MEKELLE UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

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POVERTY AND INCOME INEQUALITY IN URBAN AREAS:

(SOCIO-ECONOMIC ANALYSIS OF HOUSEHOLDS IN WUKRO WEREDA)

A THESIS SUBMITED TO THE DEPARTMENT OF MANAGEMENT IN PARTIAL FULFILMENT OF THE REQUIREMNTS FOR THE DEGREE OF MASTER OF ARTS DEGREE IN DEVELOPMENT STUDIES

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DECLARATION

This is to certify that this thesis entitled "**Poverty and Income Inequality in Urban Areas: (Socio-Economic Analysis of Households in Wukro)**", submitted to Mekelle university College of Business and Economics through the Department of Management for the award of the degree of Master of Arts in Development Studies done by **Mr. Araya Mebrahtu** is an authentic work carried out by him under my guidance. The matter embodied in this project has not been presented for the award of any other degree, diploma, fellowship or other similar titles, of any other University or Institution to the best of my knowledge.

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Date: May/ 2010

Place: Mekelle University

Abstract

Poverty is daily experience of citizens in Ethiopia and the government has implemented different poverty reducing policies and strategies in the intention to reach middle income countries in the coming 20 years.

With the objective of assessing the incidence of poverty and its determinants and income inequality in Wukro town, primary data was collected. A total of 200 household heads, from three kebelles, were selected to undertake the research and a proportionate stratified sampling technique was employed and from each kebele's registry-frame, households were selected using systematic random sampling.

A logistic regression model was employed to determine the factors influencing poverty in Wukro, with the probability of a household being poor used as a dependent variable and a set of demographic and socioeconomic variables as the explanatory variables. By making use of Cost of Basic Needs (CBN) approach, birr 198 was computed as total poverty line per adult equivalent per month and, based on this bench mark, households were identified as poor and non-poor. Based on this, there was a poverty incidence of 34.5 percent with income short fall of 8.9 percent and poverty severity index of 3.4 percent. Income inequality, as measured by Gini coefficient in Wukro was 0.41with high inequality (0.43) was observed in female headed households. Poverty-income elasticity and poverty-inequality elasticity in Wurko was -2.08 and 0.73, respectively. Logit result revealed that incidence of poverty in Wukro was determined by, differently with odds values ,number of productive members (2.08), access to electricity (-1.656), marital status (-1.317), telephone subscription (-0.89), educational level (-0.608), family size (0.529) and sex of the household head(-0.067).

The incidence of poverty allied with this income inequality calls for urgent interventions aimed at curbing the problems of the people through creating employment opportunities, family planning ,provision of market based short term trainings, empowering females and distribution of social service.

***Key words**: Poverty, Income Inequality , Determinants ,Gini coefficient and Elasticity*

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Acronyms

BoFED	Bureau of Finance and Economic Development
CBN	Cost of Basic Needs
CIA	Central Intelligence Agency
CSA	Central Statistical Authority
DASP	Distributive Analysis Stata Package
DECSI	Dedebit Credit and Saving Institution
EEPCO	Ethiopian Electric Power Corporation
FGT	Foster, Greer, and Thorbecke
GDP	Gross Domestic Product
MDGs	Millennium Development Goals
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
MSSE	Micro and Small Scale Enterprise
NGOs	Non Governmental Organizations
NIS	National Institute of Statistics
OFED	Office of Finance and Economic Development
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
SPSS	Soft ware Package for Social Studies
UN	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency International Development
WB	World Bank
WBI	World Bank Institute
WFP	World Food Program
WHO	World Health Organization
WTPFO	Wukro Town Planning and Finance Office

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Chapter one: Introduction

1.1. Background of the study

Ethiopia is a multi ethnic, multi cultural and federal agrarian state having more than 85.2 million people with less than 17 percent of its population residing in urban areas[1] (CIA world fact book, 2009). Accompanied by high population growth rate of 3.2 percent, the GDP of the nation was $26.4billion in 2008 and accounted GDP per capita of $310 that ranks the nation 105th out of 109 on UNDP Human Poverty Index (UN, 2008).

The nation is home to different religions and, in the composition, Christians make up 62.8 percent of the country's population (43.5 percent Ethiopian Orthodox, 19.3 percent other denominations), Muslims 33.9 percent, practitioners of traditional faiths 2.6 percent, and followers of other religions constitute 0.6 percent (CSA, 2007).

Agriculture is the dominant sector that accounts for almost 41 percent of the gross domestic product (GDP), 60 percent of exports, and 80 percent of employment. Many other economic activities depend on agriculture, including marketing, processing, and export of agricultural products. Production is overwhelmingly by small-scale farmers and enterprises and a large part of commodity exports are provided by the small agricultural cash-crop sector. Principal crops include coffee, pulses, oilseeds, cereals, potatoes, sugarcane, and vegetables. Exports are almost entirely agricultural commodities and coffee is the largest foreign exchange earner. Ethiopia is Africa's second biggest maize producer. Ethiopia's livestock population is believed to be the largest in Africa and tenth in the world (MoARD, 2008).

[1]According to the Ethiopian national census (2007), there are more than 80 ethnic groups with their own distinct languages; the Oromo are the largest ethnic group in Ethiopia with 34.49 percent of the population ,Amhara represents 26.89 percent, ,Somali 6.20 percent, Tigray people are 6.07 percent of the population ,Sidama 4.01percent, Gurage 2.53 percent, Wolayta 2.31 percent, Afar 1.73percent, Hadiya 1.74 percent, Gamo 1.50 percent, Kefficho 1.18 percent and others 11 percent that residing in nine regions and two special city administrations(Addis Ababa and DireDawa)

After a 3.5 percent decline of real GDP in 2002/03 due to poor performance of the agricultural sector, mainly severe drought, real GDP has showed a strong positive performance, adding up a cumulative growth of more than 56 percent. The estimated real GDP growth in 2006/07 stood at 11.4 percent, with agriculture, industry and service sectors registering increases of 9.4, 11.0 and 13.5 percent, respectively(WFP,2008).

Though there are improvements in the health sector in Ethiopia, from time to time, still it is extremely poor and only 61.3 percent of the population (2006) had access to public health facilities (USAID, 2008) accompanied by low proportion of professionals, high infant mortality and maternal mortality rates.[2]

According to a recent UN report (2009) life expectancy had improved substantially in recent years. The life expectancy of men is reported to be 52 years and for women 54 years, yet HIV AIDS challenges the development of the nation. Productive age group of the nation (14-49 years) is affected by HIV/AIDS and its overall prevalence, adults 14-49, (2007) accounted 4.4 percent of population or more than 3 million people; 230000 children (2009) are living with HIV/AIDS, 770,000 women (2009) are victims and their incidence is three times greater than male (WHO, 2009), and more than 989,000 children are estimated (2009) to be orphans because of AIDS (UNICEF, 2009). Moreover, HIV infections ranked Ethiopia 5th (2007) in Sub -Saharan Africa countries (WB, 2007).

Ethiopia's Development Plan entitled a Plan for Accelerated and Sustained Development to End Poverty (PASDEP) is a five-year (2005/06-2009/10) strategic framework that guides overall development activities in the country. After a scrupulous review and extensive discussions at all levels with relevant stakeholders including development partners; the House of People's Representatives approved PASDEP in May 2006 and now has already entered in its last year of implementation.

Poverty reduction effort of the government of Ethiopia has taken a longer-term view in line with the attainment of the MDGs. The PASDEP is a medium-term plan that serves as a vehicle

[2]In Ethiopia one medical doctor and three physicians serve for 100000 population(World Health organization) and infant mortality rate accounted 77/1000 live births and maternal mortality of 673/100000 in 2004/05(MoFED,2006/07)

towards achieving Ethiopia's MDGs Plan and by extension Ethiopia's vision of being a middle income country in 20 years time.

Poverty in Ethiopia is deep rooted and 16 percent of its population is living on less than a dollar a day (2008), around 78 percent of the population is earning less than $2 per day (2007), 38 percent of the population(2008) is below the basic needs poverty line(WB,2007).Only 65 percent of rural households in Ethiopia consume the World Health Organization's minimum standard of food per day (2,200 kilocalories), with 42 percent of children under 5 years old being underweight (Human development report, 2007, WHO, 2008and CIA world Fact book, 2008).

There is a difference on the prevalence of poverty among regions and Tigray has the highest level of poverty (48.5 percent) in 2004/05 followed by Benishangul-Gumuz(45 percent) and Amhara(40 percent); urban poverty is worst in Tigray region (38 percent) and better in Afar(27 percent), Addis Ababa, Harari and Diredawa constituting of 32 percent(Tassew *et al*.,2008).

Incidence of poverty is determined by demographic, economic and social factors. Both the descriptive and econometric evidences indicate that poverty in Ethiopia (urban) has been associated with household composition, unemployment, lack of asset ownership, casual employment, lack of education, ethnicity, age, access to infrastructure, household head(Kedir A., *et al*.,2003 and Esubalew,2006).

1.2. Statement of the problem

Ethiopia is one of the developing countries that show continuous economic growth in the world and it was the fastest-growing non-oil-dependent African nation in 2007 and 2008(Bureau of African Affiars, 2009).

The macro economic performance of the nation, as measured by real GDP growth rate, has been increasing continuously for five years in double digits with an annual average real GDP growth rate of 11.8 percent during the last four years ending 2006/07 and 10.2 percent in the budget years 2007/08(MoFED,2008). Although the growth of the agricultural sector is the dominant one, it has been complemented by strong performance in industry (12.3 percent) as well as service sector (42.3 percent) in 2008(Ibid).

In Ethiopia, income growth reduces poverty and increases inequality; the income-poverty elasticity lies in the range of -1.7 to -2.2. Growth occurred in urban areas but the rise in inequality in urban areas wiped out the poverty-reducing effect that this growth might boast (Tassew *et al*., 2008).

Moreover, where global estimates of income elasticity of poverty ranges from -1.3 to -2, for Ethiopia, the income elasticity of poverty was estimated to be -1.71 while the inequality elasticity of poverty was anticipated to be 1.8[3] (MoFED,2006/7).

Studies show that there are improvements in the poverty situation of Ethiopia from time to time yet the income inequality, as measured by Gini coefficient, has increased[4].

Despite the continuous growth of the Ethiopian economy for more than five years in double digits, the poverty situation in urban areas has increased ; people below poverty line in 1995/06 was 33.5 percent which was increased to 36.9 in 1999/2000, 35.1 percent in 2004/5 and lastly reached 38.7 percent in 2008(MoFED,2006 and 2008).

Well-being of the urban population is greatly affected by the rising prices for consumer goods. The inflation rate for consumer goods was 17.2 percent in 2007 and rose to 44.4 percent in 2008 that has significant effect on the standard of living and poverty situation of the society (Bureau of African Affairs, 2008).

In Ethiopia, there is also strong variation on the percentage share of household income or consumption, 10 percent of the lowest consumed 4.1 percent of the income where as the highest 10 percent devoured 25.6 percent (Ibid).

In Ethiopia more attention, by the government, is given to the rural areas and lots of research works have been carried out to study the poverty situation of the rural people and few works were conducted in urban areas with particular interest of the capital cities of regions.

[3]For a given level of income distribution, each one percent increase in per capita real consumption leads to a 1.7 percent decline in the poverty head count index. On the other hand, for a given level of per capita real consumption expenditure, a one percent increases in the Gini Coefficient (a measure of inequality) leads in to 1.8percent increase in the head count index.

[4]the magnitude of growth elasticity of poverty reduction has reached to -1.71 in 2005 from -1.3 in 2000;Poverty Head Count Index has declined to 38.7 percent in 2005 from 45.5 percent in 1996; Poverty Gap Index has declined to 8.3 percent in 2005from 12.9 percent in 1996, with annual decline rate of 0.5 percent; Poverty Severity Index has also declined to 2.7 percent in 2005 from 5.1 percent in 1996; in aggregate, there has been a small increase in inequality with the Gini coefficient rising from 0.289 in 1996 to 0.30 in 2005. Gini coefficient rises in urban areas and has increased from 0.34 to 0.44(MoFED, 2006/7).

Poverty situation in Tigray experiences ups and downs through time, as measured by the Head Count Index, were about 0.58 in 1995, 0.6 in 2000 and 0.485 in 2005. Despite the reduction in the number of poor in the region, the income inequality in Urban areas of the region, as measured by the Gini coefficient, in the stated years, were 0.29, 0.35 and 0.49, respectively (Tassew *et al.*, 2008).

The study area (Wukro) is on the process of expanding and attracting investors and business men because of the location advantage it has, the good governance in the area and being a center for neighboring rural weredas. Therefore, the regional government considered it as one of the fast growing towns in the region yet not supported by scientific research (BoFED, 2008).

In line with this, despite the existence of lots of NGOs working in the area to contribute their part in poverty reduction, their intervention is not research based to see the extent of poverty and its determinants and income inequality to direct them to formulate appropriate policies and strategies that favor the majority of the people, with the highest gap, and meet their target.

Therefore, the existence of steady economic growth for more than half of a decade in the nation and the prevalence of high urban poverty and income inequality in the region aggravated by high inflation rate (more than 40 percent) witnesses the timely importance of poverty profile of the area for immediate intervention, absence of scientific research carried out to assess the socio economic situation of the population, and its good representativeness to other small towns in Tigray are the major factors influencing this title to be realized.

1.3. Objectives of the study

1.3.1. Major objective

The study is designed with major objective of measuring and analyzing the poverty situation and its determinants, and income inequality in Wukro wereda.

1.3.2. Specific objectives: The study has the following specific objectives:

- ✓ To examine and analyze poverty profile of households in Wukro
- ✓ To determine the basic factors contributing to poverty in Wukro
- ✓ To analyze the income inequality in Wukro
- ✓ To examine income inequality using household characteristics

1.4. Research Questions

The following points were questions raised and the researcher has addressed;

- ✓ What is the poverty line in Wukro?
- ✓ What is the incidence of poverty in Wukro with respect to household and community level variables?
- ✓ What is the level of income inequality among households in Wukro?
- ✓ What alternative means of income do households in Wukro have?
- ✓ What are the determinant factors behind poverty in Wukro?

1.5. Scope of the study

The scope of the research work is limited to investigate the poverty profile and extent of income inequality using FGT measures and Gini index, respectively. In addition, so many factors are influencing poverty; hence its boundary is limited with the household and community level characteristics[5].

1.6. Significance of the study

In line with the ideas stated in the statement of problem, the research work will be important in the following points:

- ✓ There is no previous research work done in Wukro wereda and this work will be good resources for other researchers.
- ✓ Few research based development intercession in the wereda, both by government and development partners have been carried out; hence, it will have the ability to point out the gaps for intervention.
- ✓ Most studies in urban poverty focuses on large towns and very little was done in small or medium towns; consequently, this thesis will contribute to bring a linkage with poverty studies carried out in large towns.
- ✓ It can give an input for Community Based Organizations, NGOs, or any interested stakeholders who in one or another way are engaged in the development of the town.

[5]Household and individual characteristics that determine poverty include demographic (age, sex, education, household size), economic (employment, property of household, remittance, inflation) and social characteristics such as health, education and shelter.

1.7. Limitation of the study

No research, per see, is complete and free from limitations. This paper is, therefore, constrained by the following stated shortcomings:

- As Wukro is center for three Weredas, there are lots of new comers and some of them have lands and permanent residence in other areas so they fail to register in the kebele fearing not to be grabbed their lands and leave their permanent residence. Therefore, selecting the sample from the kebelle registry- sampling frame excludes households with such intentions that might influence the results.
- Urban poverty is a function of multitude of factors. In this study, only some variables, which were assumed to affect the incidence of poverty dominantly, were considered. The researcher is of the opinion that the study could have been much comprehensive had more variables (regional, local and cultural) been included.
- Studying poverty and income inequality rests on the mutual trust and recalling behavior of individuals. To this end, respondents may hesitate to exactly state their expenditure, value of their assets and monthly income that affects the outcome of the paper.
- Moreover, analyzing poverty and income inequality using cross -sectional data at household level is too hard to infer and might differ if we use panel data at town level.

1.8. Organization of the paper

The paper is organized in five chapters. The leading chapter is the introduction part which focuses on back ground, statement of the study, objectives, research questions and/ or hypothesis, scope, significance and limitation of the study.
The second chapter deals with the methodology of the paper in which area description, sampling techniques, size, and model specification has been stated.

Conceptual frame works and empirical investigations and experiences of countries have been developed in chapter three. More importantly, poverty and its determinants (household, individual and community level variables) and income inequality related points in respect of concepts and findings have been addressed in it.
Chapter four, the main body of the study, assessed poverty and its determinants and income inequality in Wukro. In this part, poverty profile of Wukro with respect to different variables (households and community) has been computed using DASP and income inequality was computed using Gini coefficient. In addition, the variables influencing poverty in Wukro were critically examined in the econometric analysis (Logit model) with the help of stata.
At last, chapter five come with conclusions and recommendations followed by references, appendix Tables and annex (questionnaire) parts.

