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Determinants of Households' Multidimensional Poverty in Nekemte City, Oromia, Ethiopia

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Abstract
The study aimed at analyzing determinants of households' multidimensional poverty in Nekemte City. To achieve this objective, the study used both primary and secondary data. The primary data was collected through semi-structured questionnaire and interview. The combination of stratified and simple random sampling technique was used to draw 379 sample household heads. For data analysis, both econometric and descriptive method was applied. From econometric models, binary logit regression model was employed. The logit model result indicated that household heads' educational level, family size, dependency ratio, income, house ownership, saving habit and social capital are the major factors significantly influencing households' multidimensional poverty in the city. Based on the findings, the study suggests improving economic activities, promoting access to education and improving saving habits. Moreover, improved targeting strategies can be useful in reducing multidimensional poverty, in particular to reach those in severe poverty.
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1. INTRODUCTION

Poverty has attracted the attention of academicians, researchers, international organizations and policy makers. Sen (1999) defined poverty as the deprivations of basic capabilities that individual or family experience. These deprivations could be economic, social, political, cultural, physical or spiritual. The concept of poverty, in simple terms, describes a situation of whether or not individuals or households possess enough resources or capabilities to meet their current needs for a living. The poor are, hence, underprivileged segments of society who do not have adequate food, shelter and access to education, health and other services. Poverty is multi-dimensional. One of the dimensions is the material deprivation, lack of access to goods and services, which is measured in terms of income or consumption as indicators. The second dimension refers to low capabilities as manifested by low levels of educational achievement and poor nutritional and health conditions. Vulnerability and exposure to risk, and voicelessness and powerlessness are considered, respectively, as the third and fourth dimensions of being poor (Alemu *et al,* 2011).

Over the last decade, both the theory and practice of measurement of multidimensional poverty have made rapid advances (Datt, 2017).

Around 30 percent of the world's people remain susceptible to multidimensional poverty which covers lack of the basic necessities such as food, education, health services, fresh water and hygiene which are important for human continuous existence. In addition, nearly 80 percent of the global population requires comprehensive social protection. About 842 million people of the world suffer from long-lasting hunger, and nearly half of all workers or more than 1.5 billion are in precarious employment (UNDP, 2012).

Across 107 developing countries, 1.3 billion people, 22 percent live in multidimensional poverty. Households in developing countries particularly poor families are more vulnerable than any other group to health hazards, economic down-turns, natural catastrophes and manmade violence. Poor households are repeatedly hit by severe idiosyncratic shocks such as death, pests or diseases that affect livestock or crops, injury or unemployment shocks and this all affect the wellbeing of these households adversely. About 84.3 percent of multi-dimensionally poor people live in Sub-Saharan Africa (558 million) and South Asia (530 million), 7 percent of multi-dimensionally poor people are in middle-income countries, where the incidence of multidimensional poverty ranges from 0 percent to 57 percent nationally and from 0 percent to 91 percent subs nationally. Every multi-dimensionally poor person is being left behind in a critical mass of indicators. For example, 803 million multi-dimensionally poor people live in a household where someone is undernourished, 476 million have an out-of-school child at home, 1.2 billion lack access to clean cooking fuel, 687 million lack electricity and 1.03 billion have substandard housing materials (OPHI and UNDP, 2020).

Several countries, especially Sub-Saharan Africa, have made poverty reduction and hence improvement in income and welfare is their main goals in their growth and development agenda. And most policy interventions adopted by these countries have only focused on poverty at a point in time (Sisay *et al*., 2016) According to the

study conducted by (Bersisa & Heshmati, 2016), Ethiopia is one of the poorest countries in the world. Gross national income per capita in 2002 was around US $ 100 and life expectancy, educational enrolment and access to health services are all very low. Over the last 30 years, life expectancy and school enrolment have shown little improvement, and food production per capita has declined.

Multidimensional poverty is high in Ethiopia in general and in rural Ethiopia in particular. In 2000, MPI in rural Ethiopia was very high (0.913) relative to urban Ethiopia (0.245). Over time, poverty in rural Ethiopia has been decreasing moderately. But in urban Ethiopia multidimensional poverty has not been decreasing. As the study done by OPHI (2013) reveals, in Ethiopia 87.3% of the population was in multidimensional poverty in 2011 and 71.1% were in severe poverty. In the same year 6.8% of the population was vulnerable to multidimensional poverty. Regarding to urban poverty, in 2015/16 the number of urban poor was 90.1% and 21.0% was in severe poverty while 23.5% were vulnerable. Oromia region multidimensional is high as observed from different literatures. In 2011, 91.2% of the people were multi-dimensionally poor (OPHI, 2013). In addition, 74.9% and 5.2% were in severe and vulnerable to multidimensional poverty respectively.

