

Multidimensional Rural Poverty In Burji And Konso Area, Southern Ethiopia

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Abstract

Ethiopia is among the poorest countries in the world and the level of poverty is more challenging in rural areas compared to urban. Currently, there are great tendencies over the world to measure poverty using Alkire and Fosters' MPI approach among different approaches of poverty assessment. This study aimed at assessing multidimensional rural poverty status household's poverty in Burji and Konso area in Southern Ethiopia. To address this objective, 368 households were selected using simple random sampling techniques. The data were collected from both primary and secondary sources. Interview schedule, focused group discussion, key informant interview, and observation methods were implemented to collect primary data. Alkire & Foster Methodology with modified four dimensions and 14 indicators used to analyze multidimensional rural poverty. The study reveals as the highest three deprivations 97.8% of cooking fuel, 92.6% of the floor, and 76.1% of drinking water. The multidimensional Poverty Index (MPI) of the study area was 0.419 with 76.6% of incidence and 54.7% the intensity of multidimensional rural poverty. The highest (15%) contributor to MPI was deprivation in school attendants and the highest (34%) deprivation dimension was in living Standard out of four dimensions.

I Introduction

Poverty nowadays is the priority of the global agenda that ties different governments under one umbrella (FAO, 2015). The United Nations (2015) adopted the SDGs intending to improve people's lives all over the world over the next 15 years to give a solution to this worldwide problem. By its very nature, poverty is a more rural phenomenon. On top of that, the population of the developing world is still more rural than urban (Alkire & Kanagaratnam, 2018).

Poverty is often defined by one-dimensional measures, usually based on income or consumption expenditure. But, poverty has many manifestations. Therefore, a single indicator cannot capture the multiple dimensions of poverty. Likewise, participatory exercises reveal that poor people describe ill-being to include poor health, nutrition, lack of adequate sanitation and clean water, social exclusion, low education, bad housing conditions, violence, shame, disempowerment, and much more (Oyekale et al., 2019). Hence, another measurement that captures the relatively wide dimensions is preferable to illuminate poverty more vividly. The way we measure poverty can importantly influence how we come to understand it, how we analyze it, and the way we create policies to tackle it.

A multidimensional measure of poverty can incorporate a range of indicators that capture the complexity of this phenomenon to inform policies aimed at reducing poverty and deprivation at a studied level. In this regard, Alkire and Foster at OPHI (2018) developed a method called Alkire-Foster (AF) which is known for its flexible technique for measuring poverty or wellbeing. The AF method encompasses the various deprivations experienced by poor people in their daily lives such as poor health, lack of education, inadequate living standards, and so on, and can be adapted to specific contexts. Beyond measuring multi-facets of poverty and wellbeing, the AF method can be adapted to target services and to monitor the effectiveness of such programs over time.

Ethiopia has made poverty the 1st and most priority agenda of the government. To affect this, Ethiopia has made a consolidated effort towards poverty alleviation. Ethiopia has significantly reduced the proportion of the population below the monetary poverty line after years of solid effort (Getu, 2018). However, still, poverty in Ethiopia is one of the pressing problems catching the attention of the government, development practitioners, and researchers for more than two decades. Because of this, an indefinitely large number of scholars in Ethiopia trying to study poverty, to discover the nature and causes of poverty to give some useful ways/areas of intervention.

Whereas, in one way or another majority of the studies of poverty in Ethiopia focus on one dimension of poverty (income or consumption expenditure), not on the multiple dimensions of poverty. Undeniably, this approach of poverty analysis is important. On the other hand, methodologically it has been believed as the cost of the basic needs approach provides an incomplete image of poverty (Alkire et al., 2020). One of the solid contrasting points of view raised by Sen (2009) is explained as this approach cannot fully explain the poverty phenomenon due to its limitation to disclose the truth of poverty nature in the area. Hence, both, income or consumption expenditure-based researches on poverty are masking the realities dimensions of the exact nature, and magnitude of poverty.

The AF methods enable us to use different dimensions and indicators to reflect the needs and priorities of the studied area (nation, as well as its constituent regions, districts, provinces, etc.) depending on the context and the purpose of the study. However, Alkire et. al., (2018) suggested as the multidimensional poverty index by itself is not complete to reveal the reality of poverty.

Hence, AF methodology is very open to being modified to meet the specific rural context of the area to be studied (Burchi et. al., 2018). Though multidimensional tools like the MPI have gained prominence in recent years, vibrant assessments of multidimensional poverty

that could provide comprehensive information on the drivers of poverty remain limited (Alkire, 2015). So, such assessments are an essential step in designing operative policies and programs that help contribute to attaining SDG 1's objective to "end poverty in all its forms everywhere" in specific contexts.

Which specific dimensions of poverty need to be the country's focus area is still unclosed research agenda. Asset indicators in AF methodology which were under living standard dimension taken as asset ownership dimension with another asset like Land and livestock ownership. According to Alkire (2007a), these indicators are necessary indicators that have been missed because of the insufficiency of related data globally.

This necessitated finding other dimensions and indicators based on the actual context of the study area with the consultation of community members. Therefore, this study tries to bridge the gap by identifying additional dimensions and indicators agreed upon during the focus group discussions in the study area. This helped to make the AF methodology more complete and context-oriented.

