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Measuring rural poverty among rural households in Gedeo Zone, SNNP Region, Ethiopia

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Poverty is a phenomenon that is complex and has multidimensional features. It involves people experiencing various degrees of material deprivation; the concept is used to cover a wide ranging set of interrelated life chances. The purpose of this study was to measure poverty in rural Gedeo zone, southern Ethiopia with specific objectives of measuring poverty among the rural households. The research was undertaken using a cross sectional design on a random sample of 325 households in the study area. The sample size was determined based on multi stage sampling procedure. In order to achieve its objective, primary data was collected through survey and interview using semi structured questionnaires. Analysis of data was made after the data collection. In this regard, the Cost of Basic Needs (CBN) approach and FGT measures were employed to set the poverty line and compute the magnitude of rural poverty in the study respectively. The food and absolute poverty lines were calculated based on food basket of 2200 Kcal per adult per day. Accordingly, the food and absolute poverty lines for the study area were determined to be Birr 3952.74 and 4463.35, respectively. The food expenditure takes the lion's share accounting for about 88.56% (relative to the non-food expenditure) in the consumption expenditure of the poor and thus this substantial expenditure was used for estimating the poverty line. Thereafter, the poverty indices were computed using FGT indices. The incidence, depth and severity of food poverty stood at 0.052, 0.021 and 0.010 respectively, while respective measures for absolute poverty were found to be 0.302, 0.085 and 0.034. These measures indicated that poverty significantly prevails in the study area. All the measures confirm that poverty has been problems and remain major concern in rural development agenda in Ethiopia. Thus, rural poverty alleviation in the study area in particular and rural Ethiopia in general requires context based policies and adoption of strategies to alleviate poverty among the rural households.

Key words: Rural households, measuring poverty, cost of basic needs, FGT, Gedeo zone, Ethiopia.

INTRODUCTION

The world has witnessed phenomenal advances in science, technology and wealth creation. Despite this, poverty in all its manifestations remains deep, pervasive and intractable. Poverty is a situation in which the

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underprivileged do not have adequate food and shelter, lack access to education and health services, are exposed to violence, and find themselves in a state of unemployment, vulnerability and powerlessness (Todaro, 1997). Poverty is multi-dimensional phenomenon and has to be looked at through a variety of indicators such as levels of income and consumption, social indicators and indicators of vulnerability to risks and socio-political access and participation. The most common approach to the measurement of poverty is based on incomes or consumption levels. It is widely understood that an individual is considered poor if consumption or income level falls below some minimum level necessary to meet basic needs which is a poverty line (World Bank, 2004).

With the increased awareness and availability of data, various measures of poverty have been developed overtime. According to Kimalu et al. (2002), the most widely used poverty indices are the incidence of poverty (headcount), the poverty gap (depth of poverty), and the poverty severity (measures income inequality among the poor). The headcount index indicates the share of the population whose income or consumption is below the poverty line. But it does not show how far below the poverty line the poor. Also, it forces the overall poverty index to remain constant even when the welfare of the poor has improved or worsened. Beside, with this index, an income transfer from an extremely poor person to a person just below the poverty line would show a reduction in poverty despite the decline in the income of the extremely poor (Kimalu et al., 2002). On the other side, depth of poverty index provides information regarding how far households are from the poverty line. This measure captures the mean aggregate consumption shortfall relative to the poverty line across the whole population. It measures the intensity of poverty by averaging the distance between the expenditure of the poor persons and the poverty line. This index can be used to estimate the resources that would bring the expenditure of every poor person up to the poverty line thereby eliminating absolute poverty (Aigbokhan, 2000) but it does not differentiate the degree of inequality among the poor when it is used to assess welfare (Kimalu et al., 2002). The Poverty severity index takes into account not only the distance separating the poor from the poverty line but also the inequality among the poor. It is the poverty index that shows the severity of poverty by squaring the gap between the expenditure of the poor individual and the poverty line. Because the index gives more weight to the poverty of the poorest, it measures the degree of inequality among the poor implying that transferring income to the poorest from the better-off poor should lower the poverty index (MEDaC, 1999).