Nekemte town's poverty situation is very severe as it is recognized from several indicators of poverty like high unemployment level, poor sanitation system, inadequate pure water supply, inadequate electric power supply, low wage employment for daily laborers, large percentage of population with low-income earning, inadequate health facilities, poor infrastructural facilities (roads, networks and etc.), poor housing services. In the town, 42% of the population was under income poverty in 2014 (Melese *et al*., 2017). The income poverty gap in the town was 415.16 and 1.5% of the people were in severe poverty. With regard to multidimensional poverty, 21.5% of the households are multi-dimensionally poor now. As it is familiarized from different indicators of poverty, the poor of households are deprived in average weighted indicator of 42%. In view of these, this study aimed to investigate the major determinants of households' multidimensional poverty in the Nekemte city, Ethiopia.

2. REVIEW OF THE RELATED LITERATURE

2.1 Theoretical Framework of the Study

There are three main schools of thought in literature concerning the definition and measurement of poverty. These theories include the welfare, the basic need and the capability views or schools of thought (Esubalew, 2006). Although these theories recognize poverty differently, there are areas in which they share some common meaning and all of them judge an individual or household to be poor whenever he/she is lacking a reasonable minimum standard.

Welfare School

According to welfare school, the concept of poverty is related to the economic well-being of the people. For the presence of poverty income is income the determining factor. Income based poverty assessment is the most widely used approach by global developmental organizations like the World Bank. It assumes that the person is poor when he/she is unable to attain a level of material well-being deemed to constitute a reasonable minimum by the standard of that society. Whenever income or consumption falls below a predetermined monetary-equivalent poverty line, an individual or a household would be considered poor. According to Ravallion (1992), welferists base comparisons of well-being solely on individual "utility" levels which are based on social preferences. Problems related to this school are the need to make inter-personal utility comparisons to obtain welfare functions, the degree of validity of full information and unbounded rationality on the part of consumers.

Basic Need School

According to World Bank (2000), poverty is referred as deprivations that constrain the individual or family to meet the basic needs. It is defined as the deprivation of material requirements for the minimally acceptable fulfillment of basic human needs, including food (UNDP, 1997). This school considers that 'something' that is lacking in the lives of the poor is a small subset of goods and services specifically identified and deemed to meet the basic needs of all human beings. The needs in question are called 'basic' in the sense that their satisfaction is seen as a pre-requisite to quality of life; they are not initially perceived as generators of well-being. Instead of focusing on utility, the attention is here on individual requirements relative to basic commodities. In the traditional basic need approach, the basic goods and services usually include: food, water, sanitation, shelter, clothing, basic education, health services, and public transportation. As we can see, these needs go beyond the needs necessary for existence, generally known as minimal needs which only include adequate nutrition, shelter and clothing (Asselin and Dauphin, 2001).

Thus, according to basic need approach poverty is defined as lack basic needs such as food, water, sanitation, shelter, clothing, basic education, health services and public transportation. It concentrates on the degree of fulfillment of basic human needs in terms of nutrition/ food, health, shelter, education, transport and so on. Asselin and Dauphin, (2001) argued that one of the main problems which confront this school is the simple determination of what the basic needs are. It is generally nutritionists, physiologists and other specialists who are called on to determine the basic needs of individuals. However, they are not always in agreement with one another. Unfortunately, the precise measurement of minimum needs particularly nutritional needs and their largest

component is extremely difficult, and the subject of intense debate.

Capability School

Sen (1992) defined poverty as the failure of basic capabilities to reach certain minimally acceptable levels. It is lack of wellbeing covering both monetary and non-monetary aspects. It is not the mere lack of income to meet basic needs but deprivations in basic human capabilities such as achievement in education, health, malnutrition and self-respect in society. It must be seen as the deprivation of basic capabilities rather than merely as lowness of incomes, which is the standard criterion of identification of poverty. Poverty can be sensibly identified in terms of capability deprivation; the approach concentrates on deprivations that are intrinsically important (unlike low income, which is only instrumentally significant).This school focuses on neither the economic well-being nor the basic needs deemed to satisfy the minimum standard by the society, but on human abilities or capabilities to achieve a set of functioning. Such an approach to the definition and measurement of poverty suggests a broader set of criteria for assessing poverty than just income or consumption. This approach includes publicly provided but non-marketed services like: sanitation, health care, education and life expectancy (Phillip and Sanchez-Martinez, 2014).