Chapter Two: Methodology and Data Analysis

2.1. Description of study area

Tigray is one of the 9 regions of the Federal Democratic Republic of Ethiopia which lies in the north tip of Ethiopia, extending from $12^0$15' to 14^0 54' North and 36^0 27' to 39^0 59' East (BoFED,2008).

Wukro is also one of the 47 weredas in Tigray situated in the Eastern Zone 45 kms far away north of Mekelle. The town is found at 2140-2250m above sea levels with a climate of Weina Degua. The total size of the town is 860 hectares, with comfortable environment for residential, has an average temperature of 19.73^0c and annual average rainfall of 690.25mm. It has three administrative kebelles, namely, Hayelom, Agazi and Dedebit with population size of 18971, 6915 and 5852, respectively (OFED, 2008).

As Wukro is located along the main highway, stretched from Addis Ababa to Adigrat, it has the chance to serving as administration and commercial place where the residents of those different towns come and exchange different activities like exchanging raw material-agricultural products, honey, dairy products and manufacturing products.

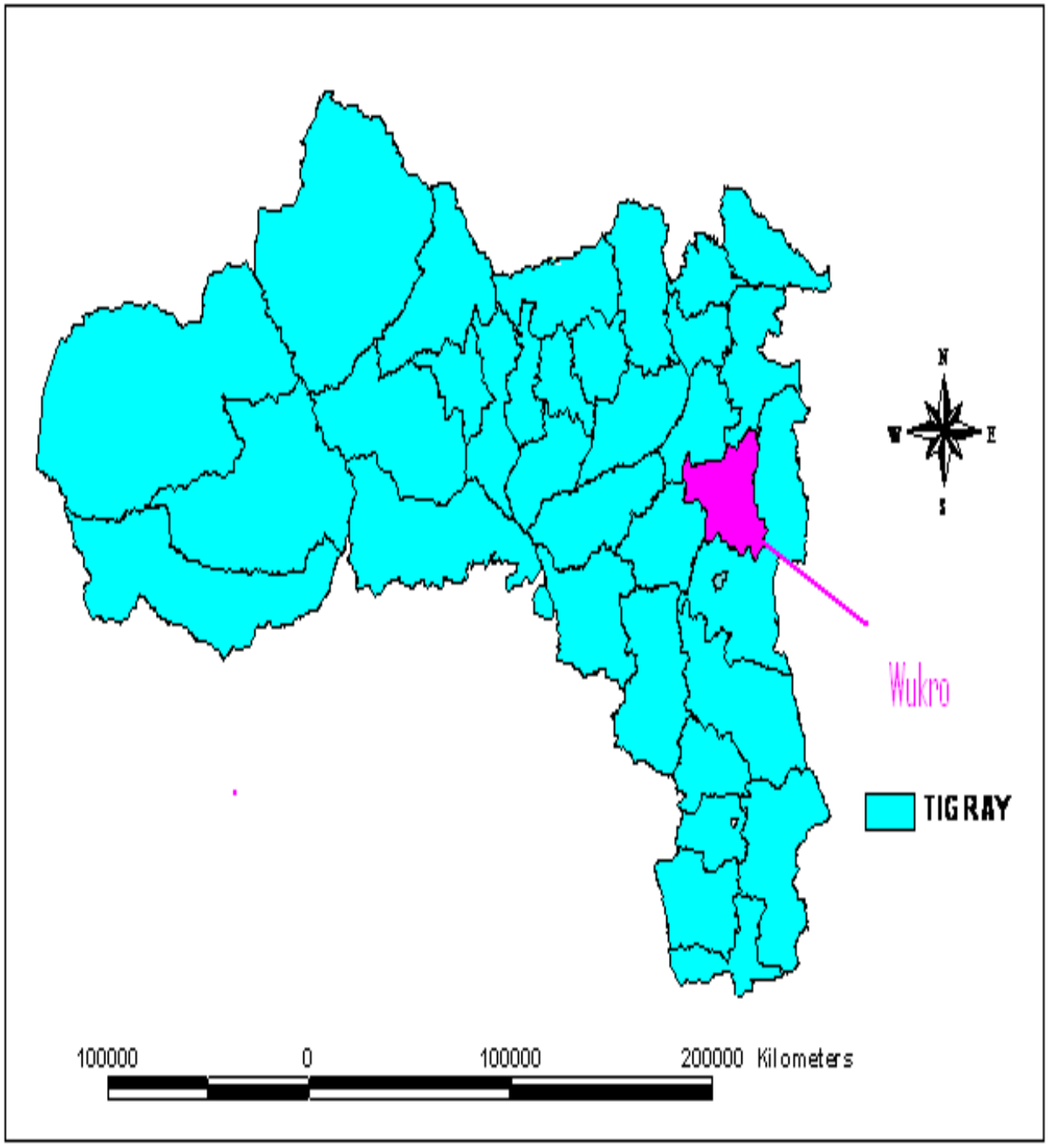
scrutinizing the suitability of the town for investment, location advantage (near to Mekelle), better economic performance , good governance and other related issues, the regional government has upgraded to second level towns[6] since December 2001 to enjoy all the benefits allied with being a second town like land leasing and administration (Tigray Region Bureau of Development and Construction, 2009).

Therefore, the site was selected on three grounds:

1. Its representativeness to small and medium towns in Tigray
2. The business and overall economic situation of the town has increased and leads the town to advance to second level towns
3. As there was no previous research works , its timely importance is lofty

[6]On the basis of economic situation, towns are classified in to three categories. In Tigray Mekelle is the only first town; Adigrat, Aksum, Shire, Humera, Adwa, Alamata, Wukro are second level towns. Accordingly, towns get benefits like land lease administration and others (BDC, 2009).

Map 1: Location map of WukroWereda



Source: KilteAwlaelo Plan and Finance Office (2010)

2.2. Sources of data and instruments

The study is based on primary and secondary sources of information. The primary data was collected using questionnaire survey and secondary data sources from CSA on household consumption expenditure and reports of wereda Administration were used. Structured questionnaire was employed as instrument to gather information at a household level which was first prepared in English and then translated into Tigrigna.

To collect the information, six enumerators and three guides (from Kbelles) were recruited on daily basis. Enumerators were 12^{th} grade complete that made the one day induction and the collection process went smoothly. In addition, the researcher was supervising and coordinating all the data collection process.

2.3. Sample size

The sample size the researcher used was determined using the minimum sample size formulae of Fowler (2001) cited in Esubalew A. (2006).

Let assume that the poverty incidence in the study area is 0.31 [7]=P taken from a study in Mekelle (2005), the two-tailed critical value at 95 percent confidence interval given by $\frac{Z\alpha}{2}$ is (1.96)and M_r is marginal error between the sample and population size (0.05)

Then, the sample size, n is given:

$$n = \left[\frac{\left[\frac{Z\alpha}{2} \right]^2 P(1-P)}{(M_r)^2} \right]$$

$$n = \left[\frac{[1.96]^2 0.31(1-0.31)}{(0.05)^2} \right] = 200.4 \text{ approximated to } 200$$

[7]P=0.31 is the head count index of Mekelle city in 2008 adjusted with the decline rate of poverty in Mekelle (G/medhin and Whelen, 2007) and considered as a proxy measure to the study area as researches were not carried out to measure the incidence of poverty in Wukro.

Thus, the sample size for my study was 200 and the researcher used the proportionate stratified probability sampling technique from all the three kebeles of the wereda. Accordingly, from the registry-frame of kebelles, 51 percent of the share was covered by Hayelom, followed by Agazi (26.5 percent) and the remaining 22.5 percent was allocated to Dedebit.

To select the households to be surveyed, the registry-frame works of kebeles were used and systematic sampling technique was employed, ie, the K^{th} household head was selected using the formula:

$$K = \frac{N}{n}$$

Where K is the K^{th} household from the list

N is number of households in the kebelle and

n is the proportionate size (sample size) from each kebelle to be surveyed.

2.4. Methods of data analysis

Basically the analysis and presentation of the study is quantitative. In the first part, the researcher used descriptive statistics (percentages, frequency, means, and poverty indices); and are presented using Tables, charts and graphs.

Determinants of poverty in Wukro were analyzed, in the econometric analysis part, using the logit regression model.

Moreover, due to the growing importance to utilize software packages, the researcher analyzed the data with the help of SPSS version 16, Stata Version 10 and DASP version 2.

2.5. Model specification

The study was conducted using both scientific models and descriptive analysis. Simple dispersion and central tendency measures are utilized to describe some points in the study. The scientific models more significant for my study are the following:

2.5.1. Poverty Analysis

The researcher analyzed poverty of the study area using, the expenditure approach[8] , the one developed by Foster, Greer, and Thorbecke (1984) known as FGT Index which is commonly applied for poverty analysis (Fredu, 2008).

The three measures of poverty in the FGT index are the Head Count Index (P_0) which depicts number of population who are poor, Poverty Gap Index (P_1) which measures the extent to which individuals fall below the poverty line (the poverty gaps) as a proportion of the poverty line and Poverty Severity Index (P_2) that demonstrates not only the poverty gap but also the inequality among the poor (WBI, 2005).

Let $\boldsymbol{Z}$ be the poverty line, $\boldsymbol{Y_i}$ is the actual Expenditure or income(adult equivalent) of individuals below the poverty line, $\boldsymbol{N}$ is number of people, $\boldsymbol{q}$ is the number of poor people normally those below the poverty threshold, $\boldsymbol{\alpha}$ is poverty aversion parameter[9](Fredu,2008; Tassew *et al.*,2008;Tesfaye ,2006; andWBI,2005) .

Then, the FGT or Pα is given by:

$$P_{\alpha}(Z,Y) = \frac{1}{N}\sum_{i=1}^{q}\left[\frac{Z - Y_i}{Z}\right]^{\alpha}$$

Therefore, if the value of α =0, the FGT or the Pα becomes the Head Count Index (P_0) yet when α has value 1, Pα is the Poverty Gap Index (P_1).

2.5.2. Income Inequality

The researcher computed income inequality of the study area using the popular measure of inequality, Gini coefficient (GC).[10] Let X_i be a point on the cumulative percentage of population that lies on the horizontal or (X-axis) and Y_i is a point of cumulative percentage of expenditure

[8]The rationale for adopting the Expenditure approach to analyze the poverty is due to the fact that consumption is believed to vary more smoothly than income , It is based on long term perspectives not on short term ways and consumption is more readily observed ,recalled and measured than income and people hesitate to expiating their income(WBI,2005).

[9]**α** is value given by researchers(0, 1, or 2) to determine the degree to which the measure is sensitive to the degree of deprivation for these below the poverty line and higher values of α shows greater weight is placed on the poorest section of the society.

[10]The Gini coefficient (GC) is derived from the Lorenz curve, which sorts the population from poorest to richest, and shows the cumulative proportion of the population on the horizontal(x- axis) and the cumulative proportion of expenditure (or income) on the vertical(Y- axis). It has values 0-1 which shows perfect equality (GC=0) and perfect inequality (GC=1).The rationale to employ the Gini coefficient as a measure of inequality is due to the fact the it satisfies the basic criteria of a good inequality measure like Mean and population size independence, symmetry, Pigou-Dalton Transfer sensitivity(WBI,2005)

plotted on the vertical or Y-axis, then the Gini coefficient(GC) is given by the formula WBI,2005;Tesfaye,2006; and Tassew *et al*.,2008.

$$Gini(GC) = 1 - \sum_{i=1}^{N} \left(X_i - X_{i-1}\right)\left(Y_i + Y_{i-1}\right)$$

Where Xi is value on the cumulative percentage of population

Yi is value of cumulative percentage of expenditure

N is sample size

2.5.3. Determinants of Poverty

Econometrics models are very useful tools that enable to assess the relationship between the regressed and explanatory variables and determine their significance. Therefore, the accuracy and relevance of any policy implication or generally research results mainly depend on the proper specification of the model.

To determine the factors influencing urban poverty, we employed the Logistic Regression model, with the dependent variable (Poor or non poor) being dichotomous variable[11]. If the explanatory variables are qualitative (categorical variable), the Logit model is the appropriate one (Gujirati, 2006).

The explanatory variables considered in the analysis were demographic (sex, age, marital status of the head, family size), educational level, occupation, health, house owner ship, water service, electricity, telephone , credit services, saving, family remittance, number of productive numbers and dependency ratio.

Therefore, in the case of a binary poverty status (*i.e.* being poor or non-poor), let the underlying response variable **y***is defined by the regression relationship (Lilongwe *et al*., 2001, Maru, 2004;Alemayoh *et al.*, 2005;Esubalew, 2006; and Mok *et al.*, 2007):

$$y_i^* = \beta_i X_i + U_i \quad \text{.....1}$$

Where y_i^* is the status of household i

[11]Logit model is applicable for qualitative binary variables that have two out come, ie. Y=1 if the household is poor and Y=0 if the household is non poor

β_i is set of coefficients

X_i is set of explanatory variables(determinants), U_i is the error term and

i represents households that run from 1 to n

Thus, as y* is latent variable, what is observable is an event represented by a dummy variable *y* defined by:

y =1 if $y^* > 0$, and

y =0 otherwise…….2

So, the response of the variable is binary, taking two values, 1 if the household is poor, 0 if not .The probability of being poor depends on a set of variables X so that,

$$\Pr ob(y_i = 1) = F(\beta X) \text{ and}$$

$$\Pr ob(y_i = 0) = 1 - F(\beta X) \text{ .....3}$$

Where F is the cumulative distribution function for the error term U_i

Therefore, our Logistic regression model is given by:

$$Logit(P) = \ln\left[\frac{P}{1-P}\right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_n X_n \text{ ……4}$$

Where β_1, $\beta 2$…….β_n are the predictor variables age of household, size of household, educational level of the household head etc and P is probability that the household is poor.

Sex of the head: Refers to the gender of the head of the household. It is hypothesized that households headed by female has greater probability of falling to poverty (1 if male is the head, and, 0 otherwise).

Education level of the head: Refers to the level of education of the head of the household with dummy (literate=1, & 0 otherwise) it is hypothesized that the probability of the household being poor decreases with increase in the educational attainment level of the household head.

Marital status of the head: Represents marital status of the head. Married heads and living together are (1= live together and, 0 otherwise) more likely to escape poverty than their counter parts. This is due to the fact that couples can lead their families cooperatively compared to those who are living without their partners.

Age of household head: This refers to the age of the household head. As capital and experiences have been accumulated at older ages, it is hypothesized that households' heads at older ages have lesser probability of falling to poverty.

Family size: Indicates to the number of individuals living in the household. In this study, it is hypothesized that households with larger size have more probability of falling into the poor category than those with lesser family size.

Employment: Refers whether the household head is employed or not. Employment of the head negatively affects poverty; with dummy (1=unemployed and 0, otherwise).

Productive members: Refers to members in the age range of [14-65] that can join the labor force. Taking this age range; it is hypothesized that having large number of productive members correlates negatively with poverty.

Dependency ratio: Refers to the ratio of number of members out of 14-65 age categories to productive age group. It is hypothesized that dependency ratio positively correlates with poverty.

Remittance: Represents whether the household head gets remittance or not (1 = yes, and 0 otherwise). As remittance fills the income deficit of the households, assuming ceteris paribus, it is hypothesized that households receiving remittances have lesser probability of falling to poverty.

Saving: Refers whether the household has monthly deposit (saving) or not. As saving is money left from consumption, it is needed for further investment or security. It is hypothesized that households that did not have saving are much vulnerable to poverty (1= have not saving, and 0 otherwise).

House: Refers to the owner ship of the house the family live in (1 if own house and, 0 otherwise). It is hypothesized that households having their own houses have lesser probability of falling to poverty.

Access to credit: Refers to the access of the household for institutional credit service. As credit serves to fill the financial demand of households to participate in businesses, it has the power to increase income. Then, (1= if the household take credit and 0, otherwise); it is hypothesized that households which take loans (credits) are more likely to escape from poverty.

Access to water: This refers to the availability of tap water in the compound. There will be one dummy in this variable. Those who do have private tap water in their compound take the value of 1, and 0 otherwise. It is hypothesized, in this study, that the probability for households to be poor is low if it has private tap water in his or her compound.

Access to electricity: Refers whether the household has access to have his/her own electric meter. As cost is incurred to have electric meter and expanding polls, poor households were hesitated to own it. Therefore, it is argued that households that do not have electric meter has higher probability of falling to poverty (1=if household own electric meter, 0 other wise).