Therefore, the motivation to do this research emanated from the intention to remove this mask of one-dimensional poverty research and to disclose multidimensional features of household poverty in the study area. This study implemented an additional context-oriented dimension that is asset ownership and indicators include household Property, land, and livestock to the existing AF approach. So, this study was designed to measure the current status of multidimensional rural poverty and to find dimensions and indicators in which the study area's households are more deprived.

ii Methodology

2.1 Background of the Study Area

Geographic location: The study area (Burji and Konso Woreda) was an adjacent area that has been found in South Nations Nationalities and Peoples Regional State, Ethiopia. The study area is bounded by the Oromia region Mirab Guji Zone in the East, Borena zone in the South, South Omo Zone in Southern East and South West, Ale and Darashe special Woreda in the West, and Amaro special Woreda in the North. The elevation of the study area is in the range of 2600 meters above the sea level which is the highest and 800 meters below the sea level which is the lowest elevation.

According to the conventional Ethiopian agro-ecological zonation and information obtained from special Woreda agricultural offices, the climate of the study area, a considerable portion is Kolla or arid (55%), Woine Dega (sub-humid) which is 30%, and Dega or highland 10%. The total population of the study area is about 481,656 out of which Konso area is estimated to be about 325,975 from which the male population is estimated to be about 156,901 and the female population is 169,074 and Burji estimated 155,681, of whom 76,439 are men and 79,242 women according to the informant of the administration offices of the study area. The population is the projected number from the previous census and used by the administration of the area.

The livelihood of the people of the study area, (well over 96% of the population), is agriculture-based. The agricultural system of the Konso area is somehow unique to the Burji area. The most immediate and notable feature of their renowned agricultural system especially in the Konso area is its traditional terracing constructed over large tracts of the rugged landscape.

The following map indicates the study area of this research.

2.2 Sampling Techniques

The multi-stage sampling procedure was employed in this study. The sample size of this research has been determined by using Yamane's (Yamane, 1967) formula with a 95% confidence level. The sampling procedure was a multi-stage sampling method and the final respondents of the study were 368 households selected using a simple random selection method. A participant for the qualitative data that is for the key informant interview and group discussion was selected by using a purposive sampling technique. This was for the reason that experienced and knowledgeable personnel, leaders, experts, administrators, farmers, and different officials need to be used for this data.

2.3 Types, Sources, and Methods of Data Collection

To better capture the different dimensions of poverty, it is necessary to combine quantitative and qualitative measures, listen to the views of people living in poverty on what dimensions are important (Bucheli et al., 2016). Hence, the discussion was held and one new

dimension with its indicators was added.

Various quantitative and qualitative techniques were employed to collect primary data from the sample respondents. The methods used to collect primary data include the interview schedule (to the collection data from sample respondents); focus group discussions, and key informants with the pre-prepared checklist. The secondary data was collected from different sources like books, journals and unpublished researches, and official reports. Like the sources of data, instruments of data collection were triangulated to ensure the trustworthiness and validity of quantitative data of this research.

2.4 Methods of Data Analysis

In this study, Global Multidimensional Poverty Index (MPI) developed by the Oxford Poverty and Human Development Initiative (OPHI) that encompasses ten indicators were modified according to the context-based consensus of group discussants and used for the measurement of multidimensional rural poverty. The index used in the study comprised fourteen indicators and four dimensions. The weights and cut-offs for the collections of data were as recommended by Alkire and Foster (2011). The first work of data analysis was calculating multidimensional poverty analyses.

Diagnosing the correlation:- Redundancy due to closely correlated indicators poses some problems in poverty analysis within the multidimensional framework. A strong correlation between any two indicators refers that those indicators do not represent independent aspects of wellbeing but similar features of poverty. Alkire and Foster (2011) suggested correlations less than 0.4 are acceptable. Therefore, there should not be a significant correlation between indicators. It is necessary to check the correlation of indicators before calculating MPI. Due to this fact, before proceeding to the construction of multidimensional poverty indices, the correlation between the selected MPI indicators was assessed.

The MPI was calculated by multiplying the incidence of poverty with the average intensity of poverty across the poor ($MPI = H \times A$); as a result, it reflects both the share of people in poverty and the degree to which they were deprived. Households were identified as multidimensionally poor (or 'MPI poor') if they were deprived in at least one-third of the weight of indicators shown above; in other words, the cutoff for poverty (k) is 33.33% (Alkire et al., 2016). If a household is deprived in 20-33.3% of the weighted indicators they are considered 'Vulnerable to Poverty, and if they are deprived in 50% or more (i.e. $k=50\%$), they are identified as being in 'Severe Poverty'. The detail of dimensions and indicators used for the analysis of multidimensional rural poverty in the study area is explained in Table 1.