Poverty has been predominantly a rural phenomenon in the majority of Saharan-Africa countries. Approximately 75% of the world's poor reside in rural areas, and at current trends, the global percentage of the poor in rural areas will not fall below 50 percent before 2035 (Ravallion, 1992). The majority of the Ethiopians have been living in rural areas and agriculture is the main stay of the economy and at present, about 72.7% of the country's population engages in various agricultural activities and generates its income for consumption. The sector contributes 34.9 % to the country's GDP next to service sector, which of course contributes 39.2 percent of GDP (NBE, 2017). The number of poor people in rural areas of Ethiopia exceeds the capacity of agriculture to provide sustainable livelihood opportunities due to low productivity, production and market linkages challenges. As a result, a significant proportion of the rural households face food insecurity and lives in poverty (MOFED, 2012). However, the current government of Ethiopia has formulated policies, and committed itself to growth and transformation plans which target sustainably improving rural livelihoods and national food security; but, there are no large-scale improvements in the living conditions of rural populations and the mass live in poverty (NPC, 2017). This calls for researching rural poverty and then design a policy for poverty alleviation and to bring improvements of lives of the poor.

Statement of the problem

Eradicating poverty remains the world's most important and urgent task. Accordingly, Ethiopian government has started the fight against poverty and demonstrated a strong commitment to poverty reduction by adopting its implementation of the integrated development plans including the Growth and Transformation Plan launched in 2010 (MOFED, 2012). This has been witnessed by the robust and sustained growth in the last two decades in the country. The per capita income has continuously increased and reached 883 USD in the same period (NBE, 2017) though it is far lower than the average per capita income for the Sub-Saharan Africa (SSA) which was 1661 USD in the same year (World Bank, 2017).

The recent empirical studies conducted in Ethiopia have indicated that poverty among the poor remains a challenge in the country that rural areas harbor the bulk of the poor; poverty has been unambiguously a rural phenomenon; and it remains part of lives of the rural Ethiopian. In this regard, the study conducted in Ethiopia by MoFED (2012) employing consumption approach with the CBN and FGT methods, indicated that head count, poverty gap, poverty severity index were estimated and stood at 0.296, 0.078 and 0.031 respectively and which all indicators when disaggregated higher for the rural than urban sections. Besides, the finding on the food poverty revealed that food poverty head count, food poverty gap

and food poverty severity index stood at their respective estimates of 33.6, 10.5 and 4.6%. Moreover, NPC (2016) with same methodology showed that the poverty head count index was estimated to be 23.5%. The poverty gap index and poverty severity index were also estimated to be 6.7 and 2.8% respectively. Also, this study found respective food poverty incidence, depth and severity as 24.8, 6.7 and 2.7%; and the rural area measures are higher than its urban counterpart. Hence, the urgency of researching rural poverty is beyond doubt.

The available body of literature on rural poverty is not only scanty and up-to-date but also far from being exhaustive in addressing specific locality. The studies so far been studied in Ethiopia concentrate on and reflect the national picture which do not necessarily reflect the context-specific situation at grassroots levels such as the study area and this fact is strongly supported by Dercon and Krishnan (1998). And in addition, no research has been conducted on the same issue in the study area before. Therefore, this is the major knowledge gap that this research bridges by measuring poverty among rural households in Gedeo zone, southern Ethiopia.

Research questions

The research questions to guide the study include:

1) How much is the absolute poverty line for Gedeo Zone?
2) What are the extents (the incidence, depth and severity) of poverty in the study area?

Objectives of the study

1) To determine poverty line for Gedeo Zone.
2) To investigate the extents (the incidence, depth and severity) of poverty in the study area.

Significance of the study

Any intervention to alleviate and ultimately eliminate poverty needs a thorough understanding of the extents of poverty. Hence, such studies are beyond doubt important for the poverty reduction endeavor of the country, whose largest slice of population lives in abject poverty. Besides adding to the body of knowledge on the subject, the output of the study could also be informative for donors and non -governmental organizations interested to operate and make intervention in the study area. The study creates awareness for the rural households that in turn enable them design ways to escape poverty. Moreover, the study informs policy making for appropriate interventions and for assessing effectiveness of on-going poverty alleviation policies and strategies.