Access to health: Refers to the medication center that households visit if they sick. Poor households have greater incidence of sickness because of poor diet, sanitation, housing and the likes that force them to visit government health centers.

Therefore, it is hypothesized that households visiting government health centers while sick have higher probability of falling to poverty (1 if the household visits government's health stations and 0, otherwise).

Access to telephone: Refers to the subscription of telephone services by the household. Having a dummy 1 if the household is phone subscriber and 0, otherwise; it is hypothesized that households having telephone at their home have higher probability of escaping from poverty.

Chapter Three: Conceptual Frameworks and Review of Related Literature

3.1. Conceptual Frameworks of Poverty

As a concept, "poverty" has its origins in social ethics and thus belongs to the field of political philosophy, on which the theory of the arrangement of society is based. It subsequently found itself in the centre of the economic theory of social choice (Boccanfuso, 2004).

Poverty is “prominent deprivation in well-being.” The conformist view sees largely in monetary term, links well-being primarily to control over commodities, so the poor are those who do not have enough income or consumption to put them above some adequate minimum threshold (WBI, 2005).

In the broadest approach to poverty focuses on the capability of the individual to function in society; the poor have inadequate income, poor education, weak health, feels power less, lack of political freedom, therefore, and they are in short of key capabilities (Ibid).

3.1.1. Definitions of Poverty

Literatures on the definition of poverty provide many different interpretations. Based on different definitions, different implications on the incidence of poverty and policy analysis have been drawn.

Constance F. *et al.,* (1995) define poverty as economic deprivation. A way of expressing this concept is that it pertains to people's lack of economic resources (e.g., money or near-money income) for consumption of economic goods and services like food, housing, clothing, education and transportation.

The World Bank (2007) defines poverty as "the inability to attain a minimum standard of living.”

Lipton and Ravallion (1993) defines that poverty exists when one or more persons fall short of a level of economic welfare believed to comprise a reasonable minimum, either in absolute sense or by the standards of a specific society.

Townsend (1979) cited in Esubalew(2006) defines poverty when individuals, families or groups in a society lack adequate resources to satisfy their wants and needs, or else to participate in the activities and have the living conditions and amenities, which are common to the society.

Different scholars came up with different conceptualization of poverty. For instance, Grieson(1973) cited in Esubalew(2006) conceptualizes poverty and specifically urban poverty as a low quality in health care, housing, calorie intake, clothing, recreation, education, entertainment, furniture, transportation, political representation and justice.

Some scholars also recognize poverty using the livelihood approach. This approach to urban poverty refers to the ensemble of activities that a household or an individual regularly undertakes and entitlements it makes claims in order to sustain a given standard of living. This captures not only the measurable income, which most literatures suggest, but also about types of capital or assets up on which livelihoods are built and households and individuals strive to get in order to achieve necessary outcomes (Meron, 2002).

Poverty in developing countries, like Ethiopia, is too often conceptualized as mass poverty implying a situation where more than half of the total population of the country lives in poverty.

Its concept in rural and urban areas, though have some common sharing, surly, have different meanings (Ibid).

3.1.2. School of thought on poverty

In literature there are three main schools of thought concerning the definition and measurement of poverty. These are the welfares school; basic needs school, and capability school (Garza, 2001; and Yared, 2005). These schools although perceive poverty differently, there are areas in which they share some common meaning, which is all of them judge a person to be poor whenever he/she is lacking with respect to reasonable minimum standard.

3.1.2.1. The Welfares School

This approach refers to the numerous microeconomic precepts and postulate that economic actors are rational and that they behave in ways to maximize their benefit, in other words, the welfare or satisfaction that they derive from their consumption of goods and services. In this

scene, the role of the government should be limited, even though it is still possible for the government to implement mechanisms that increase individual's benefit and to measure aggregate social benefit. In this sense, the welfarist approach will be favorable to the implementation of economic policies oriented primarily towards increasing productivity, employment and income growth (Esubalew, 2006).

The welfares school relates definition of poverty to the economic well-being of the society. It assumes that when societies are not able to attain a level of economic well-being deemed to constitute a minimum by the standard of that society, and then a person faces poverty. It sees income as a determining factor for the presence of poverty (Dorothée B., 2004; and Yared, 2005). Nevertheless, this approach has been criticized in two grounds[12] (Garza, 2001; Fitsum T., 2002; and Dorothée B., 2004).

3.1.2.2. The Basic Needs School

This school defines poverty when one lacks basic needs (goods and services). It concentrates on the degree of fulfillment of basic human needs in terms of nutrition, food, health, shelter, education, transport and so on. Yared (2005) tried to explain the limitation of basic needs approach as a definition and measure of poverty. He argues that the set of basic goods and services is different for different individuals depending on age, sex, type of activity, etc. of individual that is under consideration. One of the basic problems he cited is how to determine the set of basic needs. There is even a high disagreement among professionals on the determination of basic needs.

3.1.2.3. The Capability School

What is emphasized in this school is neither the economic well-being nor the basic needs deemed to satisfy the minimum standard by the society; it is nevertheless, human abilities or capabilities

[12]First, it is subjective in nature. If economic welfare was observable, the poor could be identified on the basis of interpersonal comparisons of economic welfare, which makes no sense to many.

Second it raises a problem of ethics. With this approach, an individual who is materially prosperous but not fulfilled (according to his or her own criteria) should be classified as poor, whereas an individual, who is not financially prosperous but nonetheless fulfilled, will be considered not poor. This does not happen, however, since as we have just seen, the welfarists use income to identify the poor because of their inability to observe economic welfare.

to achieve a set of functioning. This is an alternative criterion for the definition and measurement of well-being which tells the extent to which people have capabilities to be and to do things of intrinsic worth. Sen (1987) wrote that the "value of the living standard lies in the living, and not in the possessing of commodities". Such an approach to the definition and /or measurement of poverty suggests a broader set of criteria for assessing poverty than just income and/or consumption. The measure is said to include publicly provided but non-marketed services; like, sanitation, health care, education & life expectancy.

Sen (1987) also introduced the notion of capabilities in poverty definition and assessments. He defined poverty not only as a matter of low level of well-being, but also as lack of ability to chase well-being specifically because of lack of economic means. He favored the capability to function as criteria for assessing standard of living, and by implication poverty rather than the utility that might be derived from using that capability. However, the difficulties of this method lie in the application of the concept of capabilities in practical poverty assessments. This school assumes that if one is devoid of the right to participate and does not perform the functioning's, he/she is considered to be poor. It is said that it neither offered a practical criteria for evaluating the various capabilities to function nor sought any aggregation of social values of separate capabilities (Sallila S., and Hiilamo H., 2004). Thus the availability of different definition of poverty, which is in turn a result of the multifaceted concept, had lead to the availability of different definitions of poverty line.

3.1.3. Poverty Lines and Types

A poverty line is defined, based upon a minimum level of consumption, normally as the cost of a bundle of goods (both food and non-food) deemed to assure that basic consumption needs are met and below which survival is threatened (Caroline Moser *et al*., 1996; and Anthony *et al*., 2009).

More formally, the poverty line for a household may be defined as the minimum spending or consumption (or income, or other measure) needed to achieve at least the minimum utility level given the level of prices and the demographic characteristics of the household. Therefore, Poverty measurement generally assumes that there exist predetermined and well-defined standards of consumption which must be reached if a person is not to be deemed "poor"(Ravallion, 1992; and WBI, 2005).

The choice of poverty line differs from country to country as it depends on the use to which it will be put. For international comparisons the $1/day standard is helpful, while for targeting the poor a relative poverty line be sufficient. Therefore, the appropriate choice of poverty line is a matter of judgment (WBI, 2005).

Thus, three types of poverty lines are dominant in most poverty literatures (David H. *et al.*, 2001; Metalign, 2005; WBI, 2005; and Esubalew, 2006); and details are stated below:

3.1.3.1. Absolute Poverty Line

It is known as objective poverty line and is fixed in terms of the standard of living it commands over the domain of poverty comparisons. Absolute poverty line should not be defined as rigorous poverty line rather it should be the one which is fixed in terms of the living standards indicator being used and over the entire domain of the poverty comparison with two persons at the same real consumption (Ravallion, 1992; Constance F. *et al*., 1995; WBI, 2005; Esubalew, 2006; and Anthony *et al*., 2009).

An absolute poverty line remains fixed over time yet adjusted only for inflation. It is perceived as subsistence below the minimum requirements for physical well-being, generally based on a quantitative proxy indicator such as income or calories, but sometimes taking into account a broader package of goods and services (David H.*et al.,* 2001).

An absolute poverty line is indispensable to measure the effect of poverty reduction policies and programs over time, or to estimate the impact of projects on poverty. Legitimate comparisons of poverty rates between one country and another can only be made if the same absolute poverty line is used in both countries. Thus, the World Bank needs absolute poverty lines in order to be able to compare poverty rates across countries, which in turn is useful in determining where to channel resources, and also in assessing progress in the war on poverty(WBI,2005).

One of the common weaknesses of an absolute poverty line is it does not change with the living standards of the society in question. Thus, people are labeled "poor" when some absolute needs are not sufficiently satisfied, that is, needs that are not related to the consumption pattern of other people in a given society (Esubalew, 2006).

3.1.3.2. Relative Poverty Line

Relative poverty line defines how income and inequality is distributed in a society. It perceives poverty as a function of relative deprivation in terms of commodities, defining poor households as those that are unable to attain given commodities that are normal for their society (Garza 2001 and Esubalew, 2006). The statement itself is self intuitive in that this poverty is defined by the position of an individual compared to other members of a given society. Poverty is discussed here as the share of people whose equalized income falls below a poverty line. In practice, the most popular choice to set poverty line in this method is done by taking certain percentage of mean or median incomes of the population. Therefore; a measure of relative poverty defines "poverty" as being below some relative poverty threshold (Sallila *et al.*, 2004; Morduch J., 2006).

Many studies in wealthier countries, on the other hand, set poverty lines based on relative Standards on certain percent of the national mean income. In Britain, for example, the poverty line is 60 percent[13] of the median income level (after taxes and benefits and adjusted for household size), an approach adopted broadly in the European Union.

The difficulty of defining relative poverty-line stems from the assumption which states the poverty line to be a constant proportion of the mean. The implication of this assumption is the elasticity of the poverty-line and the mean is unity. However there are phenomenon where this might not hold true (Ravallion, 1992). Taking this spat in mind, a poverty line in this procedure is computed with the following formula.

$$Y = \beta X$$

Where, Y is the poverty line, β for some constant (0.5[14]) and X indicates the mean or median income of the distribution on which poverty is measured. The measure of poverty which is solely dependent on the parameters of Lorenz curve is stated as P (K, L). However, this measure is a good measure of relative poverty to the extent that one is trying to capture the amount of inequality in that distribution (Ravallion, 1992; WBI, 2005; and Esubalew, 2006).

[13]In 2002/2003, the Britain poverty line was $28,418 per year ,£283 per week based on 2003 exchange rates, for a household with two adults and two children, absolute poverty line (2003) in United States was $18,400 per year which is considerably low compared with UK for a similar family(Morduch J., (2006)

[14]It is a constant coefficient given to the mean or median income as often used in the European studies

This approach is suffering from major shortcomings. First, it lacks clarity as to whether it is an indicator of poverty or measurement of income inequality. Secondly, the approach is entirely reliant on the value decision of the researcher that it is hard to monitor poverty over time or space. Thirdly, the relative poverty line is essentially quite arbitrary and always assumes a constant per cent of the population in the bottom as poor, even if living standards for the whole population have risen over time. Fourthly, such a method is technically feasible only for developed countries (Metalign, 2005; and Sallila *et al.*, 2004).

In general, poverty in this context is defined as a relative deprivation with respect to various commodities. Hence, households or individuals are said to be "poor" when they lack certain commodities that are common in the society where they live. Nevertheless, the relative importance of studying poverty as comparative phenomena is justified as modern societies meet head-on economic liberalization, ageing population, marital dissolution and increased labor force involvement by women. Relative poverty is a concern of developed countries where as measuring absolute poverty is the main aim of least developing countries, like Ethiopia (Ravallion, 1992).

3.3.1.3. Subjective Poverty Line

The 'subjective' approach to understanding and measuring poverty argues that poverty and ill-being must be defined by 'the poor' or by communities with significant numbers of poor people.

The concept of subjective poverty is based on the premise that people are the best judges of their own situation and that their opinions should ultimately be the decisive factor in defining welfare and poverty (Mekonnen T., 1999). The approach explicitly recognizes that poverty lines are inherently subjective judgments people make about what constitutes a socially acceptable minimum standard of living in their own societies (Ravallion, 1992; and Yohannes K., 1996).

Subjective poverty measures are therefore based on responses of individuals to attitudinal questions on household income and welfare like 'what level of income do you personally consider as absolutely minimal? In your inspection, is the household income ample to meet the households needs?'

There is no guarantee for individuals similar in all respects to provide similar responses to the same question, and hence, does not ensure consistency. Furthermore, the application of this approach has been confined to developed countries of the West. This is because the concept of

income on which the procedures are anchored is hard to define in a developing country context, where rural income is predominantly and largely subsistent (Metalign A., 2005).

3.1.4. Setting Poverty Lines

In the analysis of poverty, the starting point is the identification of the poor from the non –poor. To deal with this, poverty line plays a vital role in quantifying the various indicators of well-being into a single index (Ravallion, 1992). Even though the choice of poverty line is always arbitrary from country to country, the common argument is that, there is a minimum level of consumption of goods and services below which it is difficult to sustain our life. Hence, in order to get the poverty line, it demands meticulous work in that the level and type of goods and services must be precisely identified.

Thus, the most popular measures of poverty lines are constructed on the basis of three methods; the Cost of Basic Needs, Food Energy Intake method and Direct Calorie Intake (Fitsum T., 2002; Metalign, 2005; Tassew *et al.,* 2008; and Anthony *et al.*, 2009).

3.1.4.1. Cost of Basic Needs Approach (CBN)

The cost of basic needs approach begins with a nutritional threshold chosen to reflect minimal needs for a healthy life, adjustments are then made for non-food expenses like housing, clothing and social values and applicable if the price information of the goods and services consumed by the poor is easily available (WBI ,2005;and Morduch J.,2006).

The definition of basic needs is believed to be a socially determined normative minimum to avoid poverty, and the cost of basic needs is then closely similar to the idea of a legal minimum wage rate.

Suppositions about the fundamental nutritional requirements[15] vary considerably around the world, and almost all adopting nutritional standards set by the World Health Organization and Food and Agriculture Organization and others also set standards based on inputs from national

[15]With the standards set by WHO/FAO, the minimum calories requirements vary from country to country specified by age, gender, weight, Environment and activity level. For instance, In Armenia, Ethiopia and Vietnam, the minimum threshold is set at 2,100 calories per person per day, with no adjustment for age, gender, or location. In Senegal, on the other hand, they use a threshold of 2,400 calories per adult per day (whether man or woman, with lower thresholds for children).
In Kenya, the standard is 2,250 calories for adult men, with lower thresholds for others yet, the minimum for adult men is increased to 2,700 calories in Sierra Leone and the Gambia (WBI, 2005).

experts. Therefore, CBN computation utilizes the following main steps (WBI, 2005; Metalign, 2005; and Morduch J., 2006; and Gaurav D., *et al.,* 2006).

- ✓ Single out a nutritional requirement for good health
- ✓ Specify a consumption bundle that is expected to be adequate
- ✓ Estimate the cost of the bundle for each subgroup (urban/rural, each region, etc.)
- ✓ Add a non-food component which are expected to be adequate

Thus, accordingly, basic needs poverty line is the arithmetic sum of food poverty line and non-food poverty line (Ravallion, 1992; Fitsum T., 2002; WBI, 2005; and Morduch J., 2006) mathematically:

$PL = P_{LF} + P_{LN}$, Where PL is the poverty line

P_{LF} is the food poverty line and

P_{LN} is non- food poverty line

3.1.4.2. Food Energy Intake Approach (FEI)

This approach places the poverty line as the income or consumption expenditure level just sufficient to meet a predestined food energy intake to an individual. The level of FEI, strongly, influenced by so many factors and preference, activity, age , sex of an individual and consumption habit are the most influential ones. The poverty line now can be constructed after treating these differences and valuing the costs of attaining the predetermined FEI level. This could be computed by finding the consumption expenditure[16] or income level at which the person attains the food energy level yet most scholars argue that consumption will be a better indicator of well-being (Esubalew, 2006).