Table 1: The dimensions, indicators, deprivation cutoffs, and weights of the MPI

Dimension	Indicator	SDG & Target	Deprivation cut-offs	Nested Weight	
Education	Years of schooling	4.1.1	No household member has attained 8 years of schooling (primary schooling)	1/8	12.5%
	School Attendance	4.1.1	If at least one child in the household between 7-15 years of age is not attending school/missed school	1/8	12.5%
Health	Child mortality	3.2.1	If any child has died in the family in the five years preceding the survey.	1/12	8.3%
	Health facility access	3	If the household is located more than 5 km away from the nearest health facility (clinic, health station, hospital).	1/12	8.3%
	Health facility quality	3	If the household reported dissatisfaction with at least one health facility visit or did not use a health facility due to cost, quality, treatment, or other reasons.	1/12	8.3%
Living Conditions	Improved sanitation facilities	11.7	If the household has no access to improved sanitation facilities or uses an uncovered pit latrine, bucket and hanging toilet door are shared with another household.	1/24	4.17%
	Water	6.1.1	If the household uses water from an unprotected well, rainwater, surface water (river/dam/ lake/pond/ stream), or Distance to water requires more than a 30-minute walk from home, round-trip to fetch water.	1/24	4.17%
	Type of Floor	11.1.1	The households with an earth/sand/mud and dung floor are assumed as deprived.	1/24	4.17%
	Roof material	11.1.1	If the house of the family is not covered by galvanized steel roofs.	1/24	4.17%
	Access to electricity	7.1.1	If the household has no access to electricity.	1/24	4.17%
	Cooking Fuel	7.1.2	If the household uses wood/straw/ shrubs/grass. (The household cooks with coal/lignite/charcoal are non-deprived).	1/24	4.17%
Asset Ownership	Household Property	1	If the household does not own more than one of the following properties (radio, TV, telephone, bike, motorbike, refrigerator, a car, or truck)	1/12	8.3%
	Land	11	If the land owned by the household is less than one hectore.	1/12	8.3%
	Livestock	11	If the household has livestock less than two TLU	1/12	8.3%

Source: Adapted from OPHI, 2017

iii Results And Discussion

3.1 Proportion of Deprivation in Each Indicator

The deprivation status of households in each of the MPI's fourteen indicators, irrespective of the weight they contribute to poverty status. It is calculated without applying the second cutoff criteria that were used to categorize a household as multidimensional poor or not. Figure 1 presents the deprivation status of each indicator allowing the researcher to see at a glance, the indicators with the highest and the lowest levels of deprivation.

As depicted in Figure 2, during the survey of this research; about 97.8% of households were deprived of cooking fuel, about 92.6% of households were deprived floor, and 76.1% of households have no access to safe drinking water or it may take 30 minutes to reach the source of drinking water. In contrary to Alkire and Foster (2011); Alkire & Kanagaratnam (2018), in this study, the household that used charcoal for cooking was considered as not deprived. This is the idea participants of group discussion agreed upon while revising and adding other indicators and dimensions according to their context. Almost all rural people used firewood for cooking purposes.

Those who use charcoal in their context are considered better-off households. Regarding the floor, participants informed us as cementing the floor is unaffordable unless a household has children transferred to Kenya. Concerning these key informants reported as

to why they prefer to send their children to Kenya rather than teaching here in Ethiopia. Those households who have educated and employed children do not get any kind of support comparing to those who send to Kenya.

The next deprivation after the preceding deprivation was land with 67.1% respondent households. As it has known rural people relied on agricultural activities with a focus on land tilling. The research area was also the area where rural people depend on land farming activities than any other agricultural activities like animal husbandry. Despite the land shortage, 50.3% of households do not have even one member who completed grade eight. Therefore, their children are expected to engage in agriculture thereby further increasing the deprivation of land for the coming years since they are going to engage in agricultural activities for their livelihood. Otherwise, the fate of their children is migration to an urban area or abroad. The other deprivations which have above 50% of households were access to electricity (57.6%) and health service quality shares 66.0% of the respondent. The deprivation of year of schooling was 33.4%, livestock 43.5% health facility access 44%, and toilet 48.9% with the ascending order to deprivation. Meanwhile, other indicators with low deprivation percentages were child mortality at 13.8%, house property at 26.1%, and roof at 32.6% with ascending order. The indicator with the lowest deprivation is child mortality, with 13.8% of households in the area have at least loses one child in the last five years.

3.2. Incidence, Intensity, and Multidimensional Rural Poverty

The correlation between indicators was checked by using Spearman's rank correlation matrix. Table 2 depicted the correlation result between indicators. As can be seen from this table, all selected MPI indicators have less than 0.4 correlation coefficients. Spearman's Rho measure varies between -1 and 1, where -1 is for the strongest negative rank of correlation, 0 is when there is no rank correlation, and 1 is for the strongest positive rank correlation. Accordingly, correlation data analysis revealed that a weak to moderate positive and negative correlation exists among the 14 indicators.

Table 2: Spearman's correlation coefficient among MPI indicators

	YS	SA	CM	HFA	HSQ	To	DW	FI	Ro	AE	CF	HP	La	LS
YS	1.000													
SA	.053	1.000												
CM	.109	.120	1.000											
HFA	.016	.045	.078	1.000										
HSQ	.012	.092	-.048	.313	1.000									
To	.008	.018	.026	-.119	.024	1.000								
DW	.103	-.097	.069	.372	.144	.068	1.000							
FI	.143	.074	.072	-.031	-.009	.143	.064	1.000						
Ro	.211	-.164	.015	-.026	.062	.112	.125	.133	1.000					
AE	.131	.067	.066	.257	.146	.101	.190	.105	.379	1.000				
CF	.101	.040	.106	.018	.036	-.003	.086	.241	.022	.021	1.000			
HP	.215	.020	.145	-.126	-.064	.085	.176	.028	.177	.113	.042	1.000		
La	.161	-.158	.007	-.259	-.125	.099	.033	.119	.281	.139	.014	.258	1.000	
LS	.087	-.062	-.072	-.260	-.073	.192	.020	.117	.203	.083	-.054	.239	.386	1.000