METHODOLOGY

Description of the study area

Gedeo zone is one of the zones in the Southern Nations, Nationalities and Peoples Region (SNNPR) of Ethiopia. It is located in the North-Eastern part of the region. It lies between 50.59'' N and 60.43''N latitude and 380.40'' E and 380.43'' E longitude. The zone has three agro-ecological zones: lowland (Kolla), mid-altitude (Woyina Dega) and highland (Dega) which accounts for 0.5, 70.7 and 28.8% respectively. It shares boundary with Oromia region in the south, southwest and east directions and Sidama zone in the north direction. Dilla town is the administrative capital of the Zone, 360 k.m from Addis Ababa. The zone has a total population of 1,040,829 with an area of 1,352.40 square kilometers with average population density of 774 persons per sq.k.m (Gedeo Zone Finance And Development Bureau, 2015).

Research design

Cross sectional survey design was employed in this study with quantitative approach. Survey methods are extremely efficient in terms of providing large amounts of data at relatively low cost in a short period of time (Smith, 1975). It entails the collection of data on more than one case and at a single point in time. Furthermore, the design for it requires only a snapshot, is less time consuming and cheaper than others(Ravallion and Bidani,1994) indicated how well a cross sectional study design works in identifying rural poor households.

Sampling techniques and sample size

The method of sampling technique applied in this study was multi-stage sampling and households were the sampling units. At the first stage, Wonago and Kochere woredas of Gedeo zone were selected purposively. This is because they are densely populated woredas and where a number of NGOs do provide aid for the people, implying that poverty prevails in the study area. This reality is witnessed by the pilot survey conducted by the researcher. In the second stage, six kebles were selected using simple random sampling (3 kebeles from each two woredas). In third stage, a probability proportional to sample size (PPS) sampling procedure was employed to determine sample households from each woreda and each kebele. Accordingly, a total of 334 sample households (186 from Wonago and 138 from Kochere) were selected. Finally, respondent households were identified using systematic random sampling from the list of the rural households. The sample size n for the study was determined using the following formula (Cochran, 1977) as:

$$n = \frac{\frac{Z^2 \alpha/2 P(1-P)}{d^2}}{1 + \frac{1}{N}\left(\frac{Z^2 \alpha/2 P(1-P)}{d^2} - 1\right)};$$

Where, d is the absolute precision, and $Z_{\alpha/2}$ is value of standard normal deviate at level of significance, α . The values taken are P = 0.5, (1-P) = 0.5, d =0.03, and $Z_{\alpha/2}$ =1.96 with α =0.05. And also

N= 64,920, as the total rural households in Wonago and Kochore woredas respectively were 30,599 and 34,321.

Accordingly, the sample size determined was; n= 334. And, the sample size of households for the randomly selected kebeles for the study was determined proportionally using probability proportional to sample size (PPS) technique. The six kebeles included in the study were Sugale, Tokicha and Mekonisa(from Wonago woreda) and Baya, Haniku and Biloya(from Kochore woreda).

Data sources and methods of collection

Both primary and secondary sources were used to collect data for the study. For the primary data, sample households were interviewed by using semi-structured survey questionnaire. This enables to ascertain both subjective and objective facts (Mayntz et al., 1976). The secondary data was also collected from secondary sources such as reports for triangulation purposes. White (2002) indicates that using triangulation approaches together yields synergy in research.

Model specification and estimation procedure

The poverty line was constructed using the Cost of Basic Needs (CBN) approach which is the most common method of constructing poverty line. In this approach, the predetermined normative nutritional requirement of calories was used. In line with this, the minimum requirement of 2,200 Kcal per adult per day of World Bank standard was used (World Bank, 2004). Allowance was given to the non-food expenditure component to estimate the absolute poverty line by dividing the food poverty line by the average food share for households that enabled a food consumption level equal to food poverty line.