Therefore, the food energy intake method (WBI, 2005) is utilized as an alternative method to construct the poverty line by researcher if price data are not available. As CBN, the goal here is

[16]Primarily consumption is a better indicator of well-being due to the question of access, and availability of goods and services apart from the issue of income needed to get those goods and services. Secondly, consumption may be measured better than income. Third, Consumption or expenditure may also better reflect households' actual standard of living and ability to meet basic needs. Thus, consumption expenditures indicate not only command of goods and services but also access to credit markets and savings in times of lower or even negative income level (Boccanfuso, 2004; and WBI, 2005).

to find the level of consumption outlay (or income) that allows the household to obtain enough food to meet its energy requirements.

Tassew *et al.,* (2008), states that this method out ways, as it provides monetary value, the direct caloric intake method but failed to yield consistent thresh hold across groups if it is applied to different time period and regions in the same country.

3.1.4.3. Direct Calorie Intake Method

In the direct caloric intake method, the poverty line is defined as the minimum calorie requirement for survival. Individuals who consume below a predetermined minimum calorie intake are considered to be poor. However, this approach does not account for the cost of obtaining these calories and ignores nonfood needs (Tassew *et al.,* 2008).

3.1.5. Measures of Poverty

Measuring poverty is most imperative and challenging as putting agreeable definition is not realized. It mainly entails enabling poverty comparisons that are needed for the purpose of assessing a country's progress in poverty alleviation and/or evaluating policies and projects. There are a lot of instruments that used to measure the type and extent of poverty in a given society (Ephrem, 2006).

There are lots of measures of poverty and all options have their own weak and strong points. The presence of a lot of instruments, though, each with some drawbacks, nevertheless, helps us to see the type and extent of poverty in a given society (Ravallion, 1992; Fitsum T., 2002; and Morduch J., 2006).

Kimalu *et al*., (2002) pointed out that one poverty measure that has been found dominating literatures of poverty analysis and manageable in presenting information on the poor in an operationally convenient manner is the FGT (Foster, Greer and Thorbecke) measure developed by Foster *et al*., (1984).

This measure is used to quantify the three well-known elements of poverty: they are the headcount (H) index, the poverty-gap (P_G) index, and the severity of poverty (P_S measure) index (Ravallion, 1992; Aigbokhan, 2000; WBI, 2005; and Tassew *et al.*, 2008).

3.1.5.1. Head-Count Index (H)

It is a measure most widely used in poverty analysis and is given by the percentage of the population living in households with consumption per capita less than the poverty line (Z) and mostly known as incidence of poverty. Despite simplicity to construct, understand and interpret are its greatest virtues, the headcount index fail to address some important points[17].

Representing Q as the number of people earning income below the poverty line, N is the total population, and then the Head Count Index (H) is given by (WBI, 2005; and Tassew *et al.,* 2008):

$$H = P1 = \frac{Q}{N} \text{..... .... } e_1$$

Therefore, this can be rewrite $\mathbf{e_1}$, as follows, introducing I[18], Y_i is expenditure or income and Z is the poverty line, then;

$$H = P0 = \frac{1}{N}\sum_{i=1}^{Q} I(Y_i < Z) \text{.....} e_2$$

3.1.5.2. Poverty Gap Index (PG)

Fitsum T.,(2002)and Tassew *et al.*,(2008) defined PG as the mean distance below the poverty line expressed as a proportion of that line, where the mean is formed over the entire population, with the non-poor counted as having a zero poverty gap. Then, it measures how far an individual's income falls short from the poverty line. Since this index is based on the aggregate poverty deficit of the poor relative to the poverty line, it is by far better than the Head Count Index and is known as moderately popular measure of poverty.

Moreover, relative and proportion to the poverty line, this measure is considered as an indicator of the cost of eliminating poverty, because it shows the amount of money needed to bring the incomes or expenditures of the poor up to the poverty line seeing that the minimum cost of

[17] WBI(2005) put the weakness of the Head Count Index as its failure to take the intensity of poverty into account, tells us nothing what the depth or severity of poverty is, it is unchanged if a poor individual becomes poorer and the poverty estimates should be calculated for individuals and not households

[18] I is an indicator function that takes on a value of 1 if the expression $Y_i < Z$ is true, and 0 otherwise

eliminating poverty using targeted transfers is simply the sum of all the poverty gaps in a population (Ravallion, 1992; WBI, 2005; and Ephrem, 2006).

Therefore, taking the above representing style of variables and defining the poverty gap (*Gi*) as the difference of poverty line (*Z*) and the actual income (Y*i*) for poor individuals and the gap is assumed to be zero for everyone else, Mathematically, PG is computed as follows (Ibid):

$$PG = P1 = \frac{1}{N}\sum_{i=1}^{Q}\left(\frac{Gi}{Z}\right)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots e_3$$

$$\text{Where } Gi=(Z-Yi)I(Yi<Z)$$

$$= \frac{1}{N}\sum_{i=1}^{Q}\left(\frac{Z-Yi}{Z}\right)$$

3.1.5.3. Poverty Severity Index (PS)

It is also known as squared poverty gap index or the Foster-Greer-Thorbecke index, measures severity of poverty by squaring and averaging the gap between the income of the poor and poverty line. Unlike the poverty gap index, this measure reflects the severity of poverty in that it is sensitive to inequality among the poor (Fitsum T., 2002; WBI, 2005; Esubalew, 2006; Tassew *et al*, 2008; and Fredu, 2008).

Some scholars use the poverty severity index as a tool to construct a measure of poverty that takes into account inequality among the poor and by squaring the poverty gap index (PG) stated above.PS implicitly puts more weight on observations that fall well below the poverty line (WBI, 2005).

Therefore, taking the above labeling method, the PS is given by:

$$PS = P2 = \frac{1}{N}\sum_{i=1}^{Q}\left[\frac{Z-Yi}{Z}\right]^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots e_4$$

Generally, we can develop the three measures of poverty, Head Count Index, Poverty Gap and Poverty Severity, and taking the above stated labeling of variables and taking **α** is poverty

aversion parameter[19], then, FGT(P_α) is given by the formula(Tesfaye ,2006, Fredu,2008 and Tassew W. *et al*,2008,):

$$P_\alpha(Z, Y) = \frac{1}{N}\sum_{i=1}^{Q}\left[\frac{Z - Y_i}{Z}\right]^\alpha$$

Therefore, if the value of α =0, the FGT or the P_α becomes the Head Count Index (H) or $\mathbf{e_1}$, when α has value 1, P_α is the Poverty Gap Index (PG) or $\mathbf{e_3}$, and when α has value 2, it definitely reflects the poverty Severity (PS) or $\mathbf{e_4}$ above.

3.1.6. Inequality Measures

Income inequality indicates the extent to which distribution of income in an economy differs from that of equal shares among the population. It is concerned with relative variations in standards of living in the whole population. Discussions on inequality focus mainly on the more easily observed inequalities in outcomes such as income, expenditure, employment and education (Anthony *et al.*, 2009).

Despite there are lots of measures of income inequality which satisfies the criteria of good inequality measure, the focus of this thesis rests on Gini coefficient (GC)[20].

3.1.6.1. Gini coefficient as a measure of inequality

Gini coefficient is the most common indicator for measuring inequality in household income or consumption. To analyze the distribution of income, it utilizes the notion of the Lorenz curve, a cumulative frequency curve that compares the distribution of a specific variable (e.g. income) with the uniform distribution that represents equality (Ravallion, 1992; and Haughton and Khandker, 2006).

[19] **α** is value given by researchers(0, 1, or 2) to determine the degree to which the measure is sensitive to the degree of deprivation for these below the poverty line and higher values of α shows greater weight is placed on the poorest section of the society.

[20] The rationale to employ the Gini coefficient as a measure of inequality is due to the fact the it satisfies the basic criteria of a good inequality measure like Mean and population size independence, symmetry, Transfer sensitivity(WBI,2005)

To construct the Lorenz curve, the cumulative percentages of income are plotted on the horizontal axis (X_i) while the cumulative share of total income received by each percentage of the population is plotted on the vertical axis (Y_i). Along the diagonal line, the percentage of income received is equal to the percentage of income recipients. This is the line of equality in the distribution of income (WBI, 2005; Tassew *et al.,* 2008; and Anthony *et al.,* 2009).

Therefore, the Gini coefficient is given by the formula:

$$Gini\ (GC) = 1 - \sum_{i=1}^{N} \left(X_i - X_{i-1}\right)\left(Y_i + Y_{i-1}\right)$$

However, when there are N equal intervals on the X-axis, the above equation (GC) becomes;

$$Gini\,(GC) = 1 - \frac{1}{N}\sum_{i=1}^{N} \left(Y_i + Y_{i-1}\right)$$

Gini coefficient is calculated in per capita basis, it recapitulates how equal or unequal income or expenditure distribution is there; and higher value of Gini coefficient reflects higher inequality, while a low value indicates less inequality [21](John J., *et al.,* 2006; and Sutyastie S.M., *et al.,* 2007).

[21]Gini Coefficient has values 0-1 which shows perfect equality when GC=0 and perfect inequality if GC=1

3.2. Review of Related Literature: Empirical Evidence

3.2.1. Urban Poverty

The measurement and analysis of poverty and inequality is critical for understanding peoples' state of well-being and factors determining their poverty situations. The results of the analysis are to be used to inform policy making so that it could be used in designing appropriate policy interventions and for assessing effectiveness of on-going policies and strategies of a country.

Today's experiences of worldwide urbanization are as dramatic in their revolutionary implications for the history of civilization as were the earlier agricultural and industrial revolutions. In more developed countries urbanization accompanied and was the consequence of industrialization and economic development. However, in least developed countries, Africa and Latin America, urbanization has occurred primarily as a result of industrial and economic growth and in many countries it has occurred primarily as a result of rising and unrealistic expectations of rural people who have flocked to the cities seeking to escape misery of life (Stanley D.B., *et al.*, 2003).

As a result of urbanization, the population residing in urban areas has increased from time to time with growth rate in least developed countries outweighing that of the developed world. The world's urban population reached 2.9 billion in 2000 and is expected to increase to 5 billion by 2030. Whereas 40percent of the world population lived in urban areas in 1950 that percentage increased to 47percent by 2000 and will increase further to 60percent by 2030(Stanley D.B., *et al.,*2003).

Rising population levels in urban areas is exerting increasing pressure on the labour market, housing, and social capital in cities. By 2025 more than half of the Sub-Saharan Africa population is expected to live in urban areas. Already 45percent of national populations in West Africa are urban-based (Ursula G., 2006).

In African cities populations have expanded in the absence of industrialization and national economic growth. The basic needs of urban dwellers (food, water, sanitation, health and security) can extend beyond the city's product and service supply, reflecting economic constraints, lack of settlement organization and inadequate political governance.

Urban poverty is associated with heterogeneous economic and social factors. The heterogeneity of poverty in urban locations could be attributed to the high monetization of economies in such localities. Therefore, urban poverty is defined at an individual level rather than communal level. Thus, poverty in this manner is usually expressed in terms of occupation, income, and consumption and employment category (Esubalew, 2006).

3.2.2. Growth and Inequality in Urban Areas

Growth could be usually beneficial in reducing the proportion of the poor, their poverty gap and severity, if it raises the income of the poor by the pace as it is expected to raise the income of everybody else.

A given policy in a given country or at a given time may have affected inequality and growth to be related negatively and yet other policies in other countries or at other times may have affected positively (Fekadu Gelaw, 2009).

Inequality as measured in Gini coefficient in urban Nigeria has increased from time to time resulting from the economic fostering of the nation ,from 0.38 in 1992 to 0.544 in 2004(Aigbokhan,2008).In Ethiopia urban poverty has increased between 1994 and 1997 and resulted in deterioration of household welfare. This was in spite of the fact that the period that tends to be regarded as one of economic recovery, driven by peace, good weather. However, much improved macro-economic management and median consumption expenditure per adult equivalent declined from 100.46 Ethiopian birr to 73.4 birr, in the stated years, in all the regions of the nation (Abbi M.K., and Andrew M., 2003).

Tassew *et al*., (2008) found that while poverty remains widespread in Ethiopia, it declined strikingly over the years, 1996-2006. In these years, despite the growth witnessed in urban areas, there was substantial increase in urban inequality that reflects the fact that income growth reduces poverty but increase inequality. The computed income-poverty elasticity lies in the range of -1.7 to -2.2 in the same period (Ibid).

3.2.3. Determinants of Urban Poverty

Poverty is the result of so many factors which may be national, sector-specific, community, household or individual characteristics and is different from country to country although some similarities are observed (WBI, 2005).

3.2.3.1. Individual and household characteristics

Education

Almost all empirical studies undertaken on poverty finalized that education has a negative impact on poverty yet the magnitude differs depending on the socioeconomic situation in which the study is carried out. Zoe Oxaal, (1997) stated that there is a strong, and empirically verifiable, positive relationship across all societies between the wages and salaries people receive at work and the level of education which they have received.

Education, being a measure of human capital, is positively correlated with income. Using multivariate analysis, Aigbokhan, (2008) came across that the more educated Nigerian household heads, the less the probability that the household will fall into poverty.

Using the logit regression analysis, Mok T.Y., *et al.,* (2007) found that education is the most important determinant of poverty and, generally, there is positive relation between earnings and education in Malaysia. Alemayoh G., *et al*., (2005) using Binomial and polychotomous model, also indicates that poverty is inversely related with education in Kenya. Educational attainment of the head of the household (in particular high school and university education) is found to be the most important factor that is associated with poverty. Lack of education is a factor that accounts for a higher probability of being poor.

From the works in Cameroon, we can deduce the fact that level of education of the household head of urban residents is associated with higher consumption per adult equivalent which is directly associated with poverty. It increases in line with the level of education of the household

head, with magnitude of 11 percent when attended only primary school to 38 percent when studied at the secondary education and 75 percent at the level of higher education (NIS, 2007).

In all FGT poverty measures show that households headed by illiterate persons have greater poverty, as expected compared to households headed by literate persons. The head-count ratio at food poverty line, for illiterate household heads is about 40 percent higher than that of literate household heads which is statistically significant difference at the 99 percent confidence level (Fitsum T., 2002).

Abbi M.K. and Andrew M., (2003) also put lack of education as the fundamental factor associated with poverty in Ethiopia, and this lack of education seems to result in many chronically poor working environments and/ or low return activities, or being unemployed.

In addition, a study made in Debremarkos, by Esubalew (2006) revealed that there is a negative correlation between education and probability of being poor using the logit model; the incidence of poverty was found increasing continuously as one moves away from first degree holder to illiterate ones, with the exception of secondary school (9-12) completes.

In Ethiopia, Madagascar and Peru urban chronic poverty is related to low levels of education among household heads; households with low level of education have the highest probability to fall in to poverty (Grant, 2006).

Moreover, finding in Cameroon reflects the fact that the level of education as a key component of human capital remains a decisive factor to determine poverty. The poverty rate for households whose head has never been sent to school is 15.2 times higher than witnessed in households whose head has reached higher education (NIS, 2007).

Household size

Most empirical literature suggests that household size defined by adult equivalent units has significant negative effect on the welfare status of a household or poverty (Ranjan Ray, 1999; Mok T.Y., *et al*., 2007).

In Ethiopia poverty is directly associated with house hold size. Households with larger family size and older heads are more likely to fall into poverty than those with smaller family sizes and younger household heads. An additional household member was found to increase the probability of the household to fall into poverty by 3.2 percent (MoFED, 2002).

Fitsum T., (2002) indicated that, in Addis Ababa, poverty is strongly associated with family size and the larger the family size, the larger the dependency ratio and the highest the vulnerability to poverty.

In addition, Aigbokhan (2008) found that household size influences household welfare in Nigeria. The larger the size, the larger the resources required to meet basic needs of food and other necessities. It is, therefore, true that the larger the household size the higher the likelihood of falling among the poor.

Age of household head

Eyob F. and Mark Harris (2006)[22] conducted a research work in Eritrea and revealed that the relationship between age and probability of being poor was found to be convex to the origin which is contrary to the evidence in literature and was not found to be significant in linear terms.

Study made in Malawi, using the regression analysis, also pointed out that in the urban centers the level of household welfare does not seem to be determined by the age of the head. Therefore, there is no significant relationship between age of the house hold and the extent of poverty (NEC, NSO and IFPR, 2001).

The same result is achieved from the research work carried out by GauravD., *et al*., 2000; Fitsum T., 2002,Magnus A., *et al.*, 2006; Sonja Fagernas and Lindsay W., 2007; and NIS,2007.

On contrary, Aigbokhan, (2008), arrived at a result where age of household head influences household poverty. Welfare rises with age as more human capital (education and/or working experience) is accumulated. Income, however, tends to fall after retirement and when in old age. It is for this reason that a negative correlation is usually hypothesized to exist between income and the quadratic of age.