Year of Schooling (YS), School Attendant (SA), Child Mortality (CM), Health Facility Access (HFA), Health Service Quality (HSQ), Toilet (To), Drinking Water (DW), Floor (FI), Roof (Ro), Access to Electricity (AE), Cooking Fuel (CF), Household Property (HP), Land (La), and Livestock (LS)

Source: Computed from own field survey, 2020

To describe some, the land has a weak positive correlation to child mortality and cooking fuel ($r_s = 0.007$ and 0.014) respectively. Cooking fuel has a weak positive relation ($r_s = 0.018$) to health facility access and weak negative relation ($r_s = -0.003$) to the toilet. Year

of schooling has a weak positive correlation to ($r_s = 0.012$ and $r = 0.016$) to health facility access and health service quality in that order. In another view, health facility access has a positive moderate correlation ($r_s = 0.372$ and $r_s = 0.313$) to drinking water and health service quality. This indicated as health facility access has a moderate contribution to health service quality. Land has moderate weak positive relation ($r_s = 0.386$) to Livestock and ($r_s = 0.258$) to house property. Another side, health facility access has a negative moderate correlation ($r_s = -0.259$) to land and ($r_s = -0.260$) to livestock. This implies as those who have relatively many livestock and big Farm size were far from health service access. Furthermore, the roof has a moderate positive correlation ($r_s = 0.379$) to Access to electricity. This indicates as the household's house is covered with the galvanized metal sheet it gives a chance of using electricity if it has access to it. This means deprivation in one indicator is not significantly explained by deprivation in any other indicator, and the index would contain different dimensions of poverty. This makes the incidence, intensity, multidimensional poverty index, and other related analyses free from the fear of highly correlated indicators. Hence, all indicators decided to be included in the MPI calculation.

Table 3 shows the incidence of poverty (the proportion of people identified as multidimensionally poor - H); the intensity of poverty (the average proportion of weighted indicators in which the poor are deprived - A) and the status of multidimensional poverty in the study area. Based on the data collected from the survey the estimates of the MPI has presented in Table 3.

Table 3: Multidimensional rural poverty status

Status indicator variables	Value	
Poverty cutoff (k)	33.33%	
Total deprivation score (c)	177.632	
Total sample population /households (n)	368	
A multidimensional poor households deprivation score	154.23	
Multidimensional poor households number	86	
Multidimensional Poor households (q)	282	
Headcount Ratio/incidence (H)	0.766	(76.6%)
The intensity of Poverty (A)	0.547	(54.7%)
Multidimensional Poverty Index (MPI)	0.419	

Source: Computed from own field survey, 2020

In turn, the average intensity of poverty, which reflects the share of deprivations each poor household experiences on average, is 54.7%. That is, each poor household is, on average, deprived in more than two dimensions included in the MPI. The MPI is equivalently computed as the weighted sum of censored headcount ratios, which show the percentage of individuals who were identified as poor and are deprived of an indicator. Finally, the multidimensional poverty index of the research area (the households multidimensionally poor) was found to be 41.9%.

A previous similar study with three dimensions and ten indicators was done by OPHI (2017) reveals the multidimensional rural area poverty at the country level was MPI 0.637, incidence 96.3, and intensity 66.2%. Meanwhile, the multidimensional poverty status of the SNNPR was MPI 0.574, incidence 89.7%, intensity 64.0%. Another study of OPHI (2020) indicated as the MPI of Southern Nations, Nationalities, and Peoples' Region (SNNPR) is reduced to 0.482. The result of this study is to some extent less than the regional MPI. The study area of this research showed as the multidimensional status of the study area is somehow low with that of the region. Thus there is progress after the release of that research or particularly the study area's MPI is less than the regional average by its nature. This can be an indicator or it assures as Ethiopia is among fast developing countries in the world.

3.3 Contribution of Indicators and Dimensions to Multidimensional Rural Poverty

Previously the contribution of each indicator for uncensored headcount ratio was analyzed and discussed. Under this subtitle, the relative contribution of indicators and dimensions in multidimensional rural poverty has been discussed. Moreover, the severity of multidimensional rural poverty and the vulnerability of households to multidimensional poverty has been analyzed and discussed thoroughly.

3.3.1 Contribution of Indicators to Multidimensional Rural Poverty

Indicators considered under this study were analyzed and discussed based to view their contribution to multidimensional rural poverty. The result has revealed in Figure 3.

The highest contributor to the multidimensional poverty out of 100% in the study area was deprivation in school attendants which accounted (15%) followed by health service quality (13%), land possession (12%), year of schooling (10%), health service access (9%) and livestock (8%) consecutively. Whereas, Alkire and Santos (2011) directed that if the impact of each indicator to whole multidimensional poverty being above their weight, it reveals that the study households are extremely deprived of these indicators. For that reason, this result has been cross-checked with their allotted weight to conclude their contribution. When indicators contribution were compared with its allotted weight, the above Figure 3 revealed that the health service quality contributes 4.7%; land 3.7%; school attendant 2.5%; cooking fuel and floor 1.83% each; drinking water 0.83%; and health service access 0.7% above their allotted weight.

The deprivation in school attendants gets first rank (15%) to contribute to MPI and the third indicator to contribute above its allotted weight (2.5%) was because of the high rate of dropout in the study area. The secondary data obtained from the education office annual report of the study area is explicit as the annual dropout rises to 20%. The reason for such a high amount of dropouts according to the key informant's information is migration abroad, particularly to Kenya. As it has mentioned above, migration to Kenya is families' choice because of high remittance from there than those employed here in the country.