Nowadays, all of these researchers (Sen, 1999; Pantazis *et al*., 2006; Esubalew, 2006) and policy makers argue that poverty is not a one-dimensional or two-dimensional rather it is a multi-dimensional concept. As studies such as Jenkins and Miclewright (2007) and Anand (2008) showed, Amartya Sen's capability approach is considered to have novel and extensive significance for the conceptualization of wellbeing and multidimensional poverty. Therefore, in this research the meaning of poverty is related to capability perspective in which poverty is lack of adequate access to services (health, education) and living standard such as water, electricity, sanitation etc. Hence, in this study poverty was analyzed by capability approach.

2.2 Empirical Literature

In 2000 Ethiopia had one of the highest poverty rates in the world, with 56 percent of the population living on less than United States (U.S.) $1.25 purchasing power parity (PPP) a day. Ethiopian households experienced a decade of remarkable progress in wellbeing since then and by the start of this decade less than 30 percent of the population was counted as poor (World Bank, 2004). Both in unidimensional and multidimensional measures of poverty and different standards, Ethiopia remain to be one of the poorest countries in the world (Apablaza & Yalonetzky, 2013).

Ethiopia was ranked 174 in HDI out of 187 countries where average per capita income was less than half of the sub-Saharan average (The World Bank, 2014).Ethiopian government conducts Household Income Consumption Expenditure Survey analytical works in every five years to check the improvement on poverty reduction accomplishments. The results of the 1995, 1999, 2005 and 2011 Household Income Consumption Expenditure Survey and Welfare Monetary Survey of CSA shows that poverty head count index in the country measured by per capita income/consumption was 46%, 44%, 39% and 30% of the households respectively (CSA, 2012). Particularly, urban poverty accounted a head count index of 33%, 37%, 35% and 26% in the same years, respectively. This shows the high level of incidence of income or consumption poverty in urban Ethiopia. The incidence of income poverty in Tigray was 56%, 61%, 49% and 32% in1995, 1999, 2005 and 2011, respectively. In urban areas of Tigray region, the incidence of income poverty was 46%, 61%, 37% and 14% in 1995, 1999, 2005 and 2011 respectively accounting for 32% point decrease from 1995 to 2011 (MoFED, 2012).

Beshir *et al*., (2016), made a study on income poverty in Arsi administrative Zone, Oromia, Ethiopia and found that income poverty was positively influenced by educational level, household size and business participation status of household heads. It was found that income poverty was negatively affected by age of households, marital status and economic status of parents. It was also found that income poverty was higher among divorced and widowed household heads as compared to the married groups. However, income poverty was lower for those participating in different business activities than household heads who do not participate in business activities.

According to the study conducted by Getaneh (2017) in three small towns of East Gojjam, Amhara region by using AF method, the sample households of the three towns were 326 out of which 30% female headed and 70% male headed households. He found that the headcount ratio (incidence) in the study towns was 55% on average. The intensity (the average deprivation of the poor) of the three towns was 47%. In each study town, the headcount ratios were accounted to be 63% in Wojel, 57% in Felege Birhan and 43% in Yetmen. With respect to the intensity of multidimensional poverty of each town, it was found to be 48%, 46% and 46% in Wojel, Yetmen and Felege Birhan, respectively. The MPI of the towns is found to be 30%, 26% and 19% in Wojel, Felege Birhan and Yetmen, respectively. The highest contributors to the MPI were years of schooling 6.4%, floor material 5.5%, durable assets 5.4%, type of cooking fuel 4.2% and source of electricity 2.9%. The largest average contributor to the MPI dimension was living standard, contributing more than 13%, accounted for more than 12% in Felege Birhan and Wojel and just over 15% in Yetmen. Next to living standard, education is the second poverty contributor. The least contribution to the MPI of all and individual study towns had come from the health dimension.

Generally, few different studies were conducted on poverty in Ethiopia and most of them are at national level.

In addition, most of the studies conducted were focused on income poverty, and there is few studies available on multidimensional poverty in Ethiopia. To the best of the researcher's knowledge, there is no multidimensional poverty study conducted in the study area. To this end, this paper is aimed to fill this gap and to examine factors determining households' multidimensional poverty in the city.