The poverty measure is a statistical function that translates the comparison of the indicator of household well-being and the chosen poverty line into one aggregate number for the population. More precisely, these measures can be defined in terms of the well-known Foster et al. (1984), FGT Pα class of poverty measures. This class of poverty index is the most commonly applied to measure poverty. Given a vector of suitable measure of well-being, income(Y), in an increasing order, Y1, Y2, Y3,...,Yn, where n represents the number of households under consideration, the FGT poverty index (Pα) can be expressed as (Baffoe, 1992):

$$\mathbf{P\alpha} = \frac{\mathbf{1}}{\boldsymbol{N}} \sum_{i=1}^{q} \left(\frac{g^{i}}{Z}\right)^{\alpha} \quad ; \qquad \alpha \geq 0$$

Where, z is poverty line, q is the number of the poor, g_i is shortfall the i^{th} household in chosen indicator of wellbeing. If, for instance, x_i denote the per capita calorie intake of household i, then $g_i = z_i - xi$ if $x_i < z$; $g_i = 0$ if $x_i \geq z$, and α is the poverty aversion parameter (α ≥ 0) which reflects the policymaker's degree of aversion to inequality among the poor. The parameter α represents the weight attached to a gain by the poorest. The commonly used values of α are 0, 1, and 2. When we set α equal to 0, then above equation is reduced to the headcount ratio, FGT(0), which measures the incidence of poverty. When we set α equal to 1, we obtain FGT(1) or the poverty deficit.FGT(1) takes in to account how far the poor, on average, are below the poverty line; we also call it poverty gap and it measures depth of poverty. Setting α equal to 2 gives the severity of poverty or FGT(2) index. This poverty index gives greater emphasis to the inequality among the poor that calls for resource redistribution among the poor.

Data analysis

First poverty line was calculated using the cost-of-basic-needs (CBN) method. This method is based on the estimated cost of the bundle of goods adequate to ensure that basic needs are met. Establishing a line starts with defining and selecting a 'basket' of food items typically consumed by the rural poor. Based on the food consumption behavior and expenditure pattern of the rural community in the study area a basket of food items typically consumed by the poor was identified. The quantity of the basket is determined in such a way that the given bundle meets the predetermined level of minimum energy intake per day of 2200 kcal/day. The cost of the food bundle was calculated using local market prices to reflect actual food poverty line of the study area. Then after, a specific allowance for the non-food component consistent with the spending patterns of the poor is added to the food poverty line to reach at absolute poverty line. That allowance can be made in such way that the food poverty line is divided by the food share of the poorest 25 per cent of the population to arrive at the absolute poverty line. The value of minimum amount of consumed food items at an average price of the identified food items in the local markets plus the sum of estimated minimum amount of money needed to cover the non-food expenses per Adult Equivalent (AE) per annum were used as a threshold beyond which the household is said to be poor or non-poor. The Conversion factor used to estimate Adult Equivalent was adopted from Ravallion and Bidani (1994) and uses OECD scale as: AE = 1 + 0.7(Nadults –1) + 0.5N children.

After setting poverty line, it is easy to estimate poverty measures, which is an index that shows the magnitude of poverty in a society. Kimalu et al. (2002) pointed out that one poverty measure that has been found manageable in presenting information on the poor in an operationally convenient manner is the FGT measure developed by Foster et al. (1984). The first step taken has been distinguishing the poor and non- poor by constructing poverty line yardstick. Households are counted as poor when their measured standard of living is below this line, non-poor otherwise (Rath, 1996). This measure is used to quantify the three well-known elements of poverty: the incidence, depth (intensity) and severity. Among these measures, inequality among the rural poor was measured by poverty severity.

RESULTS AND DISCUSSION

Calculating poverty lines

The response rate of the questionnaire distributed was about 97%. Accordingly, to examine the levels of poverty in the study area, the calculation of poverty lines and indices of poverty was made using 325 sample households rather than 334 sample sizes. In the study, absolute poverty line is defined on the basis of the cost of obtaining the minimum calorie requirement for subsistence, which is 2200 kcal per adult per day (Ravallion and Bidani, 1994), taking the diet of the lowest income quartile households. The calorie share of the diets to the minimum calorie required for subsistence is calculated to arrive at the level of calorie and quantities

Table 1. Food poverty line based on food basket of 2200 Kcal per adult per day.