The second indicator to contribute to MPI (13%) and the first indicator to contribute above its allotted weight (4.7%) in the area was health service quality. Those who blame the quality of health service mainly raises the absence of necessary or prescribed medicine in the government health stations as well as district hospital found in the area. The land gets the third rank to contribute to MPI of the study area with a 12% contribution. On the other hand, it was the second contributor (3.7%) above its allotted weight. The justification for this was the absence of new land to be given to those who engaged in agriculture after they drop out of school. Almost the only menace of livelihood for the rural household of the study area was agriculture.

The contribution of both child mortality and the toilet was the list comparing with other indicators. This is the consequence of the strong effort of government through the service of health extension. It implies a good endeavor to achieve the target of sustainable development goals in this regard. The finding is in agreement with the finding of (Amao et al., 2017).

3.3.2 Contribution of Dimensions to Multidimensional Rural Poverty

Figure 4 illustrates the share of each dimension; education, health living Standard, and asset ownership to multidimensional rural poverty of households in the study area. All dimensions were given an equal weight of 25%.

From Figure 4 it is clear that Health contributes 21%, Education¹ contributes 22% to overall Multidimensional rural poverty, while Asset Ownership share to overall poverty is 23% and Living Standard contribution is 34%. The share of the living standard was 25%, but it contributes above its weight. All other indicators contribute less than their assigned weight.

Living standards are depicted by far higher contribution to overall poverty while Health has the least contribution to overall multidimensional rural poverty of the study area. The living standard contributes more than one-third (34%) to multidimensional poverty. As it has indicated above in Figure 5, the result is the contribution of cooking fuel, floor, and drinking water which contributes above their assigned weight to multidimensional poverty of the study area. This reflects the poor state of living standards in the study area which makes the finding similar to Alkire and Jahan (2018) and Desawi (2019). The next highest contributor to multidimensional rural poverty of the study area was asset ownership. As asset ownership has included both land and livestock, the study reflects the shortage of land and livestock for farming rural households of the stud area. But, the health dimension has relatively less contribution (21%) than other dimensions under the study. The reason for this is the very less contribution of one indicator (child mortality) to the MPI. The achievement of reducing child mortality plays a significant role to contribute health dimensions below their given weight. This is an indicator of government efforts and the result of health extension workers. This finding corresponds with the finding of Andualem 2015 and Desawi (2019) where the education and health dimensions found the list contributor.

3.4 Severity of and Vulnerability to Multidimensional Poverty

The Severity of and Vulnerability to Multidimensional Poverty has been calculated based on the incidence of poverty from studied household heads. As to Alkire and Foster (2011) and Alkire *et. al.*, (2016), those with MPI values is equal to <20% is considered not

vulnerable to MPI, from 20% - 33.3% vulnerable, >33.3% to 49.9% are poor and >50% are considered severely poor in MPI. Those who were "not vulnerable to MPI", "vulnerable to MPI", "MPI poor" and "severely poor in MPI" households are presented in Figure 4.

As has been observed in Figure 5, only 2.2% or eight households were found not vulnerable to multidimensional rural poverty at the cutoff poverty (k) 33.33%. Vulnerable to multidimensional rural poverty counts 21.2% or 78 respondents in number from total respondents of the study. Whereas, not vulnerable and vulnerable categories are considered as none-poor and the other poor and severely poor are categorized as poor. The other 29.3% or 108 respondents were found to be poor in multidimensional rural poverty. Although, a great proportion of the respondent who accounts for 47.3% or 174 in number were severely poor in multidimensional rural poverty measurement. From this, it is possible to conclude that almost half of the people in the study area were found in severe poverty. This was seen by further broken down to look at the distribution of respondents where the majorities were found.

Vi Conclusion And Recommendations

4.1 Conclusions

The attention of this study was to assess to obtain MPI. The landholding of the studied households on average was less than a hectare. This farm size is very small for rural households who entirely depend upon farm output. The top seven indicators which have a deprivation percentage above 50% in descending order were cooking fuel, floor, safe drinking water, land, health service quality, access to electricity, and school attendant out of 14 indicators examined. This indicated as the living standard dimension has the top three indicators than other dimensions where respondent households were deprived.

The proportion of people identified as multidimensional poor and the average proportion of weighted indicators in which the poor are deprived were scored high result indicating high incidence and intensity of multidimensional rural poverty. Accordingly, the multidimensional poverty index of the area is below regional and country-level MPI. However, this result is not a result that could be taken as an acceptable level of MPI. Hence, it implies as multifaceted additional interventions are mandatory.

Typically, Alkire and Foster (2011) directed that if the impact of each indicator to whole multidimensional poverty being above their weight; it reveals that the study households are extremely deprived of these indicators. Accordingly, the poor households in the study area were more deprived in school attendance, health facility access, health facility quality, drinking water, type of floor, cooking fuel, and land total seven indicators contribute above their weight to multidimensional poverty. Another seven indicators contribute below their weight.

From four equally weighted dimensions considered in this study, the living standard is depicted by far higher contribution to overall poverty while health has the least contribution to overall multidimensional rural poverty of the study area. This reflects the poor state of living standards in the study area. This finding enables us to conclude as a great focus of the government endeavor to multidimensional poverty alleviation should be towards this dimension. The vulnerability to multidimensional rural poverty indicated as almost half of the respondent households were found in severe multidimensional rural poverty.