3. METHODOLOGY OF THE STUDY

3.1 Description of the Study Area

Nekemte is a market town and separate woreda in western Ethiopia. It is located in the East Wollega Zone of the Oromia Region. The town is one of the old and medium towns in the country, established in the mid-19th century. However, it is highly under developed as a function of low attention was given to its development by successive regimes. Among other things, the development of town's trade and industry is found at a very infant stage. Nekemte urban local Government (NULG), administration of self-rule by the town was incorporated among the 20 selected cities in Oromia Regional state and reformed in 2005 in accordance with the proclamation No. 65/2003. The objective of the reform was to tackle the imbalance of life condition, lack of infrastructural services in the urban due to increasing rural-urban influx, shortage of residence, unemployment, aggravated poverty and its consequence such as crime, ill health that emanated from lack of sanitation, environmental pollution in the settlement of urban dwellers.

Nekemte was the capital of the former Wollega Province, and is home to a museum of Wollega Oromo culture. The town is situated on a flat, hilly landscape. It is located at a distance of 228 km west of Addis Ababa, 110km North East of Gimbi the principal town of west Wollega Zone and 250km North West of Jima zone in Oromia Regional state. Currently, it is a capital city of East Wollega zone of Oromia Regional state with the total land area estimated to be 5480 hectare. According to Nekemte town administration office, the town is divided in to seven sub towns of Darge, Bake Jama, Burqa Jato, Bakanisa kese, Chalalaki, Sorga and Keso. The town has a latitude and longitude of 9°5′N 36°33′E and an elevation of 2,088 meters. Its average annual rain fall is 1854.9 mm, and the average temperature ranges from 14^0Cto 26^0C (Melese et al, 2017; Encyclopedia, 2020; NTAOD, 2020).