Gender of household head

Most literature on poverty state that the probability of a household headed by female to fall in to poverty is much greater than households headed by male due to the factors like less educated in the population, cultural values, and ethnicity and lack of physical and human capital (Fitsum T.,

[22]Employed the DOGEV model for modeling determinates of poverty in Eritrea by employing Eritrean Household Income and Expenditure Survey 1996/97 data as shown in the article entitled "Modeling Determinants of Poverty in Eritrea: a new approach",2006, P.6.

2002, Mok T.Y, *et al,* 2007). Esubalew (2006) found similar result in his study in Deberemarkos. The probability that a household will be poor when headed by females is significant at 95 confidences interval. Therefore, the probability of female-headed one is more vulnerable to the prevalence of poverty in DebreMarkos than those of male headed ones.

The same conclusion has been forwarded from the study made in Ethiopia by Grant, 2006; in Ghana by Sackey H., 2004; in Kenya by Alemayoh G., *et al.,* 2005.

However, NIS (2007) indicated that poverty seems to be more frequent in households headed by men than in those headed by women in Cameroon. Out of 10 households headed by men, at least 4 are poor but for households headed by women, the ratio is 3 out of 10[23].

Study made in Sierra Leone indicated that 67percent of female headed households fell below the poverty line, against 68 percent of male-headed households (Sonja Fagernas and Lindsay W., 2007).

Furthermore, the poverty incidence for female-headed households is lower compared to male-headed in the illiterate group in Addis Ababa. The difference between male- and female-headed households in the illiterate group is statistically significant at the 1 percent level but not in the literate group (Fitsum T., 2002).

Employment and occupation

Employment opportunity is the basis of income generation and become self reliance and able to get the means of survival and leading better life. Employment and occupation variables also correlate highly with poverty; as a result, unemployment and underemployment remain major concerns for many urban economies.

Recent studies suggest the urban poor have suffered significantly from structural adjustment through reduction in employment creation and downward pressure on real wages. Empirical literatures indicate that there is positive correlation between unemployment rate and the extent of poverty in urban areas (Rachel M., *et al.*, 1997).

In Eritrea, Eyob F. and Mark Harris (2006) found that the probability of a household being non poor is concave function of number of employed persons per household, and then unemployment was found to be positively associated with poverty. They pointed that the probability of being in

[23]This result is associated with other factors like households headed by women are smaller on average, as well as transfer payments received from third parties by these households and the low volume of expenditure outside the household(NIS,2005).

absolute poverty and moderate poverty sharply decreases with an increase in number of employed persons.

However, few empirical studies show that there is no significant difference between the poverty situation of a household whose head is unemployed and one in which the head works in the urban informal sector in Cameroon (NIS, 2007)[24].

Remittance

Remittance can be significant source of income of poor countries and huge amount of money has been flown each year from the domestic and foreign relatives, and it is found to be highly negatively related with poverty (Dean Yang and Claudia M., 2005 , Sarah B., and Lloyd S., 2006).

In spite of the fact that little attention has been paid to analyze economic impact of financial transfers, especially on economic growth and poverty, for many developing countries, such remittances constitute the largest source of foreign exchange earnings, even exceeding export revenues, Foreign Direct Investment, aid, or other private capital flows. Therefore, remittances, becomes relatively attractive source of foreign earning for developing countries (Juthathip J., 2007).

In some countries, it serves to the extent that it is difficult to differentiate the poverty situation of unemployed from employed one. Therefore, the unemployed are in a similar situation to that of players in the informal sector, in all likelihood thanks to the transfer payments they receive from relatives (NIS, 2007).

In SieraLeon, Sonja F., and Lindsay W.,(2007) stated that over 50 percent of individuals indicated that they had sent remittances to other people, and over 80 percent of those sending remittances indicated that they promised to send in the future. The majority of those sending remittances (54 percent) indicated that the recipients used the money for current consumption, with over 70 percent of the poor using the funds for necessities. Surprisingly, non poor individuals tended to receive remittances more regularly than the poor. Therefore, remittance is inversely associated with level of poverty.

[24]This is mainly due to the fact that given the lack of barriers to entry in the informal sector; people can rapidly change from one situation to another and the finical subsidies from relatives(NIS,2005)

Asset holding of household

Most empirical studies indicate that asset holdings and poverty have strong and statistically significant relationship. Households who own assets, in different forms[25], have lesser probability of being poor than those lacking them; and therefore, in urban areas having assets has a strongly negative correlation with poverty (Mekonnen T., 1999; Mok, T.Y., *et al.*, 2007; and NIS, 2007).

Dependency ratio[26]

Studies indicate that there is strong effect of household composition on household welfare and poverty. The share of children exhibits negative and significant coefficient in that households with a higher share of children are likely to have fewer income-generating opportunities than those with more adults of working age (Tilman *et al.*, 2008).

The size of the household determines to a significant extent the level of the household's standard of living. The higher the number of dependents, the more vulnerable the household is and the greater its exposure to poverty. In fact, a finding from Cameroon shows that an additional member in a household leads to a decline in consumption per adult equivalent of 16 percent in urban areas which is equivalent to aggravating poverty by that percentage (NIS, 2007) and in the case of Ethiopia by 3.2 percent(MoFED,2002).

Research results in Malaysia, Mok T.Y., *et al*., (2007), show that a higher proportion of children under 15 years of age, female and male adults in the household increases the probability of a household falling into poverty. Number of children is generally found to be associated with poverty in most studies cutting across the developing world.

In Ethiopia, nearly 50 percent of the population is constituted by those below the age of 14 and the old aged are also considerable in number in the nation. Thus, the dependents, both the youth and old, who are not productive, are the real burdens in a given household in particular and the country in general.

[25]Asset holding of house hold includes both fixed and easily convertible components of wealth which are house, car, equipments and furniture, land, machineries, shares etc

[26]It is calculated as the ratio of the number of family members not in the labor force (whether young or old) to those in the labor force in the household and reflects the burden weighing on members of the labor force within the household (WBI, 2005).

However, despite this huge amount of dependency figure in the nation, studies signify that dependency ratio has insignificant effect to determine poverty in Debremarkos (Esubalew, 2008) and Addis Ababa (Fitsum T., 2002) and in Eritrea (Eyob F., and Mark H., 2006).

3.2.3.2. Community level characteristics

Poverty is influenced by not only individual and household characteristics but also determined by community level factors.

Access to Social Services

Governments have made huge investment in social services as means to ensure the provision of quality of life for citizens and to reduce the extent of poverty in a nation or locality resulting from its multiplies effect. Households have different pace of access to social services, like health service, safe water supply and electricity, which indicates their difference in level of poverty. Therefore, households with access to improved sources of water, power and health have significantly higher consumption expenditure per adult equivalent than those without.

Most empirical studies carried out in different developing countries revealed that access to such social services is negatively correlated with poverty. Households that have access to health; safe water and electricity are highly negatively correlated with poverty (Fitsum T., 2002; Alemayehu G., *et al.*, 2005; and Eyob F., and Mark Harris, 2006).

The same result has been concluded from the works carried out in Debremarkos. Esubalew (2006) found that social services, water supply, electricity and health services are statistically significantly variables determining poverty.

Access to Institutional Credit

In richer countries, even in those where the financial sector is not as well developed as it should be, most people have access to savings accounts, mortgages, consumer credit, insurance, and money transfers, while businesses can obtain working capital and long term financing. In many developing economies, however, this kind of critical access and support is severely constrained; and, for large groups of poor people it is largely absent.

While several theoretical models have highlighted the risk that selectively increased access to credit could worsen inequality, the empirical evidence does not seem to bear out this risk. Instead, available evidence suggests that a more developed financial system tends to reduce inequality in the long run and eases level of poverty (R. Michael Barth and Cesare Calari, 2006).

Muhammad Yunus[27], argue that credit is vital for relieving poverty. Despite large part of the world lives in poverty lacking access to finance, credit allows households to borrow against future income and firms to invest which negatively affects the extent of poverty and improves income inequality in a nation (Luke S., and Rajdeep S., 2007).

In Ethiopia, a studies carried out on micro-finance institutions indicates that they have highly significant impact on poverty reduction in the nation. Therefore, that access to credit mainly solves the problems of the most vulnerable poor people, to bring out of poverty, which is strongly significant (Abebe S., 2006).

[27]The 2007, Nobel Peace Prize winner, economist, and founder of the Grameen Bank

Chapter Four: Data Analysis and Discussion

4.1. Setting poverty line

The Cost of Basic Needs (CBN) approach is employed to determine the poverty line. This approach is preferred due to the fact that current prices of goods and services have remained, almost, constant as compared with the previous year and, then, have the ability to show the real expenditure behavior of the society in Wukro. In addition, there is no such great influence on the consumption pattern of the residents because of consumption from own production as all are demanding from the market (WTPFO, 2009).

Having such rationale for the CBN, the following steps were employed to obtain the poverty line:-

1. Select the food items commonly consumed by the majority of the poor and 21 food items have been identified from the survey.
2. Each bundle of food item is weighted with the appropriate unit of measurement.
3. Each unit of food items consumed by a household in a month is divided to the corresponding AEU[28] of the household to get the amount of kilograms each adult individual gets in a month.
4. Sum all food per adult units consumed in a month to get the monthly requirement and divided by 30 days to compute the daily requirements of food for each adult equivalent unit in the household.
5. Assuming 2200kcal as the minimum calorie required per adult equivalent per day in Ethiopia, the researcher tried to estimate the cost of meeting this food energy requirement, is estimated using a diet that reflects the habit of households 2200kcal especially for those consuming in the range of 2100 -2300kcal per adult per day.

[28]AEU is the adult equivalent unit and its scale is in appendix 1

Therefore, the food poverty line is birr 155[29] per month per adult equivalent or 1860 per year which is much greater than the national food poverty line of birr 647.8 set in PASDEP.

Once the food poverty line is computed, the total poverty line is derived by taking the average food share of the first lower (first quartile) proportion of the population (Maru, 2004 and WBI, 2005) which resulted in a total poverty line (PL) of Br. 198[30]. This computed total poverty line is also by far greater than the national poverty line of birr 89.6 per month per adult (PASDEP, 2006).

Then, this computed highest poverty line in Wukro might be the result of the continuous food and non food price escalations at the national level, for more than four years. However, it was aggravated in Tigray because the region is virtually depends on importing of food staffs from other regions that causes food items to be the most expensive in the region (Tesfaye A., 2006).

[29] The calorie content of each food item to arrive at this food poverty line is stated in Table 1.

[30] $$Pl = \left[\frac{FPl}{(\frac{ASB}{TExpLow})} \right] = \frac{155}{(\frac{22389}{28556})} = \frac{155}{0.7837} = 197.7 == 198$$

where PL is the total poverty line

FPl is food poverty line

ASB is average food share of the bottom 20percent

TExpLow is total expenditure of the bottom 20 percent

Table1: Quantity of food used for poverty line estimation per month per adult

Food item	Kg/ month/ adult *	Kcal/adult(Fredu,2008)
Teff	5.9	341
Barley	1.46	354
Wheat	4.39	351
Maize	1.19	362
Sorghum	0.04	347
Bean	0.489	244
Peas	0.47	341
Meat	0.67	626**
Egg	0.04	68
Milk	0.54	79
Oil	0.69	884
Onion	0.25	42
Potato	0.27	87
Tomato	0.21	75**
Vegetables	0.5	75**
Sugar	0.48	400
Honey	0.33	500**
Coffee	0.39	2
Fruits	0.08	110**
Red paper	0.65	318
Salt	0.2	0

*Computed from the survey

** Adopted from Esubalew (2006)

4.2. Descriptive analysis

4.2.1. Indentifying the poor

In this section, descriptive analysis of the data is made. Based on the above highlights on poverty line, this part provides a real picture of the sample composition and poverty situation of the study area. Analysis is carried out using descriptive statistics like the averages, percentages and the three poverty indices (FGT).

The study is carried out with 200 households selected from three kebelles, namely, Hayelom, Agazi and Dedebit with sample size proportion of 51 percent, 26.5 percent and 22.5 percent respectively.

Table2: Sample Proportion by Kebelle

Kebelle	Frequency	Percent	Cumulative percent
Hayelom	102	51.0	51.0
Agazi	53	26.5	77.5
Dedebit	45	22.5	100.0
Total	200	100.0	

Source: own survey and computation

Studying poverty profile is one theme of the study and Table 3 indicates the magnitude of poverty in Wukro using the three poverty measures; head count index(P0), poverty gap(P1) and poverty severity index(P2).

From Table 3, we can infer that 34.5 percent (head count index) of the population is living below the poverty line, i.e, birr 198 per month per adult. The poverty gap index is computed 8.9 percent[31] and poverty severity index is found to be 3.39 percent. Hence, the incidence of poverty in Wukro (34.5 percent) seems lower relative to the regional index 48.5 percent in 2005(Tassew

[31]In order the poor to bring them to the poverty line the total amount of money needed equals to 8.9percent*Poverty line amount* total number of poor below the poverty line

et al, 2008) with annual decline rate of 2.8[32]percent per annum and slightly lower than the national poverty index of 38.7 percent. Taking this regional incidence, poverty head count index in Wukro, decreased by 28.86[33] percent between 2005 and 2010.

Kebelle wise, poverty is highest in Dedebit (35.6 percent), followed by Hayelom (34 percent) and Agazi (33.9 percent). Having a population poverty gap of 8.9 percent, when we compare the gap in which the poor is far away from the poverty line in the three kebelles, it is lowest in Hayelom (8.6 percent), followed by Dedebit(9.1 percent) and the highest poverty gap is recorded in Agazi(9.3 percent).

Table3: Estimated Poverty by Kebelle

Poverty measures(Total poverty line=Birr 198)			
Kebelle	P0	P1	P2
Hayelom	0.34(0.047)	0.086(0.017)	0.035(0.01)
Agazi	0.339(0.065)	0.093(0.022)	0.033(0.009)
Dedebit	0.356(0.071)	0.091(0.023)	0.031(0.009)
Wukro	0.345(0.034)	0.089(0.011)	0.034(0.006)
Using food poverty line of Birr 155			
Hayelom	0.412(0.049)	0.105(0.018)	0.045(0.011)
Agazi	0.396(0.067)	0.133(0.028)	0.059(0.017)
Dedebit	0.400(0.073)	0.122(0.027)	0.049(0.013)
Wukro	0.405(0.035)	0.116 (0.013)	0.050(0.00)

Value in brackets is Standard deviation

Source: own survey and computation

[32] Rate= $\frac{Poverty\ rate(2010-2005)}{5} = \frac{34.5\% - 48.5\%}{5} = \frac{-14\%}{5} = 2.8\%.$

[33] Decline rate= $[\frac{Incidence\ of\ poverty\ in\ (2010-2005)}{incidence\ in\ 2005}] * 100 = (\frac{0.345-0.485}{0.485}) * 100 = -28.86$

Extent of poverty in Wukro is high when food poverty line is used as a measure of poverty; 40.5 percent of the population is living below the stated food poverty line with poverty gap index of 11.6 percent and poverty severity level of 5 percent. Most studies indicates that when poverty situation measured by total poverty line is moderate than measured using food poverty line. The same conclusion is drawn from this study; and this is due to the fact that people spend more on food than non food outlays.

Respondents have their own common way of classifying the households' economy vis-a-vis the community. Accordingly, respondents indicated that 5.5 percent belong to the very poor(betek),31.5 percent poor, 50.5 percent moderately poor,12 percent rich and the remaining 0.5 percent belongs to very rich class(for detail see appendix 4).

In addition, as shown in Appendix 4, respondents were asked to explain the poverty situation of the town and reasons behind and indicated that poverty has increased as time goes supported by108 (54 percent), decreased comprises of 50(25 percent), remain the same and unrecognized were taking the share 12(6 percent) and 30(15 percent), respectively.

The most dominant factors influencing poverty in Wukro were, as respondents rate, unemployment 64.5 percent (based on qualification and even below), less government and NGOs supports for poor, especially, old aged, orphan and disabled people (12.5 percent), low investment activities carried out in the town (11 percent), price escalation (7 percent) and poor interest of residents to join the labor force (6 percent).