4.2 Recommendations

The policies of decreasing poverty should pay attention to living standard dimensions since this dimension was a dimension where the highest four deprivation scores indicators (cooking fuel, floor, drinking water, and access to electricity) were included under this dimension. Besides the police directions, it needs the direct intervention endeavors of both regional and federal level governments and NGOs in the specified indicators.

Education is believed as an instrument to escape from any type of poverty trap. Therefore, non-formal educations like adult education should be provided/ expanded for those who dropped out and cannot join again informal education. Similarly, Farmer's Training Centers found in each Kebeles should strengthen delivering training for farmers. Despite elementary school expansion the government and the community itself should strengthen the rules and regulations to engagement all school-aged children to school and reduce dropouts from the school.

The farm size owned by the households was another factor significantly influencing poverty in the meantime rural households' life is directly dependent on farmland and livestock. Since no new lands are going to be provided for these rural people, the only means of increasing production and productivity depends on the level of intensification of agricultural activities. Therefore, attention should be

given to intensified agriculture. Moreover, both off-farm and nonfarm additional income-generating job opportunities should expand in the area to increase the income of the households.

Even though the contribution of the health dimension to multidimensional rural poverty is low than other dimensions health service quality indicator was a high contributor within the dimension. The health service quality problem was attached with the absence of necessary treatment and the inability to provide expected services from existing institutions of health. Therefore, the concerned body from grassroots to high level should focus on enabling the health service delivering institutions to the expected level of curative service besides the expansion of institutes.

Measuring non-monetary deprivations (multidimensional Poverty) is part of poverty measurement because the SDGs regard poverty as multidimensional. Accordingly, the SDGs focus on reducing poverty "in all its forms and dimensions". To reduce poverty in all its forms and dimensions it is obligatory to identify the different dimensions and indicators that the area is deprived of. To be in line with SDGs and to remove poverty with all its dimensions and indicators Ethiopia needs to adopt and inaugurate for the coming years not to measure poverty solely by income or consumption expenditure as before, but by multidimensional poverty. This can help to slash entire multidimensional poverty, if not eliminated.

4.3 Ethical Considerations

Research ethics require that the researcher must ensure the confidentiality of the research participants and protect them from any harm (Lewis, 2009). In line with this, the research was carried out according to the ethical guidelines of Wolaita Sodo University, Ethiopia. Approval of this study, and specifically for this method of obtaining consent, was obtained from the Doctoral Committee of the Institute of Poverty and Livelihood Research (IPLR). Before interviews and discussions, verbal informed consent was elicited from research participants to record their voices. For individual case studies, culturally appropriate and sensitive methods of inquiry were applied. The necessary precaution was made to ensure confidentiality. Participants have thoroughly explained their rights and the purpose of the research. Care was taken to ensure participants know their responses are kept anonymous and confidential.

4.4 Future Research Perspectives

Different countries and researchers add different dimensions based on the context of the study area. Hence, the researcher agrees with the addition of additional dimensions and urges different researchers to add other relevant contextual dimensions under the methodological framework of Alkire and Foster. This study practiced household as the level of analysis. However, poverty can be analyzed at the individual level or intra- household level. In other directions, child or women-based multidimensional poverty analysis can be studied at the micro or macro level of analysis. Therefore future researches can be a focus on one of these study areas.

Declaration

Competing interests: The authors declare no competing interests.

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Figures

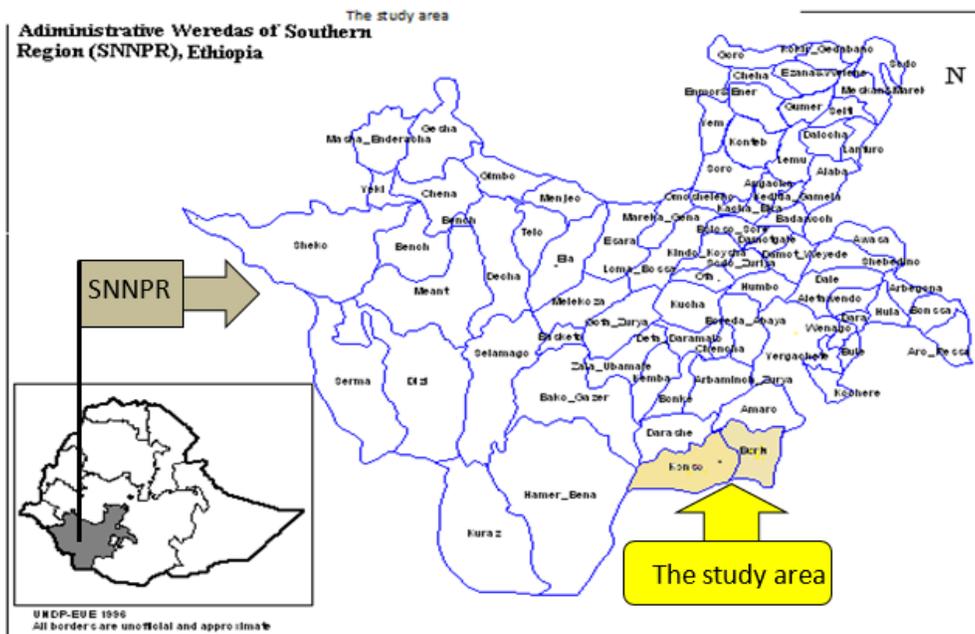


Figure 1

Map of the study area Source: Ethio GIS and CSA (2017)