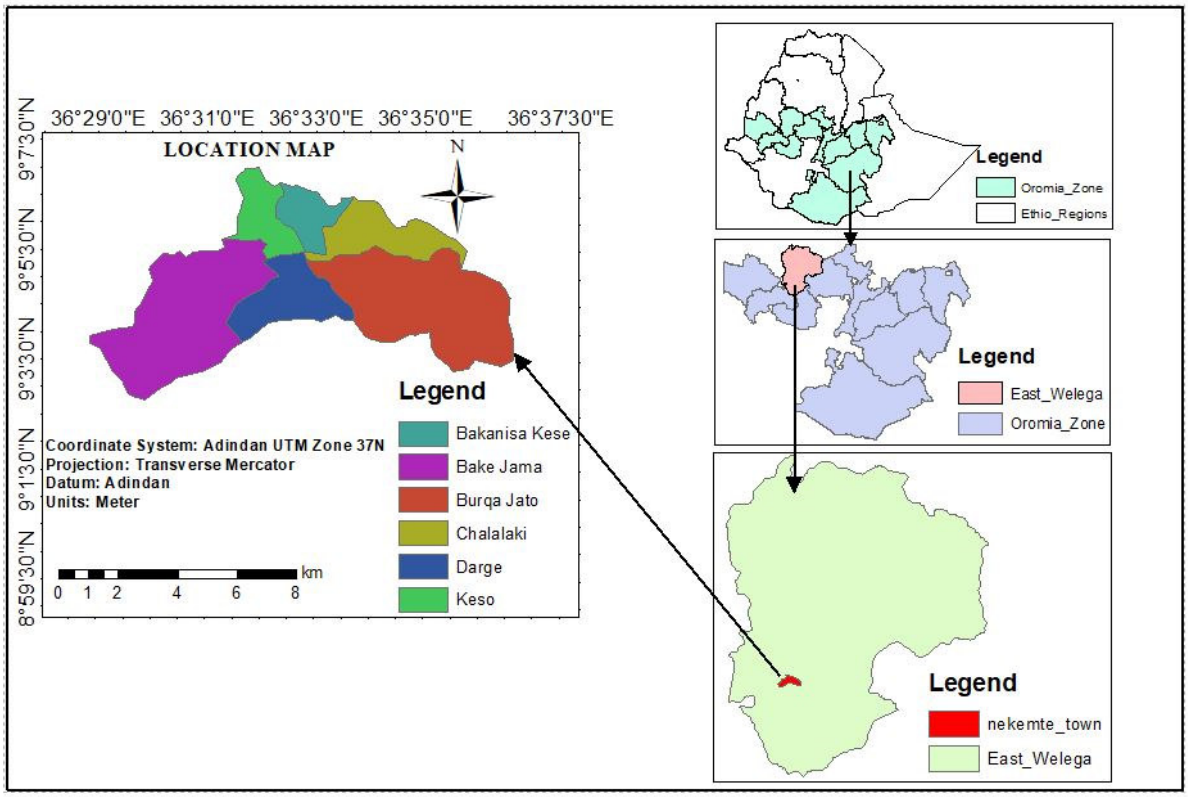

Figure 3.1 Location of Nekemte town in its national and regional setting

3.2 Data Type and Sources

Both quantitative and qualitative data types which were gathered from primary and secondary sources were used in this study. The primary data was obtained from sample households of the town. Secondary data for this study were obtained from different organizations like Central Statistical Agency of Ethiopia (CSA), World Bank and Nekemte town administration office. Moreover, unpublished and published documents such as research journals, local reports, international reports like UNDP report on poverty, OPHI report and other organizations reports were

among the crucial secondary data sources that were used in this study.

3.3 Sampling Techniques and Sample Size Determination

Contacting every households of the town is impossible due to because it is time consuming and costly. Accordingly, the study used sample of 379 households that represents 27629 households of the town. Stratified sampling method was employed in selecting sample from households of Nekemte town. In this sampling, the population is partitioned into non-overlapping groups, called strata and sample is selected by some design within each stratum. Households were stratified based on their sub-town and then representatives from each sub town were selected by simple random sampling. The town is divided into seven sub-towns. Proportional contribution of each sub town to total sample was determined and then sample from each sub town was selected randomly. To determine the sample size for this study Kothari (2004)'s statistical formula was used. The formula is appropriate when the population is finite (Kothari 2004).

$$n = \frac{z^2.\ p\ .\ q\ .\ N}{e^2(N-1)\ +\ z^2.\ p\ .\ q}$$

Where: n-sample size
N - Total households of the town
e -Precision level = 5%
z = 1.96 (as per table of area under normal curve for the given confidence level of 95%).
P - The proportion of defectives in the universe= 0.5 based on most conservative sample size.
q = (1-p) = 0.5

$$n = \frac{(1.96)^2(0.5)(0.5)(27629)}{(0.05)^2(27629-1) + (1.96)^2(0.5)(0.5)}$$

$$n = \frac{26534.8916}{70.0304}$$

n = 379
Therefore, the sample is 379.
The proportional contribution of sub towns to sample is as presented in the table below.

3.5 Method of Data Analysis

Descriptive statistics such as percentages, frequency distribution, mean, standard deviation, Chi-square, significance interval, and t-test were employed to analyze the numerical data that was obtained through household survey. In addition, logistic regression model was applied.
Based on Gujarati (2004) the binary logit regression model is specified as follows:

$Pi = E(Y = 1/ Xi) = \beta1 + \beta2Xi$…….. 1

$Pi = E(Y = 1 \mid Xi) = \frac{1}{1 + e-(\beta1+\beta2Xi)}$…….2

$Pi = \frac{1}{1 + e-Z} = \frac{ez}{1 + ez}$…….. 3

Where $Zi = \beta1 + \beta2Xi$
Equation (3 represents what is known as the (cumulative) logistic distribution function.
If Pi, the probability household being poor is given by eq (3), then (1 − Pi), the probability household not poor is

$1- Pi = \frac{1}{1 + eZi}$……4

Therefore, we can write

$\frac{Pi}{1 - Pi} = \frac{1 + eZi}{1 + e-Zi} = e^{Zi}$……5

Now Pi/(1 − Pi) is simply the odds ratio in favor of being poor, the ratio of the probability that a household being poor to the probability that it will not poor.
Now if we take the natural log of (5), we obtain a very interesting result, namely,

$Li = \ln \frac{Pi}{1 - Pi}$

$Li = Zi = \beta1 + \beta2Xi$……6

That is, L, the log of the odds ratio, is not only linear in X, but also (from the estimation viewpoint) linear in the parameters. L is called the logit, and hence the name logit models for models like eq (6).