4.2.2. Household and individual level characteristics and poverty

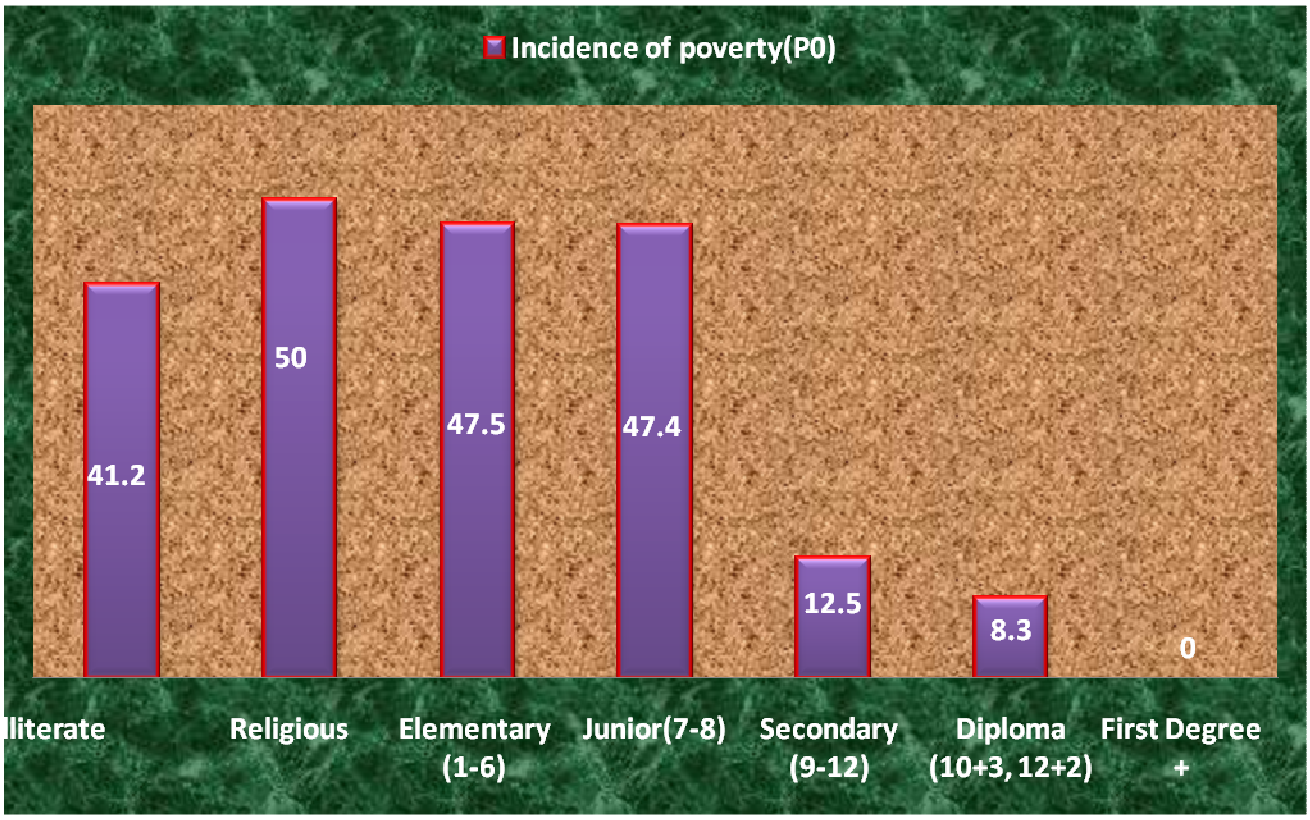
Education and Poverty

Education improves and increases the level of human capital which in turn increases labor productivity and earnings. Since labor is by far the most important asset of the poor, increasing education of the poor will tend to reduce poverty.

Thus, using different methods of analysis and as discussed earlier in this paper, most empirical studies on poverty concluded that education has a negative impact on poverty but the degree of influence differs depending on the socioeconomic situation in which the study is carried out (Zoe Oxaal, 1997; Alemayoh G., *et al*., 2005; Esubalew, 2006; and Aigbokhan, 2008).

As indicated in Appendix 5 and Chart 1, poverty in Wukro is also different across different levels of education. 50 percent of the religious(traditional education) household heads are living below poverty line, followed by elementary (1-6) with head count index of 47.5 percent, junior (7-8) education level comprises 47.3 percent of poor, 41.2 percent of the illiterate heads of households are poor, and lower poverty level is scored by secondary (9-12) education level heads with HCI of 12.5 percent, followed by 8.3 percent with diploma holders and no level of poverty is observed with first degree and above holders.

Chart 1: Estimated poverty by education level



Source: own survey and computation

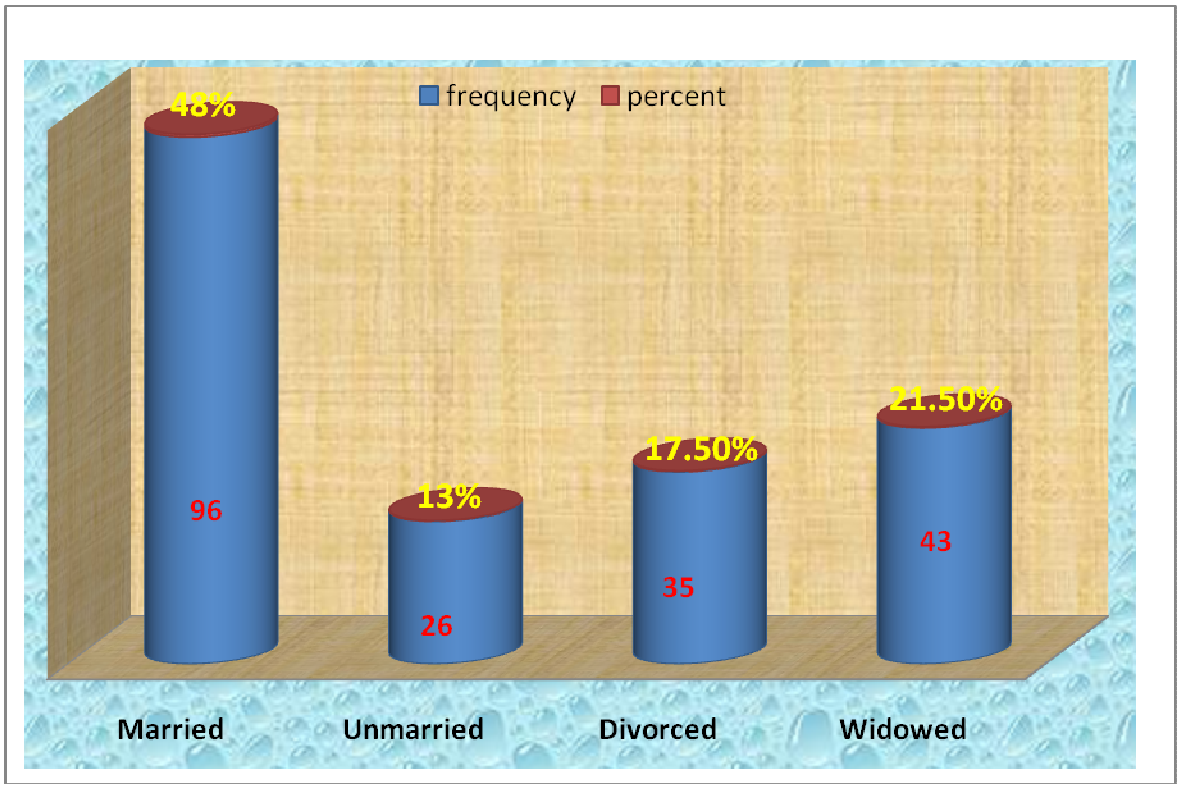
Like most empirical studies, education was found out statistically significant (95 percent) to determine the poverty situation in Wukro and it inversely affects poverty. Therefore, literate household heads have lesser probability of falling into poverty (refer Table 17).

Marital status and poverty

In poverty studies, marital status of the household head is an important constituent of the demographic variables. Two conflicting ideas have been drawn from the marital status (married Vs unmarried) perspective. Some empirical literatures support the notion that the chance of falling into poverty increases as one is married. This is due to the fact that when people get married household size will increase as new children are born and expenditures increase which in turn leads to searching for mechanisms of fulfilling additional needs and necessities for the family (Esubalew, 2006). However, some scholars argue that as one is married the probability of falling into poverty decreases, as there would be more labor forces in the household (Maru, 2004). Moreover, most scholars concluded that divorced and widowed household heads have the greater probability of falling to poverty (Metalign, 2005).

Marital status of the household heads in Wukro is dominated by married (48 percent), followed by widowed (21.5 percent), divorced (17.5 percent) and unmarried accounts for 13 percent.

Chart 2: Marital Status of household heads



Source: own survey and computation

As Table 4 depicts, 60.4 percent of the widowed household heads are living below the poverty line, followed by divorced once with head count index of 37.1 percent, 26.04 percent of the married and 19.2 percent of the unmarried are also living below the poverty line.

When we looked at the significance level of marital status of the head, in Wukro; for simplicity purpose, it was systematically classified as living together (married) and not (divorced, widowed and unmarried). As a result, then, household heads' marital status as defined here was negatively correlated with poverty and the predicting power of the variable is significant at 95% confidence level (Table 17).

Table4: Poverty based on Marital Status

Marital Status	P0	P1	P2	Poverty line =Birr 198
Married	0.2604(0.04)	0.053(0.012)	0.016 (0.005)	
Unmarried	0.192(0.08)	0.031(0.015)	0.007(0.004)	
Divorced	0.371(0.08)	0.104(0.028)	0.038(0.014)	
Widowed	0.604(0.07)	0.193(0.034)	0.086(0.022)	
Population	0.345(0.034)	0.089(0.011)	0.034 (0.006)	

Value in brackets is standard deviations

Source: own survey and computation

Age of the household head and poverty

Two conflicting ideas have been dominating on the correlation between poverty and age of household head. Some scholars contend that poverty correlates with age and it is sever at old ages. This is because productivity of the individual decreases and the individual has few savings to compensate for the decrease of productivity and income. This is, of course, more likely to be the case in developing countries where savings are low because of low income and at the old age being mostly dependent.

On the contrary, Aigbokhan (2008) argued that welfare rises with age as more human capital, both from education and experience, has been accumulated through years.

Therefore, when we refer Table 5 to explain the extent of poverty in Wukro, on the basis of age of the head, the age of heads is divided in to four categories. Highest poverty (43.6 percent) belongs for the heads in the range of 45-60 years old, household heads greater than the age of 60 have a head count index of 34.37 percent, 33.8 percent belongs to the age category of 30-45 and lowest head count index (15.6 percent) is recorded in the age range of less than or equal to 30 years.

Table5: Poverty Profile on the basis of Age

Age	P0	P1	P2	Poverty line= Br.198
<=30	15.6%	3.01%	1.18%	
(30,45]	33.8%	5.87%	1.59%	
(45,60]	43.6%	12.4%	4.7%	
60+	34.37%	13.15%	6.35%	
Wukro	34.5%	8.9%	3.39%	

Source: own survey and computation

When we tried to see the influencing power of age of the household head on poverty, household's age is statistically insignificant determinant of poverty in Wukro (Table 17).

Sex of the household head and Poverty

Scholars who deal with poverty analysis come with different conclusions with respect to the correlation between poverty and sex of the household head. Studies conducted in Ethiopia by Fitsum T., 2002; Kenya (Alemayoh G., *et al.*, 2005); and Ghana (Sackey, 2004); concluded that sex of the household significantly affects poverty and that female households are much vulnerable to poverty than their counter parts. On the contrary, a study made in Cameroon revealed that male headed households have highest probability to fall in to poverty (NIS, 2007).

When we look at the sex composition of the household heads, 116(58 percent) are male headed household and the rest 84(42 percent) represents female headed households. 28 percent of male

headed households and 43 percent of female headed households are living below birr 198 per month per adult equivalent. The poverty gap is still higher (12 percent) in the female heads but relatively lower poverty gap index (7 percent) is recorded as income short falls of the male headed households.

Therefore, comparing the incidence of poverty in the male and female headed households, there is statistically significant difference between them at 5 percent level of significance. Female headed households are experiencing higher incidence, depth and severity of poverty than their counter parts in Wukro (Table 6).

Table6: Poverty Levels based on Sex

Sex	**P0**	**P1**	**P2**	**Poverty line= Birr 198**
Male	0.28(6.8)	0.07(5.3)	0.02(4.2)	
Female	0.43(7.92)	0.12(5.9)	0.05(4.1)	
Wukro	0.345(2.1)	0.09(2.33)	0.03(2.16)	

Value in brackets represents t-value at 95% level of significance

Source: Own survey and computation

Household size and poverty

As indicated earlier size of the household is greatly correlated with poverty and households with larger family size have greater probability of falling in to poverty. The same conclusion has been drawn from the works of Ranjan R., 1999; Fitsum T., 2002; and Esubalew, 2006.

In this study, the average family size of the sample accounts 4.8 and an average adult equivalent of 3.96. The family size of the respondents ranges from the lowest one to the highest 11 family members. Around 52 percent of the respondents have family size of greater than 4 and less than or equal to 8, followed by 43 percent having family size of 1-4 and only 5 percent of the respondents have family size of greater than 8.

Table7: Estimated Poverty by Family Size

Family size	Frequency	Percent	P0	P1	P2	Poverty line=198
[1-4]	86	43	0.27(0.05)	0.07(0.16)	0.03(0.01)	
(4-8]	104	52	0.4(0.05)	0.1(0.02)	0.04(0.01)	
(8-11]	10	5	0.4(0.16)	0.13(0.06)	0.06(0.03)	
Population	200	100	0.345(0.03)	0.09(0.011)	0.03(0.01)	

Value in brackets represents standard deviation

Source: Own survey and computation

As Table 7 portrays, the incidence of poverty is highest(40 percent) in the households having family size in the range of 4-8 and 8-11 and lower extent of poverty (27 percent) is registered with household having family size of less than or equal to four.

The income short fall and the poverty severity index of the households revealed similar trends as family size of household's increases. The poverty gap as measured by P1 and the poverty severity (P2), for the three family size categories, shows that severity gap is highest (6 percent) in households with family size of 8-11 and poverty gap too with magnitude of 13 percent. Lowest poverty severity index (3 percent) and poverty gap index of 7 percent is registered in households having 1-4 members.

Referring to Table 17, the statistically predicting ability of family size of the household on poverty in Wukro coincides with most empirical studies carried out and is statistically significant at 99 percent of confidence level.

Productive Labor and Dependency Ratio

There are so many reasons in which members of a family may not join the labor force and become unproductive. Most studies indicate that individuals become dependent because they are too young to be employed, retired; sick or disability take the lion's share. Moreover, empirical

works revealed that households with more economically active members have lesser probability of falling to poverty (Esubalew, 2006).

In Tigray region, the percentage of dependents makes up 48.3 percent of the total population. This figure becomes (40.3 percent) in Wukro (Ashenafi H., 2010).

As indicated in Table 8, highest incidence of poverty (41 percent) is observed in households having 4-6 productive members; and similarly incidences of 30.4 percent and 30 percent are recorded in the families having 1-3 and 7-10 working members, respectively.

Moreover, depth of poverty is highest (10.9 percent) in households having productive members in the range of 7-10.Households owing active members of 4-6 are enjoyed 10.6 percent of the poverty gap, and 1-3 number of active labor forces are 7.2 percent far away from the estimated poverty line.