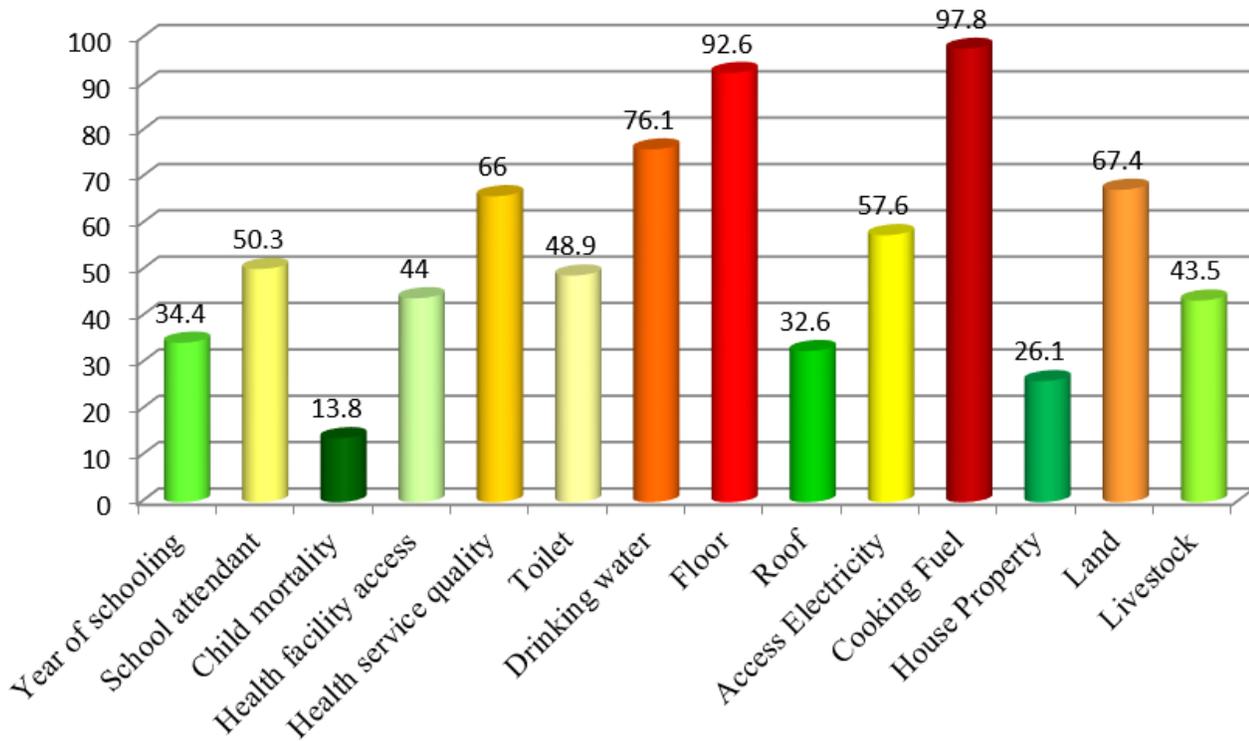


Figure 2

The proportion (%) of households Deprived in each indicator Source: Own survey data, 2020