Table 1: Independent variables with their expected sign

Explanatory Variables	Variable Definition	Variable Type	Expected sign
Household head Education (edu)	Education level in grade	Continuous	-
Sex	Sex of household head: 1 for male and 0 for female. The sign is for male	Dummy	-
Family size (Fams)	Family size of household	Continuous	+/-
Income of households (Income)	Household head income level	Continuous	-
Marital status (Married)	D1: 1 for married and 0 otherwise,	Dummy	-
Age	Age of household head in years	Continuous	+/-
Dependency ratio	Number of dependents (not in the labor force)/ labor force of the household	Continuous	+
Access to credit (credit)	1 if yes and 0 otherwise.	Dummy	-
Household housing tenure (housing)	House ownership of household. 1 for owned and 0 otherwise	Dummy	-
Social capital	D=1 if yes and 0 otherwise	Dummy	-
Saving	D=1 for savers and 0 otherwise	Dummy	-

4. RESULT AND DISCUSSION

4.1. Descriptive Statistics Result

Under this section, both dummy and continuous variables that were included in the regression were described.

Table.2: descriptive statistics of dummy variables

Variable	Category	Frequency	%	Poor		Non poor		Chi square
				Frequency	%	Frequency	%	
Sex	Female	61	16.09	22	36.07	39	63.93	10.66 ***
	Male	318	83.91	56	17.61	262	82.39	
Marital status	Married	290	76.52	46	15.86	244	84.14	10.66 ***
	Others	89	23.48	32	35.96	57	64.04	
Access to credit	Yes	70	18.47	13	18.57	57	81.43	0.2120
	No	309	81.53	65	21.04	244	78.96	
House ownership	Yes	197	51.98	12	6.09	185	93.91	52.69***
	No	182	48.02	66	36.26	116	63.74	
Social capital ownership	Yes	262	69.13	23	8.78	239	91.22	72.32**
	No	117	30.87	55	47.01	62	52.99	
Saving habit	Yes	245	64.64	19	7.76	226	92.24	69.73***
	No	134	35.36	59	44.03	75	55.97	

Source: Computed from own survey data of February, 2021

Note: ****, **, * indicates significant at 1%, 5% and 10% respectively*.

Sex: As it can be seen from the table 1, 16.09% of the households are female headed while 83.91% are male headed. Pearson's Chi square test was made to compare whether there is sex difference between poor and non-poor or not. The result indicated that 36.07% of female headed households are poor while 63.93% of female headed households are non-poor. On the other hand, 17.61% of male headed households are poor and 82.39% of male headed households are non-poor. This indicates that female headed households are poorer than male headed. The Chi2 test (10.66) shows that there is statistically significant association between sex of the respondent and multidimensional poverty.

Marital status: With regard to marital status of households head, married household heads constitute 76.52% and others constitute 23.48%. As it is shown in the above table (1), 15.86% of married household heads are poor while 84.14% of married household heads are non-poor. On the other hand, 35.96% of other household heads are poor and 64.04% are non-poor. This shows that married household heads are non-poor than others. The Chi2 test (10.66) shows that there is a significant association between marital status and multidimensional poverty.

House ownership: From the above table, 51.98% of the households have house while 48.02% have not. Pearson's Chi square test was made to compare whether there is house ownership difference between poor and non-poor or not. The result indicated that 6.09% of households who have house are poor while 93.91% of households who have house are non-poor. On the other hand, 36.26% of households who have no house are poor and 63.74% of households who have no house are non-poor. This indicates households who do not have house are poorer than

households who have house. The Chi2 result (52.69) indicates that there is statistically significant difference between poor and non-poor at 1% significance level.

Social capital: As shown in the above table 1, 69.13% of the households have social capital while 30.87% have not. Pearson's Chi square test was made to compare whether there is house ownership difference between poor and non-poor or not. The result indicated that 8.78% of households who have social capital are poor while 91.22% of households have social capital are non-poor. On the other hand, 47.01% of households who have social capital are poor and 52.99% of households who have no social capital are non-poor. This indicates households who have no social capital are poorer than households who have not. The Chi2 result (72.32) indicates that there is statistically significant difference between poor and non-poor at 1% significance level.

Saving habit: 64.64% of the households are savers while 35.36% are non-savers. Pearson's Chi square test was made to compare whether there is saving habit difference between poor and non-poor or not. The result indicated that 7.76% of saver households are poor while 92.24% of saver households are non-poor. On the other hand, 44.03% of non-saver households are poor and 55.97% of non-saver households are non-poor. This indicates households who are non-savers are poorer than households who are savers. The Chi2 result (69.7361) indicates that there is statistically significant saving habit difference between poor and non-poor at 1%.