Table8: Estimated Poverty by Productive Members

Active			Poverty line =Birr 198		
Members	Number	Percent	P0	P1	P2
[1-3]	102	51	0.304(0.05)	0.072(0.015)	0.028(0.009)
[4-6]	78	39	0.41(0.06)	0.106(0.019)	0.039(0.009)
[7-10]	20	10	0.300(0.1)	0.109(0.041)	0.045(0.018)
Population	200	100	0.345(0.034)	0.089(0.011)	0.034(0.006)

Value in brackets represents standard deviation

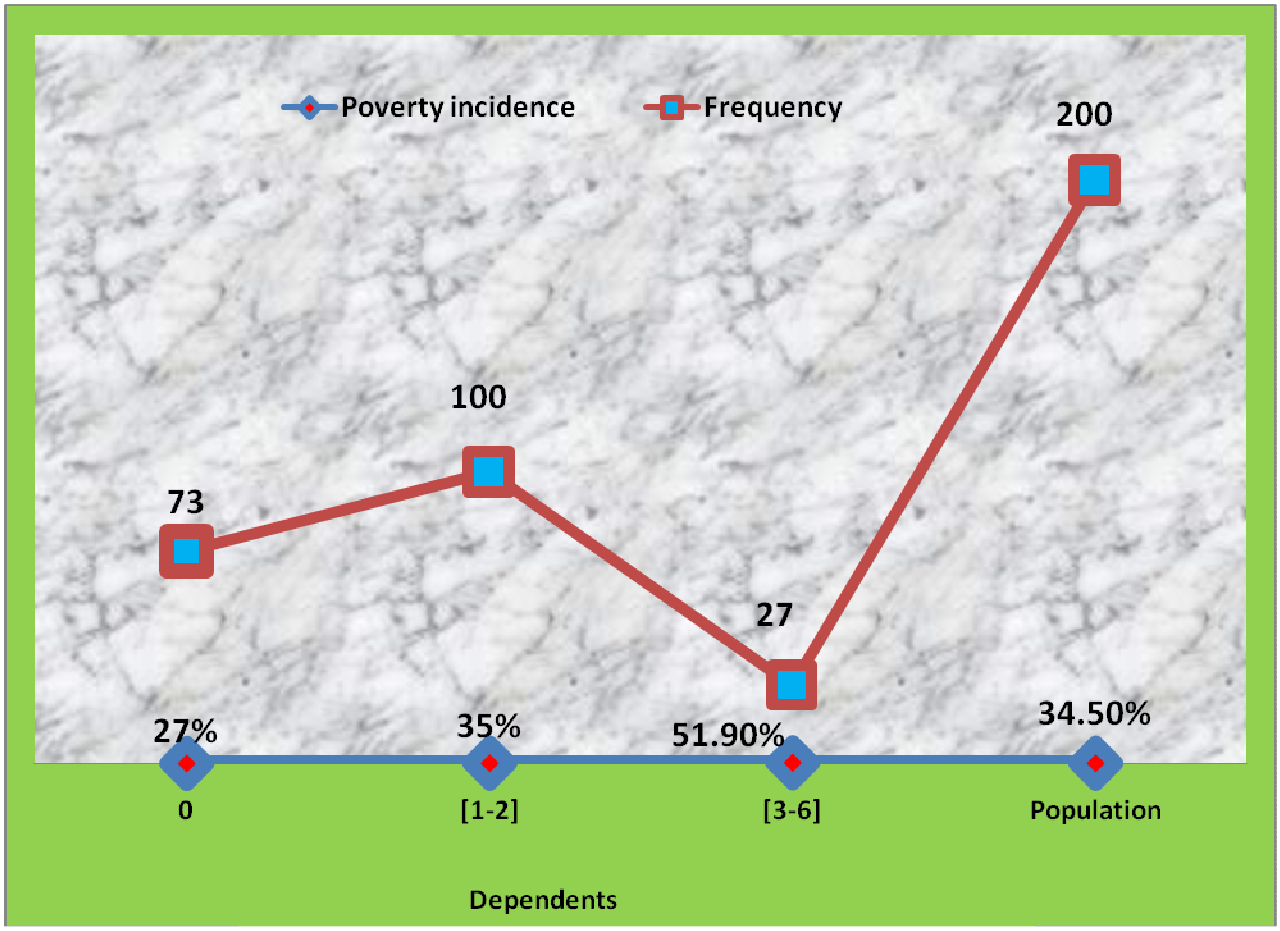
Source: Own survey and computation

Incidence of poverty in Wukro changes as the number of dependents in the household increases. Referring to Graph1, higher level of poverty (51.9 percent) is observed in households with 3-6 numbers of dependents, 35 percent and 27 percent incidence of poverty has registered in families with 1-2 and no dependents, respectively.

In addition, the income short fall of the poor increases as the number of dependents increases and households with zero, 1-2 and 3-6 numbers of dependents are by 6.2 percent, 9.5 percent and 14 percent far from the poverty line, respectively.

As indicated in Table 17, dependency ratio in Wukro is found to be insignificant determinant of poverty with positive signs. However, number of productive members is statistically significant to affect the incidence of poverty at 90% confidence level.

Graph 1: Poverty by Number of Dependents



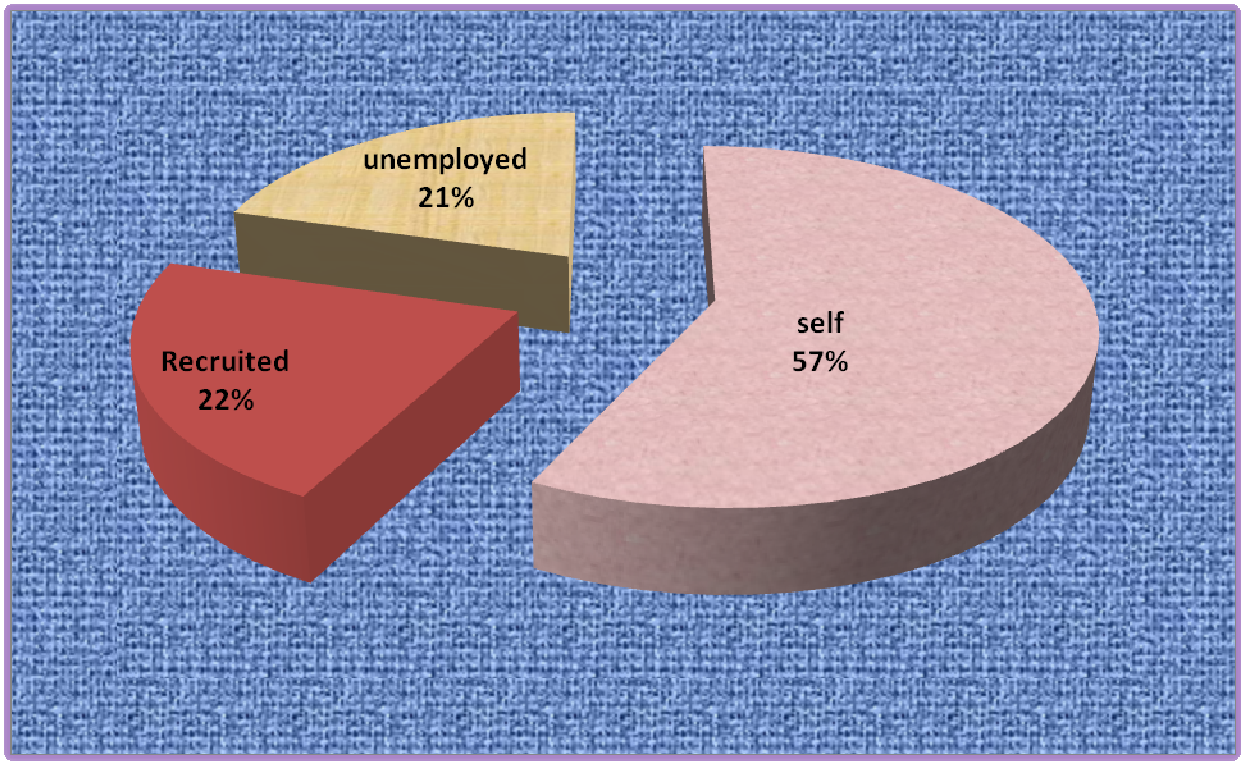
Source: Own survey and computation

Employment and poverty

Empirical studies indicate that employment has a high and negative correlation with poverty (Maru, 2006). However, few research works infer that there is so significance difference between the unemployed heads and these who are employed in the informal sector (NIS, 2007).

The employment categories of the respondents are classified into three major classes, these are, self employed (57 percent), recruited in government, NGO and private sector (22 percent) and unemployed (21 percent).

Chart 3: Households' heads employment category



Source: Own survey and computation

Poverty is highest with the unemployed household heads owing head count index of 41.5 percent, household heads that are engaged in self determined activities like petty trading, selling of local drinks, daily labor, wood and metal work, masonry, wood selling, shop, shoes shining and hotel and cafeteria services has poverty incidence level of 35.7 percent and the remaining

percentage (25 percent) is shared by the recruited household heads with poverty gap index of 4.4 percent.

Therefore, inferring to Table 17, unemployment is still insignificant variable to determine poverty yet has positive sign.

Table9: Poverty by Employment Category

Employment category	P0	P1	P2	Poverty line =birr 198
Self*	0.357(0.045)	0.087(0.014)	0.031(0.006)	
Recruited	0.250 (0.065)	0.044(0.017)	0.014(0.009)	
Unemployed	0.415(0.077)	0.142(0.033)	0.064(0.021)	
Population	0.345(0.034)	0.089(0.011)	0.034(0.006)	

Source: Own survey and computation

Value in brackets represents standard deviation

*includes petty trading, daily laborer, selling of local drinks, food, shop, retailing, cafeteria and hotel services

Asset holding and poverty

Most empirical investigations revealed that household holding asset in different forms have lesser probability of becoming poor.

The asset holding of my study area is valued in its current value and comprised of house, any kind of engine vehicles, machineries, bicycles, house furniture, jewelry, and other valuable utensils. The current values are divided into four worth categories and their extent of poverty in each division has been computed.

Accordingly, 39.5 percent of the households have asset values in the range birr 250-10000, both inclusive, 25.5 percent owing assets value birr 50000-100000, quarter of the households of the survey has asset valued Birr 10000-50000 and the remaining 10 percent comprises by households having asset value of greater than birr 100000.

The poverty situation of the households decreases as the household's level of asset holding increases.

Thus, referring to Table 10, highest poverty (43 percent) is existed in the lowest valued category of asset (79 households), followed by the second category (50 households) with incidence of poverty of 38 percent, 51 households are also having 29.4 percent incidence of poverty and only 5 percent of head count index has been recorded in 10 households having asset worth of more than 100000. Besides to this, depth of poverty and severity reduces as asset holding of the households increases.

Table10: Estimated Poverty by Value of Assets

Value of asset	Frequency	Percent	P0	P1	P2
[250-10000]	79	39.5	0.430(0.056)	0.113(0.021)	0.046(0.012)
(10000-50000]	50	25	0.380(0.069)	0.098(0.023)	0.036(0.011)
(50000-100000]	51	25.5	0.294(0.064)	0.074(0.020)	0.026(0.009)
100000^{+}	20	10	0.050(0.049)	0.010(0.010)	0.002(0.002)
Population	200	100	0.345(0.034)	0.089(0.011)	0.034(0.006)

Value in brackets represents standard deviation

Source: Own survey and computation

Households in the first category (39.5 percent) are by 11.3 percent far away from the poverty line with poverty severity index of 4.6 percent. Better probability of becoming near to the estimated poverty line is observed in households having asset worth of more than birr 100000 with short fall rate of 0.05 and with squared poverty gap index of 0.01. The other asset value categories revolve in the range of the stated upper and lower severity and gap measures.

Moreover, shelter (housing) is the most dominant asset category of the poor and correlates with poverty. In Wukro, (referring Appendix 2) from all the surveyed households, 59.5 percent are living in their own house, rented from individuals comprises of 35.5 percent and 5 percent are rented from Kebelle.

Highest incidence of poverty in Wukro (43.7 percent) is observed in households living rented from individuals, 29.4 percent head count index is existed in households living in their own houses and 22.2 percent of those living in houses rented from the housing agency (Kebelle) are living below the poverty line. 54.5 percent of the surveyed households are subscribers of

telephone lines (both fixed and mobile phones) and 76 percent of the respondents have electric meter in their houses.

In addition, 93 percent of the households are having toilet and only 26.5 percent of the target respondents are using shower facilities in their houses.

Moreover, despite highest poverty is observed in households living in rented houses, owing house by itself is not statistically significant to determine poverty. In fact, it negatively correlated with poverty in Wukro.

Remittance and poverty

Many empirical studies indicate that remittance is one source of income of households living in poor countries and negatively correlated with poverty. Scholars are arguing that which, the poor or rich, households are the regular beneficiaries from such money transfers; and the rich ones are the most winners of remittance both from inland and abroad like countries in Siera Leon (Sonja Fagernas and Lindsay W., 2007).

Table11: Estimated Poverty by Aid Support and Remittance Beneficiaries

Remittance	No.	%	Source		P0	P1	P2	Poverty line
			Domestic	Abroad				
Yes	93	46.5	31.5%	19%	0.387 (0.051)	0.105 (0.018)	0.042 (0.011)	198.0
No	107	53.5			0.308 (0.045)	0.075 (0.014)	0.027 (0.007)	198.0
Aid								
Yes	28	14			0.643 (0.091)	0.226 (0.043)	0.042 (0.011)	198.0
No	172	86			0.297 (0.035)	0.067 (0.010)	0.027 (0.007)	198.0

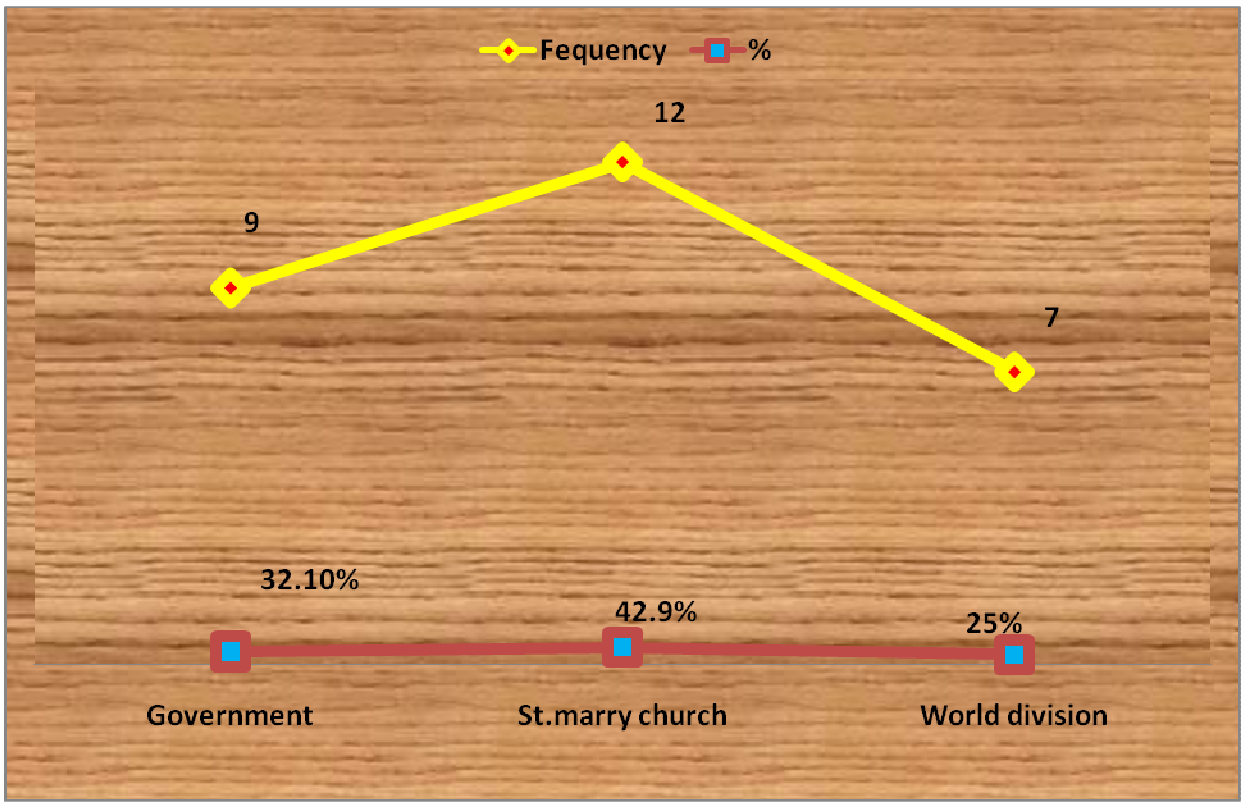
Value in brackets represents standard deviation

Source: Own survey and computation

Table 11 revealed that 46.7 percent of the surveyed households are getting families and relatives' remittance from domestic (31.5 percent) and abroad (19 percent). 38.7 percent of households having remittance are living below poverty line with depth of poverty of 10.5 percent and poverty severity index of 4.2 percent. 53.5 percent of the non remitted households have poverty incidence of 30.8 percent with lower income short fall of 7.5 percent and squared poverty gap of 2.7 percent as compared with the beneficiaries.

Furthermore, from the total surveyed households, 14 percent are getting aid supports. from the 32.1 percent of the beneficiaries were donated from government, St. Marry Church (42.9 percent) and World division Ethiopia (25 percent).There is 64.3 percent incidence of poverty in the aid supported households (in kind and money) and the non beneficiaries are also living with 29.7 percent of head count index and poverty gap index of 6.7 percent.

Graph 2: Number of aid beneficiaries by institution



Source: Own survey and computation

Despite the existence of low poverty gap index of the non aid beneficiaries, the beneficiaries are living with index rate of 22.6 percent far away from the poverty line. As indicated in Table 17, the researcher found out that remittance is not statistically significant to determine poverty in Wukro.

4.2.3 Community level characteristics

Like the household and individual level characteristics, community level factors are also influencing the poverty situation of countries. Two important community level divisions were targeted.

