability of 0.62 to fall in to poverty and highly vulnerable poor households have a probability of 0.62 to remain poor. The mean vulnerability for all households is also high (0.46). This means the households have a probability of 0.46 to be poor or remain poor.

Table 4: Mean vulnerability index.

Vulnerability index	Frequency	Mean	Standard deviation
Vh<0.5	1217	0.35	0.104
Vh>=0.5	884	0.62	0.082
Total Vh	2101	0.46	0.161

Vh<0.5 relatively low vulnerable group
 Vh>=0.5 relatively high vulnerable group
 Vh total vulnerability

The head count ratio indicates that 903 sampled households (37%) out of the total 2325 sampled rural households are poor in the study area. These huge numbers of the people could not get the daily minimum and recommended calories requirement (2200 kcal per capita per day) for. It means that they could not produce enough or they don't have other means to cope with shortage in agricultural production to satisfy their daily minimum requirement. Finding the factors that contribute to poverty goes beyond the descriptive analysis and requires employing econometric analysis. Multivariate econometric analysis helps us to identify factors influencing the extent of poverty. As it was discussed in the methodology part of this paper, a logit model is estimated to identify the major determinants of poverty of households.

The variables described in the descriptive analysis are used as explanatory variables in logit model. Using the household poverty as a dependent variable whereby a value of 1 is given to households being poor and 0 otherwise, and using the identified explanatory variables the model was estimated by following the maximum Likelihood estimation procedure. The measurement of goodness of-fit of the model shows that the model fit the data well. The logit model helps us to identify the determinants that explain the probability that a household is poor. Therefore, based on absolute total poverty line, we look through factors that determine the household to fall below this poverty line. This section presents and interprets the estimation result.

According to the estimation result, the probability of being poor is on average lower for female headed

households relative to the categorical variable (male headed households) and it is statistically significant at one percent. This result supports the result the results obtained from the descriptive statistics and stochastic dominance tests. Therefore, given these results one can conclude that MHHs experience more poverty than their male female counterparts in rural Oromiya. Among the important demographic variables, the household size as explained by the number of people in the various disaggregated age groups appears to have positive coefficient and is significant at one percent so as family size increases the likely of the household increases. And the square of household size has negative coefficient and significant at one percent.

This shows increment of household size after a certain level negatively affects the household probability to be poor. The expectation is compared to adult member of households higher proportions of household members who are children and elderly significantly increase the probability of the household to fall into poverty. But in this specific study both the number of elders and juniors in the household does not affect the probability of the household to be poor.

Compared to the base category 'illiterate head of household', the rest of dummies on education are found to affect poverty negatively. The relevant coefficients are also statistically significant except for household head with primary education. Compared to the base category household head's with some primary education does not affect the likelihood of the household to be poor. However households who have household heads with relatively better education (secondary level and above) are more likely to be non poor than those headed by uneducated household heads. This basically conforms the finding from the descriptive analysis and stochastic dominance test. Other studies also confirm that literacy and education attainment decrease poverty (e.g. World Bank, 2002). Educated household heads process and use information. For example, literate farmers may seek information on prices more than the illiterates ones and consequently sell their produce at reasonable prices.

To identify the possible determinants of the vulnerability to poverty the vulnerability index is used in classify households as highly vulnerable and low vulnerable. When the vulnerability to poverty is greater or equal to 0.5 the household is grouped as high vulnerable group which takes the value of 1 and 0 otherwise (when the vulnerability index is less than 0.5 for the group) as dependent variable is estimated using the same explanatory

variables used to identify the determinants of poverty by the logistic estimation.

Age of Head of household has a positive sign and significant at 1%. This showing that on average as the age of the household increases vulnerability to poverty increases. This is as expected because as age the head increase the household acquires more skill, experience and accumulated asset that tends to decrease vulnerability to poverty. Household header ship does not affect vulnerable to poverty.

The coefficient for household size has positive sign and significant at one percent which confirm that household size exerts more pressure on consumption than it contributes to production. This show as household size increases the vulnerability to poverty increase. But the square of household size has negative sign and significant at one percent this shows increment of household size after a certain level negatively affects the household probability to be poor. This means current large family size can be a good labor force for the household in the future that reduces the vulnerability to poverty.

Except for household head with some primary education the other education dummies are insignificant. From this one can infer that compared to the base category illiterate head of household with some secondary and tertiary education has low vulnerability to poverty. This is as expected because the more the household head is educated the more probable the household to use modern agricultural technologies and better cope with risk and uncertainty which reduces the probability to fall in to poverty in the future.

CONCLUSION

This study has sought to assess the extent of poverty as well as vulnerability to poverty. In addition some of the key determinants of poverty & vulnerability are identified. Descriptive analyses, poverty measurement using FGT poverty indices and multivariate analysis have been employed for the study. In light of the evidences that are obtained from the study the following conclusions could be drawn:

The problem of poverty is pervasive in Ethiopia in general and in the Oromiya region in particular. The descriptive analysis of the data set indicates that among the 2325 sampled rural households in Oromiya region 903 (38.84%) households were found to be poor while 1422 (61.16%) of households were non poor. Thus 38.84% of the sampled households could not get the minimum and above

recommended calorie level, i.e., 2200 kcal per adult per day through income generated from their major activity of subsistence agriculture.

The profile of the rural households in Oromiya region was found to be more overwhelming. Illiteracy is more pervasive and accounts 70 percent of the sampled household heads. Even in the literate sub group majority of them attended education up to primary level. Only insignificant number of the household heads in the region was found to have secondary and higher level of education. The percentage of households with illiterate heads is higher among poor households than among non poor households. Poor households achieved lower average grade level than those who are non poor. Except the mean household age, the mean values of household size, adult equivalent household size and real consumption were found to be higher for non poor households than poor households.

An estimate of vulnerability shows that 47.66 percent (1108) of households out of the total sampled households are highly vulnerable to poverty and 17.93 percent of the non poor are highly vulnerable to poverty. The mean vulnerability for highly vulnerable households is found to be 0.62 for rural Oromiya. The mean vulnerability for all households is also high (0.46).

Most of the findings in the descriptive analysis are consistence with the result obtained from multivariate model. The estimation of the model for determinants of poverty shows that larger household sizes significantly increase the probability of the household to be poor. Similarly the probability of being poor is on average higher for male headed households relative to the female headed households. On the other hand literate household head has negative effect on poverty. In general, households with large family size, illiterate are more likely to be poor than those with smaller family size with educated household heads.

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