Table 3: descriptive statistics of continuous variables

Variable	Min	Max	Mean	Std. Dev.	Poor		Non poor		Mean diff	t-test
					Mean	Std. Dev	Mean	Std. Dev		
Age	15	73	39.8	11.45	40.32	14.49	39.67	10.54	-.65	-0.44
Family size	1	10	4.45	1.94	4.64	2.01	4.395	1.92	-.25	-0.998
Education level	0	19	11.081	4.92	7.28	4.874789	12.07	4.44	4.78	8.31***
Income	0	70000	6742.6	6590.44	2837.73	3953.38	7757.9	6762.21	4920.17	6.15***
Dependency ratio	0	2.5	.46	.51	.69	.66	.40	.45	-.28	-4.46***

Note: ****, **, * indicates significant at 1%, 5% and 10% respectively.*

Source: Computed from own survey data of February, 2021

As it can be seen from the table the minimum age of the respondents is 15 and maximum is 73. Mean age of the respondents is 39.8. The mean age of poor household heads is 40.32 while mean age of non- poor is 39.67. An independent t-test was conducted to compare the mean age difference between poor and non-poor households and found to be statistically insignificant. Regarding to family size of household, the mean of family size of sample households is 4.45 while the minimum family size is 1 and maximum is 10. The mean family size of poor household heads is 4.64 while mean family size of non- poor is 4.395. An independent t-test was conducted to compare the mean difference between poor and non-poor households and found to be statistically insignificant.

As it can be seen from the table the minimum education level of the respondents is 0 and maximum is 19. Mean education level of the households is 11.08. The mean education level of poor household heads is 7.28 while mean education level of non- poor is 12.07. An independent t-test was conducted to compare the mean difference between poor and non-poor households. The t-test result (8.31) shows that there is statistically significant mean education level difference between poor and non-poor at 1% level of significance.

Income: As it is shown in table the minimum income of the respondents is 0 and maximum is 70000. Mean income of the respondents is 6742.63. The mean income of poor household heads is 2837.73 while that of non- poor is 7757.9. This indicates that low income households are poorer than high income households. The independent t-test result (6.15) shows that there is statistically significant mean income difference between poor and non-poor at 1% level of significance.

Dependency ratio: minimum dependency ratio of the respondents is 0 and maximum is 2.5. Mean dependency ratio of the respondents is 0.4605145. The mean dependency ratio of poor household heads is 0.6856538 while that of non- poor is 0.4021728. This indicates that households who have large dependency ratio are poorer than households who have small dependency ratio. The independent t-test result |-4.4624| shows that there is statistically significant mean dependency ratio difference between poor and non-poor.

4.2 Logit Regression Result

Binary logistic regression model was employed to estimate factors that determine the probability of households being multi-dimensionally poor. The major results of these estimates for surveyed sample households are presented in Table 3 with their marginal effects. Identification of the descriptive and inferential statistics only may not be enough to stimulate policy actions without the influence of each determinant factor to poverty is known for priority based intervention. However, before discussing logistic regression results and drawing conclusions it is important

to verify the data meet the basic assumptions of the model, unless results may be misleading

Table 4 Logit model result

Poverty	Coef.	St. Err.	t-value	dy/dx
Age of household head	-.016	.018	-0.89	-0.001
Sex of household	.691	.494	1.40	0.043
Marital status of household head	.052	.453	0.11	0.004
Educational attainment of household head	-.136***	.046	-2.95	-0.010
family size	.339***	.106	3.20	0.025
dependency ratio	.747**	.314	2.38	0.056
Access to Credit	.496	.483	1.03	0.043
Monthly household Income	-.0001317**	0	-1.96	-9.89e-06
Ownership residential House	-1.344***	.487	-2.76	-0.107
Social capital	-1.189***	.405	-2.94	-0.110
Saving habit	-1.228***	.367	-3.35	-0.110
Constant	.38	.996	0.38	
Log likelihood = -113.75577	0.000			
Pseudo r-squared	379			

Source: Computed from own survey data of February, 2021

Note: ****, **, * indicates significant at 1%, 5% and 10% respectively*

From eleven explanatory variables included in the model seven variables are statistically significant. Five of them are significant at 1% while two variables are significant at 5%. The interpretation of the effect of these variables on households' poverty is as discussed below. Because it is not possible to interpret the coefficients of logit model it is interpreted from marginal effect.