Food items	Mean Kcal/ 100 Gram/Litre	Food basket per adult per day in Kg/Litre	Kcal per day per adult	Kcal per adult per day needed to get 2200Kcal	Kcal share (%)	Food basket per adult per Month in Kg/Litre	Mean price per Kg/litre ETB)	Cost per month (ETB)	Value of poverty line per year (Birr)
Wheat	357.4	0.048	171.55	243.895	11.09	1.44	11	15.84	190.08
Barely	372.3	0.058	215.93	306.993	13.95	1.74	9	15.66	187.92
Teff	355.1	0.099	351.55	499.797	22.72	2.97	14.50	43.07	516.78
Maize	375	0.047	176.25	250.574	11.39	1.41	6.50	9.17	109.98
Beans	351.4	0.054	189.76	269.776	12.26	1.62	12.5	20.25	243.00
Peas	355.3	0.009	31.98	45.462	2.07	0.27	15.5	4.19	50.22
Onion	71.3	0.026	18.54	26.355	1.20	0.78	11	8.58	102.96
Tomatoes	30.7	0.013	3.99	5.674	0.26	0.39	12.33	4.81	57.70
Potatoes	89.7	0.024	21.53	30.606	1.39	0.72	6.5	4.68	56.16
Cabbage	23.7	0.009	2.13	3.032	0.14	0.27	5.50	1.49	17.82
Pepper	360.1	0.012	43.21	61.434	2.79	0.36	77.5	27.90	334.80
Coffee	110.3	0.008	8.82	12.545	0.57	0.24	58.60	14.06	168.77
Sugar	385	0.012	46.20	65.682	2.99	0.36	15.2	5.47	65.66
Salt	178	0.013	23.14	32.898	1.50	0.39	5.0	1.95	23.40
Oil	896.4	0.014	125.50	178.417	8.11	0.42	24.60	10.33	123.98
Milk	73.7	0.014	10.32	14.669	0.67	0.42	15	6.30	75.60
Enset	18.1	0.006	1.09	1.544	0.07	0.18	8.40	1.51	18.14
meat	197	0.033	65.01	92.425	4.20	0.99	107.5	106.43	1277.10
banana	87. 8	0.027	23.71	33.708	1.53	0.81	10.40	8.42	101.09
Carrot	42.0	0.018	7.56	10.748	0.49	0.54	9	4.86	58.32
Garlic	138.3	0.007	9.68	13.763	0.63	0.21	68.75	14.44	173.25
ETB 3952.74									

Source: Own computation based on the survey (2016).

of food group items that gives the 2200 kcal. Based on these methodological steps of the CBN model the food poverty line and the absolute poverty line that corresponds to the basket of food items was calculated by adopting from EHNRI (2007) and Dercon and Krishnan (1998). The quantities of the food item groups are valued using average local market prices in order to reflect the actual food poverty line in the locality (Table 1). The price of food items in the market during the survey was triangulated with secondary data on the price from trade and industry bureau of Gedeo zone. That is, the absolute poverty line can be obtained by adjusting for non- food expenditure using the average food share of the

lowest consumption quartile households. In this regard, the non-food expenditures include expenditures of clothing, medical, education, social obligations (like religious, idir, social contributions, etc.), housing, transportation, and other miscellaneous expenses. Dividing the food poverty line by the average food share of the lowest consumption quartile gives an absolute poverty line. In this regard, the Food basket composition used for poverty lines (per month) and nutrition (calorie) based equivalence scales for the food items were identified in the study area.