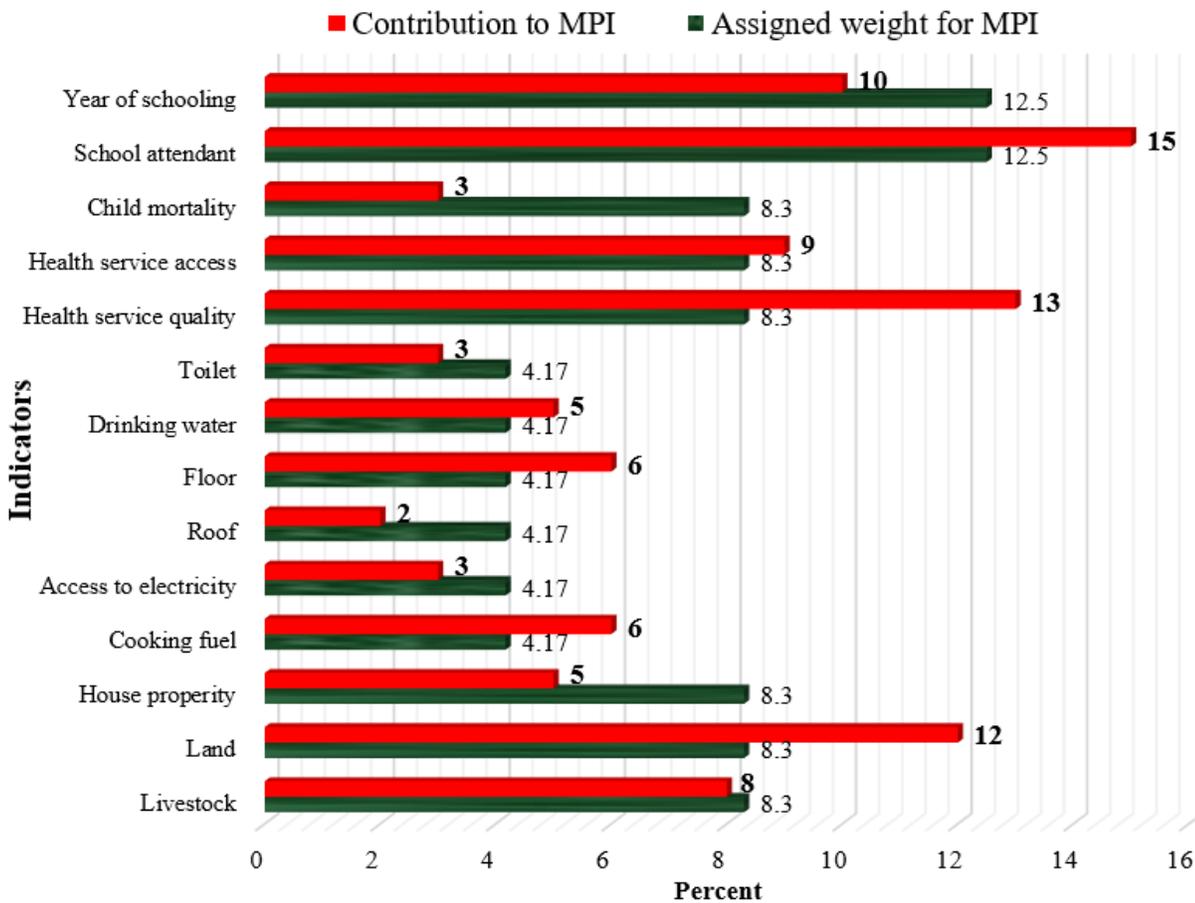


Figure 3

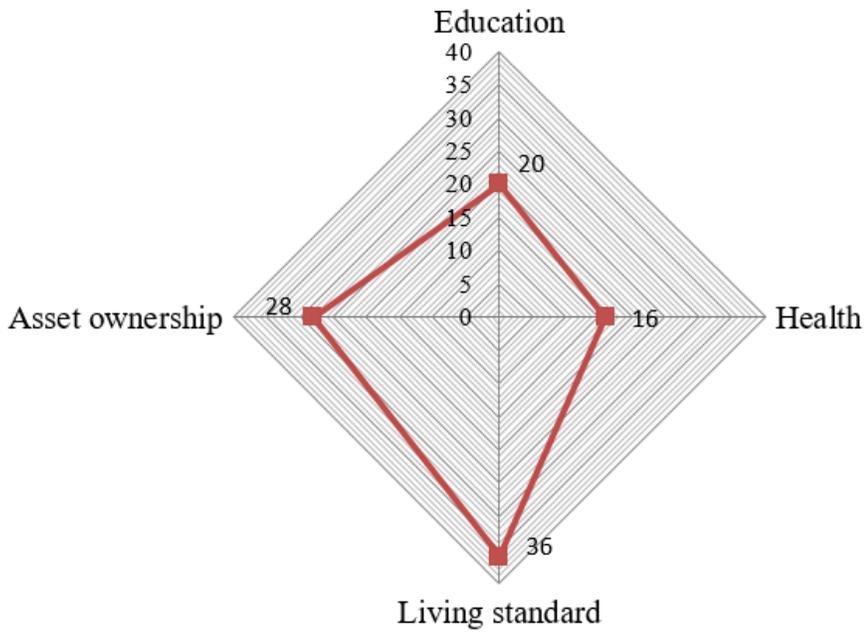


Figure 4

Dimensional share to MPI and its decomposition Source: Own survey result, 2020

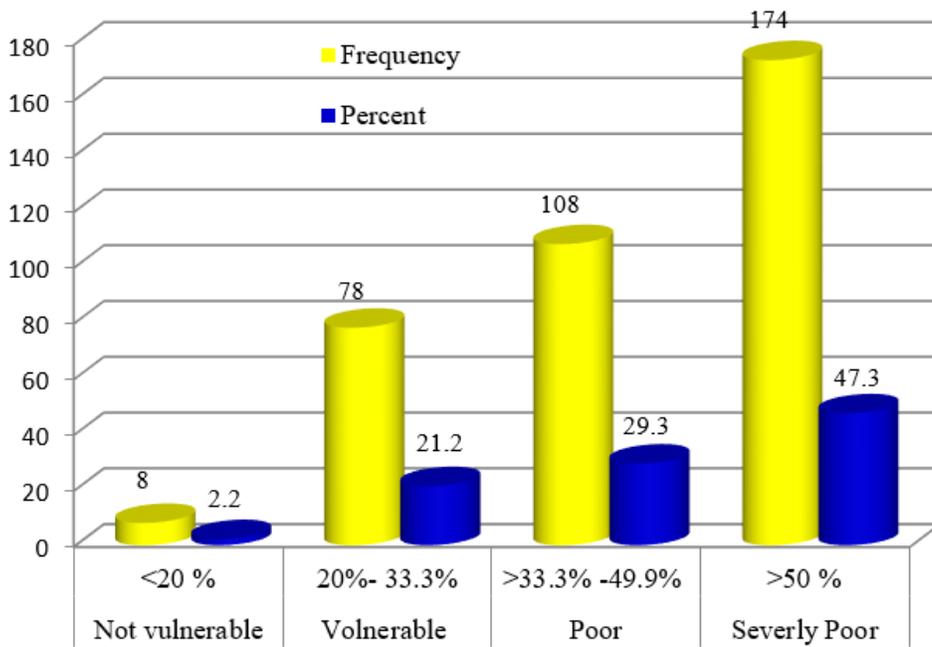


Figure 5

Severity and vulnerability to multidimensional rural poverty Source: Own survey result, 2020