Education of household head: Education is important to improve human productivity through enhancing efficiency of labor and make aware of various livelihood opportunities. The coefficient of education is significant at 1 % level of significance with negative sign. The marginal effect result reveals that every extra year of schooling of the household head decreases the likelihood of the household's being poor by 1%. The justification behind is that education increase employment opportunities and promote livelihood diversification to lessen the risk of poverty. The result is consistent Desawi (2019), Alemayehu *et al*., (2005), Bogale *et al*, (2005) and Tsegaye *et al*, (2014) who found negative relationship between education and poverty.

Family size: Family size has positive effect on households' poverty and statistically significant at 99% confidence. A one unit (person) increase in family size increases the probability of household's being poor by 2.5%. This is probably due to the fact that households with large number of economically inactive and unemployed members have high probability of being poor because economically inactive and unemployed cannot add value to economy. This study is consistent with the many previous studies conducted by Anyanwu (2012), Esubalew, (2006) and Tsegaye *et al*., (2014) which associate poverty with large household's size, and contradicted with the result of Desawi (2019), Dawit *et al*., (2011), and Fetsum (2018) who found negative relationship between family size and poverty.

Dependency ratio: The coefficient of dependency ratio is statistically significantly at 1 % level of significance with positive sign. As ratio of dependents to productive age group increases the probability of household's being poor increases by 5.6%. This is because the dependents contribute nothing to household's income but increase the probability of being poor. This is due to the fact that dependents do not add value to the development of economy rather increases probability of being poor. The result is consistent with (Ermias *et al*, 2019) who found dependence ratio in adult equivalent unit has positive relationship with poverty status of household heads. That means as the dependency ratio of the household increases the probability of households being poor increases.

Income of household: Income of household has negative effect on households poverty and statistically significant at 5% level. Every increase in households' income decreases the likelihood of household's being poor. The study is consistent with the result of Adugna and Sileshi (2013) and Desawi (2019) who found that household's income is negatively related with the probability of households being poor. Income allows households to function financially, maintain their health and living standard, and strengthen household wellbeing through creating new opportunities.

House ownership: The coefficient of house ownership was found to be negative and it is significant at 1% level. The marginal effect result indicates that the probability of households' being poor is low for house owners and high for those who do not have house. This is due to the fact that households who have house do not spend extra expenditure for house rent while those who do not have house have high expenditure of house rent. The result is similar with the result of Esubalew (2006) which revealed households' ownership of house negatively affects poverty.

Social capital: In this paper, social capital was defined as households' membership in *equb* and/ *edir*. The coefficient of social capital was found have negative effect on households' poverty and significant with 99%

confidence. The probability of households' being poor is low for households who have social capital as compared to those who do not have. The logic is that households who have social capital (member of *equb* or *edir)* saves more and can receive loan to diversify their livelihood and escape from poverty.

Saving habit: Saving habit affected households' multidimensional poverty negatively and it is statistically significant at 1% level of significance. The marginal effect result shows that the probability of being poor is high for non-savers than that of savers. This could be because households who are savers can afford for education and can improve their living standard. The result is similar with the study conducted by Mohammed (2017) who found negative and significant effect of saving on poverty.

5. CONCLUSION AND RECOMMENDATIONS

This study was made at Nekemte town which is found at East Wollega Zone of Oromia region aiming at investigation of determinants of multidimensional poverty. For data analysis, binary logit model was used. The logit model result indicated that the important factors that increase the probability of households' being multi-dimensionally poor are large family size and high dependency ratio. The significant variables that reduce the likelihood of being multi-dimensionally poor in the town are high education level, high income level, being saver, having social capital, and house ownership of households. Educational level of household heads' negatively and significantly affects households' multidimensional poverty. This is because education enables those in paid formal employment to earn higher wages and escape from poverty.

Based on the findings of the study, the following recommendations are forwarded that might mitigate multidimensional poverty problem in the town.

- As increase in households' education level lowers the probability of households' poverty in the town, it needs the government to promote education sector to reduce the problem of poverty in the town.
- Since households' house ownership decreases the probability of households being multi-dimensionally poor, it is better if the government and concerning body provide residential place for households to mitigate the problem households are facing like room density and sharing of sanitation with others.
- As income and saving habit of households decrease the probability of households being multi-dimensionally poor, households should diversify their income to save more and escape from the problem of poverty.
- Because increased family size and dependency ratio increases the likelihood of households being multi-dimensionally poor, the households' should use proper family planning to reduce the risk of multidimensional poverty. On the side of government and health bureau, it needs to create awareness on the use of family planning by promoting extension workers.

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