The food poverty line calculated from the data available was found to be ETB Birr 3952.74 [1] or 146.40 USD. Then this food poverty line is divided by the food share of the poorest 25 per cent of the population to arrive at the absolute poverty line. That is, the non-food expenditure component is calculated using the average food share of the lowest income quartile households. The food share of the lowest income quartile is found to be 88.56%. This figure is used to estimate an allowance of non-food expenditure and found to be 510.61 Birr. Therefore, the sum of food and non-food expenditures gives absolute poverty line of Birr 4463.35. Therefore, the food and absolute poverty lines for the study area were determined to be Birr 3952.74 and 4463.35, respectively (Table 1). Compared to the national level poverty lines in 2011, both the food and absolute poverty lines in this study were higher where their respective figures were calculated as ETB 1985 and 3781 (MOFED, 2012). And also according to NPC (2016), the food poverty and absolute poverty lines in Ethiopia were Birr 3772 and Birr 7184. Of course the deviation between national and study area figures can be due to that that national poverty line may not indicate the poverty line of a specific locality. This indicated the fact that a household in Gedeo zone with a household size of 4.82 adult equivalent units needs an income of Birr 3952.74 per annum which is Birr 820.071 per adult equivalent per annum to escape food poverty. Similarly, with an average household size of 4.82 adult equivalent units, a typical household in the zone needs an income of Birr 4463.35 per annum which is Birr 926.006 per adult equivalent per annum to escape absolute poverty.

Poverty measures and its magnitude

The poverty lines and the per adult consumption expenditure are used to aggregate consumption poverty indices. The per adult consumption is obtained by first dividing the total consumption expenditure by nutritional calorie based adult equivalence (AE) family size to arrive at per adult consumption expenditure. The per adult consumption expenditure includes both food and non-food consumption expenditures measured at current average prices in the study area. The study revealed that the mean consumption expenditure for the sample households is Birr 6904.38 /AE. The minimum and maximum consumption expenditure per AE during study period were Birr 1436.00 and 20776.00 respectively. The respective mean consumption expenditure for the poor and non-poor groups was Birr 4076.47 and 8125.23. This shows that there was a significant difference between the two means at 1% probability level (Table 2) in terms of distribution of consumption expenditure.

The poverty measure (Pα) developed by Foster et al. (1984) were used to explain the extent of poverty in the study area. Poverty indices were computed based on the consumption expenditures. The resulting poverty estimates for the study area (Table 3) shows that the percentage of poor people measured in absolute head count index (α = 0) was about 30.2%. This figure indicates that this proportion of the sampled households in Gedeo zone live below absolute poverty line. This implies that 30.2% of the population are unable to get the minimum calorie required (2200 kcal per day per adult) adjusted for the requirement of non-food items expenditure. Putting it differently, this proportion of rural community in Gedeo zone are unable to fulfill the minimum amount of income that is, Birr 4463 per adult equivalent per year and live under absolute poverty. The poverty gap index (α=1), a measure that captures the mean aggregate consumption shortfall relative to the poverty line across the sample population is found to be 0.085 which means that the percentage of total consumption needed to bring the entire population to the poverty line is 8.5%. Similarly, the FGT poverty severity index (the squared poverty gap, α=2) in consumption expenditure shows that 3.4 % fall below the threshold line implying severe inequality among the rural poor; it means that there is a high degree of inequality among the lowest quartile population. Nevertheless, these poverty profile figures have marked difference with that of the 2016 rural poverty indices that were reported in the poverty study (NPC, 2016). In this study, the rural poverty incidence, gap and severity estimated in Ethiopia were 25.6, 7.4 and 3.1% respectively. From this analysis, all measures are a significant and call for policy measure to alleviate poverty in the study area.

In addition to the absolute poverty indices, the food poverty measures are computed for the sample households. The food poverty index measures the proportion of food-poor people that fall below the food poverty line. The food poverty head count index in the study area was estimated to be 5.2% during the study period. The respective food poverty gap index and food poverty severity index stood at 2.1 and 1% in the study.

[1] *ETB=Ethiopian Birr (currency);it has an exchange rate with USD; 27ETB= 1 USD during the survey period.*

Table 2. Distribution of Sample Households Consumption Expenditure per year (in ETB).

Birr/AE	Poor (n = 98)		Non-Poor (n = 227)			Total (n = 325)	
	No	Percent	No	Percent	t- value	No	Cum. Percent
< 1,464	6	6.12				11	3.38
1,464 - 2,963	12	12.24				32	13.23
2,964 - 4,463	80	81.63				55	30.14
4,464 - 5,963			43	18.94		43	43.37
5,964 - 7,463			51	22.47		51	59.07
7,464 - 8,963			62	27.31		62	78.14
8,964 - 10,463			54	23.79		54	94.74
>10,463			17	7.49		17	100
Min (Birr/AE)	1436.00		4464.00			1436.00	
Max (Birr/AE)	4463.00		20776.00			20776.00	
Mean (Birr/AE)	4076.47		8125.23		25.488*	6904.38	
Std.Dev (Birr/AE)	825.85		2393.64			2768.36	

*Significant at 1% probability level.
Source: Own Survey Result (2016).

Table 3. Absolute Poverty Indices and Food Poverty Indices of rural Households.

Absolute poverty		Food poverty	
Poverty indices	**Index values**	**Poverty indices**	**Index values**
Head count index (α=0)	0.302	Head count index (α=0)	0.052
Poverty gap (α=1)	0.085	Poverty gap (α=1)	0.021
poverty severity (α=2)	0.034	poverty severity (α=2)	0.010

Source: Own survey computation (2016).

The estimates in the study area have difference with the rural food poverty estimates at the national level (NPC, 2016); which were at 27.1, 7.4 and 3.0% for incidence, depth and severity of poverty respectively.

The results poverty measures of the study area showed that all kinds' food poverty indices (incidence, depth and severity) are lower than the absolute poverty measures (Table 3). As achievement of food self-sufficiency has been one of the key objectives of the Ethiopian government as articulated in its GTP and rural development policies and strategies, which is also consistent with the SDG goal of eradicating extreme poverty or hunger, such very low food poverty may be attributed to the wide-ranging and multi-faceted pro-poor programs of the government that have been implemented in rural areas such as intensification of agriculture, rural infrastructural development and food security programs.

Moreover, the food and non-food expenditure pattern and categories of rural sample households was analyzed. The results of the study showed that the poor in the study were found to spend larger proportion of their expenditure on food (about 88.56%) than the non-poor which (was about 85 percent). This is in line with Engel's law, which states that relative to the non-poor, the poor spend higher proportion of their income on food. This result is consistent with Metalign (2005).

Conclusion

Cost of basic needs (CBN) approach and FGT measures have been employed to set the poverty line (both food and absolute) and compute the magnitude (incidence, gap and severity) of rural poverty in the study respectively. The food and absolute poverty lines were calculated based on food basket of 2200 Kcal per adult per day. Accordingly, the food and absolute poverty lines for the study area are determined to be Birr 3952.74 and 4463.35, respectively. The food expenditure takes the lion's share accounting for about 88.56 %(relative to the non-food expenditure) in the consumption expenditure of the poor and thus this substantial expenditure was used for estimating the poverty line. Thereafter, the poverty

indices were computed using FGT indices. The incidence, depth and severity of food poverty stood at 0.052, 0.021, 0.010, while measures for absolute poverty were found to be 0.302, 0.085 and 0.034. These all indices confirm that food and absolute poverty have been problems and remain major concerns that need great attention of policy makers in designing strategies for rural development.

Recommendations

(1) The measures of poverty among the rural households in the study area indicates that the overall magnitude of poverty is quite significant and needs further attention from all stake holders working on rural development such as national and regional agricultural offices, civil society organizations, donors, the local community and financial institutions like micro finance institutions. The rural livelihoods particularly income of the rural community can improve and people can escape poverty when these stake holders synchronize their efforts to improve the production and productivity of agriculture, enable the local community to diversify their livelihoods to off-farm and non-farm activities.
(2) The agriculture of the study area is characterized by land scarcity and increasing fragmentation of already very small farms and low income from the sector. But agricultural income still remains a major income source and hence matters for rural poverty and inequality situations for the rural households. Thus, improving the income of the rural households through promoting livelihood diversification into farm, off-farm and non-farm activities should be considered by woreda agriculture and rural development office, rural cooperatives, safety net programs, micro finance institutions to help improve reduce poverty in the study area.
(3) Besides, government policies on overall rural livelihood improvements have to be implemented. In this regard evidence is mounting that Ethiopian government works aggressively and has shown progress in rural poverty reduction though the result of the study witnesses that much more work is required to address poverty and improve the living standards of the rural community. In addition, there is a need for redistribution of resources such as land and other resources among the rural poor to alleviate poverty severity among the poor.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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