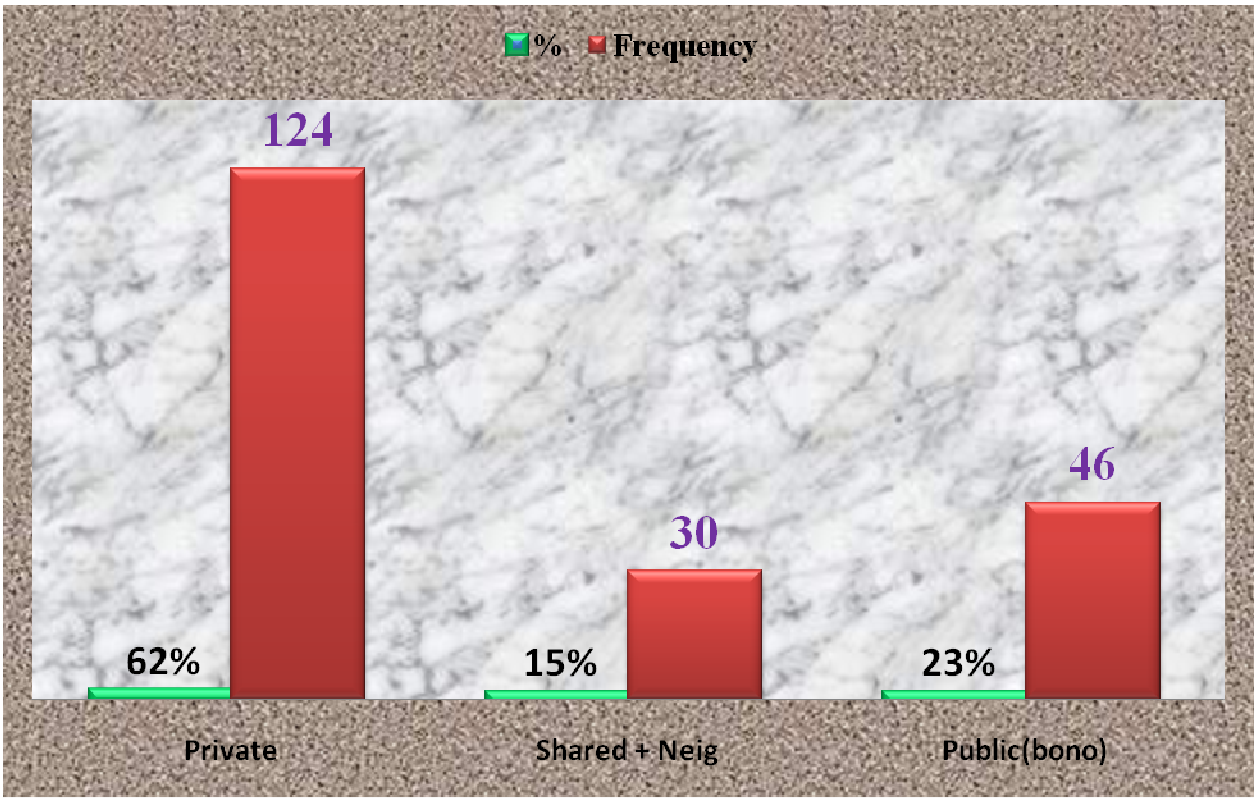
4.2.3.1. Access to social services and poverty

Despite the growing importance for public services, communities have different pace for access of such facilities and is much challenging in developing countries.
Most empirical studies concluded that households having access to social services, like water supply, electricity, health services and telephone negatively correlates with poverty.

Waters supply and poverty

The provision of purified and adequate water is becoming a critical issue for urban dwellers without which life will be difficult. A provision of purified and easily accessible water in a country correlates negatively with poverty. As water is the basis for life, the woreda administration has given due attention for that and, by now, water supply coverage of the town reached 88.34 percent with 30 liter per day as the equivalent standard per adult person(OFED,2008).
All households in the study area used piped sources of water despite their different means of getting it. Chart 4 demonstrates that 62 percent of the surveyed households have water supply at their own private compound, 15 percent also use the sources in their shared tap and buy from their neighbors, and the remaining 23 percent of the households use public water distribution stations as their main sources of water.

Chart 4: Households' source of water supply



Source: Own survey and computation

When we tried to investigate the poverty situation in the town with respect to the above three divisions, 50 percent of the public water distribution center consumers are living below poverty line with 12.4 percent of income short fall. Likewise, 42.9 percent of the shared tap users are poor with poverty severity and depth of 2.4 percent and 8.8 percent, respectively. The remaining incidence of poverty (26.6 percent) covered by those use water in their private compound. Moreover, in this division, depth (7.1 percent) and severity of poverty (2.6 percent) are better compared with the other categories (Appendix 2).

Households are very sensitive to water supply provisions and are more concerned with its failure to satisfy their daily requirements. Consequence water quality, quantity, cost and access on demand are important ingredients to ensure delightful provision of potable water for the community.

Accordingly, as Table 12 able to explain, from the surveyed households 95 percent of them were rating quality of water provided as very good and 5 percent of them rated it satisfactory. Quantity of water was also supported by 82.5 percent (very good), 16.5 percent (satisfactory) and 1 percent (poor). In addition, the availability of water on demand comprises 96 percent as very good and 4 percent satisfactory rates; and respondents rated water service charge as high (15 percent), moderate (84.5 percent) and low (2 percent).

More importantly, access to private piped water is not statistically significant variable that determines poverty in Wukro (Table 17).

Table12: Satisfaction of Households with Water Service

Variable	Very good	Satisfactory	Poor
Quality	95 %(100 %*)	5%	0%
Quantity	82.5%(91%*)	16.5 %(9%t*)	1%
Cost	15%(65%*)(high)	84.5%(35%*)(moderate)	0.5%(low)
Access on demand	96 %(77%*)	4%(21%*)	2%*

*Refers for the public tap (bono) water users
Source: Own survey and computation

Electricity, telephone and poverty

The empirical findings verified that whether a household has own electricity or not does not matter the presence of poverty and hence is a poor parameter of poverty.

Households in the survey area used electricity for different purposes. 76 % of the households have their own electric meter and the remaining 24 percent of them also connect from neighbor households. Utilizing electricity power for lighting use comprises 77.5 percent, lighting and cooking (11.5 percent) and 11 percent of the households use electricity for lighting, cooking and others.

In addition, as indicated in Table13, other alternative energy means have been consumed by households living in Wukro, with wood energy (75.13 percent) dominating the other means because of its lower cost (83.8 percent), owners did not allow to use electricity for cooking (10.8 percent), for these living in rented houses, and 5.4 percent of the households use wood because of adaptation and free of danger to operate it.

Having the profile of electricity utilization, it is important to investigate the incidence of poverty of households having their own electric meter and none. 58.3 % of the household that did not have their own electric meter are living in poverty with poverty gap(15 percent) and severity rate of (6.5 percent), and less extent of poverty(27 percent) have been registered in households with their own meter(Appendix 2).

Table13: Household Power Utilization & Options

Power means	**Frequency**	**percent**
Electricity		
Light	155	77.5
Light & cooking	23	11.5
Light, cooking &others	22	11
	200	100
Cooking alternatives		
Wood	148	75.13
Gas	27	13.71
Animal dung	22	11.17
	197*	100
Why wood?		
Lower cost	124	83.8
Not allowed by owner(house rented)	16	10.8
Adaptability and easy to operate	8	5.4

*Includes households using more than one energy source

Source: Own survey and computation

Despite the current importance and alarming distribution of mobile phones in developing countries, like Ethiopia, the correlation of telephone subscription with poverty is not significant. On the contrary, in developed countries telephone is one of the basic needs and is considered as a determinant factor of poverty (Esubalew, 2006).

According to OFED (2008) report, in Wukro there are 1114 fixed line and 821 mobile telephone subscribers with 30 percent covered by government and nongovernmental offices.

In my study, from the total surveyed households, 109(54.5 percent) have telephone and the remaining 91(45.5 percent) do not have either fixed or cell phones.

To explore the correlation of having telephone and poverty, explaining the poverty situation of the respondents with respect to the haves and none is incredibly vital. Hence, referring Appendix

2, 48.4 percent of the households that did not have telephone are living below birr 198 per month per adult equivalent at 14.1 percent distance far away from the poverty line with poverty severity index of 5.7 percent.

However, lesser incidence of poverty (22.9 percent) has been recorded in the telephone subscriber households at 4.6 percent of depth and severity of poverty index of 1.5 percent.

Viewing Table 17, the significance of access to electricity and telephone services, both are statistically significant variables to explain the extent of poverty in Wukro at 99% and 95% confidence level, respectively.

Access to health and poverty

Provision of better health to the community is the intension and need of any government. Health facilities in least developed countries are at its infant stage and there are so many incurable diseases that cause the life of people to extinct.

Most empirical studies indicate that there is inverse and statistically significant relationship between access to health and poverty.

Table14: Estimated Poverty by Health Center

Variable	P0	P1	P2	Poverty line=Br 198
Government				
Yes	0.386(0.038)	0.087(0.011)	0.029(0.005)	
No	0.243(0.071)	0.100(0.036)	0.058(0.025)	
Private				
Yes	0.074(0.051)	0.011(0.008)	0.002(0.001)	
No	0.387(0.037)	0.101(0.013)	0.039(0.007)	
Traditional				
Yes	1.000(0.000)	0.409 (0.132)	0.202(0.108)	
No	0.338(0.034)	0.086(0.011)	0.032(0.006)	

Value in brackets represents standard deviation

Source: Own survey and computation

In the study area, referring Appendix 3, of all the surveyed households, 189(94.5 percent) of the households had family members sick and the remaining percentage (5.5 percent) did not experience any kind of sickness in this year (September-the surveyed date). Therefore, there was 1.61 mean numbers of sick individuals in households with range of 3 members suffered from illness.

Households in Wukro use different alternatives of taking medication and government health centers (hospital and clinic) take the highest share (85.18 percent) followed by private health posts (13.7 percent) and traditional medication customers also constitute 1.06 percent of the surveyed households.

Having said much on the composition, referring Table 14, there is highest incidence of poverty on traditional treatment users in which 100 percent are living below poverty line with 40.9 percent far away from the estimated line, followed by government service clients with head count index of 38.6 percent and lesser poverty (7.4 percent) has been computed in the households visiting private clinics with 1.1 percent of depth and 0.2 percent of poverty severity index.

4.2.3.2. Access to credit, saving and Poverty

Empirical studies on access to credit and poverty pointed out that there is significant negative correlation with incidence of poverty and narrows income inequality in the long run (Luke,S., and Rajdeep S.,2007).

Similar finding has been achieved from the studies made in Ethiopia and ensure that access to credit mainly solves the problems of the most vulnerable poor people, to bring out of poverty, which is strongly significant (Maru, 2004).

Despite the prior knowledge (100 percent) respondents have with respect to the availability of different credit providers, 94(47 percent) took credit from credit providers for various purposes. Among the reasons for taking loan expanding existing business took the lion's share(54.0 percent), followed by starting up new business(24.5 percent), constructing house(13.3 percent) and to cover some household expenses(8.2 percent).

Table15: Credit users by providers and their reasons to take loans

Credit provider	Frequency	percent	Reason to take credit	Frequency	percent
DECSI	72	72	New business	24	24.5
C B E	12	12	Expand existing business	53	54.0
Government office	1	1	Cover family layout	8	8.2
St. marry church	2	2	Construct house	13	13.3
Individuals***	8	8		98**	
Women Association	5	5			
total	100*	72			

Source: Own survey and computation

*This sum is more than those taking loan (94) as households have more than one source

** Households have more than one reason to take credit

*** Includes relatives, friends, neighbors and colleagues

Poverty is high in the households that did not take credit with head count index of 35.8 percent as compared to the users having poverty incidence of 33 percent. In comparison with the non credit beneficiaries, the credit users have better depth and severity of poverty with magnitude of 7.9 percent and 2.9 percent, respectively (Appendix 2).

The researcher confirmed that household that has access to credit in Wukro negatively correlated with poverty, in fact, remains insignificant (Table 17).

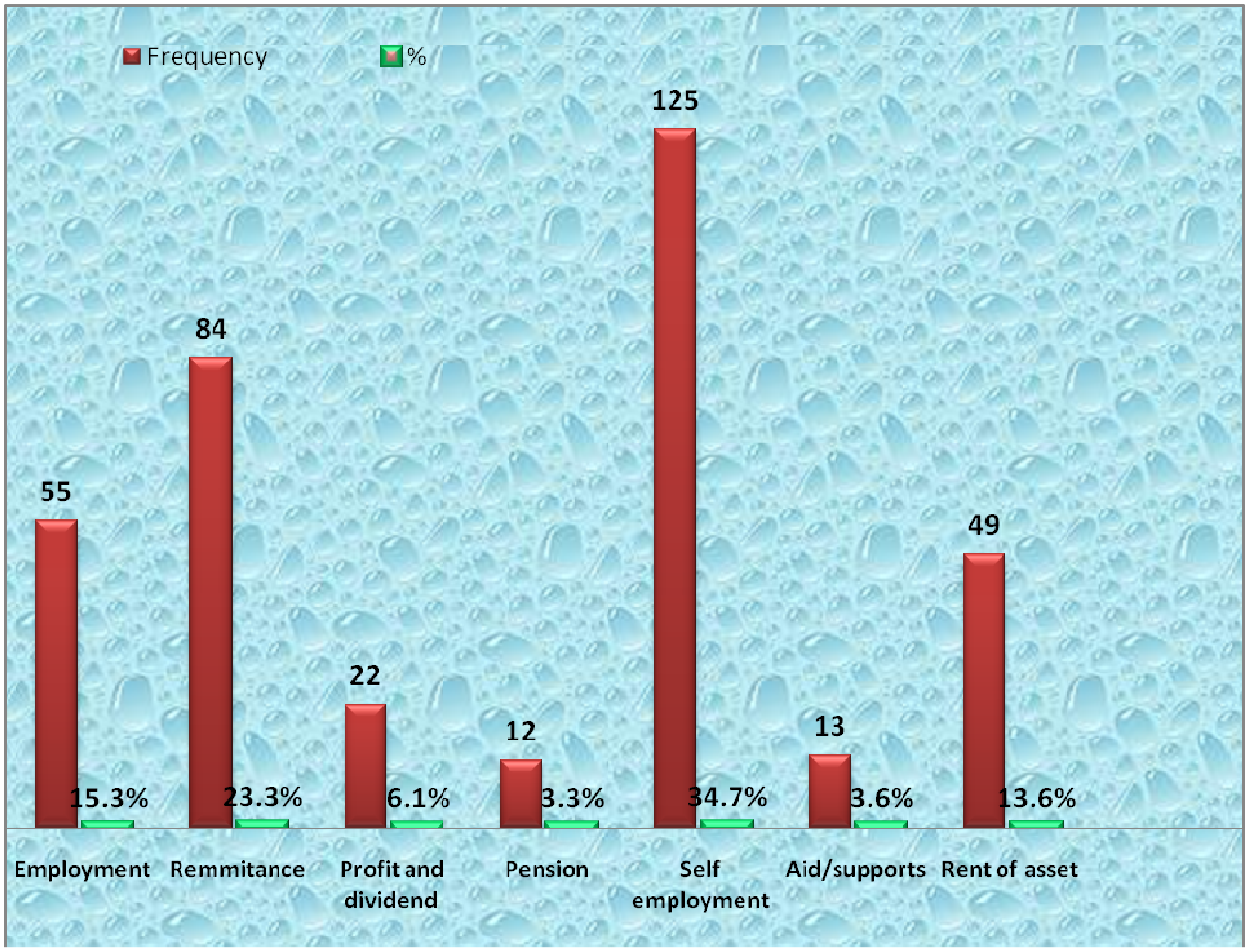
4.2.4. Income inequality

Income inequality indicates the extent to which individuals or households are far away from the equi- distribution line.

Income inequality is wide in least developed countries than the advanced countries. In fact, variations are there with respect to the economic policy of the respective nations and countries with highest income inequality giving rise to less level of welfare among the citizens (Anthony *et al.*, 2009).

In Tigray, despite the fact that poverty is being reduced from year to year, income inequality has dramatically been increasing with average Gini index change of 0.14 and reached 0.49 in 2004/5(Tassew *et al*, 2008).

Chart 5: Sources of income of respondents



Source: Own survey and computation

As computed from the data collected, households in Wukro depend on various means of generating income. Chart 5 demonstrates that household's employments take the largest share (50 percent), followed by remittance (23.3 percent), rent of asset, particularly house, (13.6 percent) and others (aid, support and business profit) comprises 12 percent of the means.

For simplicity purpose, having an income range of Birr 3950, income of respondents is divided in to four categories; birr 50-500 comprises 37.5 percent of the population and is recorded as the highest income division, followed by monthly income of birr 501-1000 with 33.5 percent proportionate of households; the remaining 13.5 percent and 15.5 percent coverage belongs to the monthly earnings range of birr 1000-1500 and birr greater than1500, respectively.

Table16: Estimated income inequality by household variables

Variable	GC(Gini coefficient)	STD
Kebelle		
Hayelom	0.42	0.03
Agazi	0.43	0.03
Dedebit	0.38	0.03
Wukro	0.41	0.02
Sex of household head		
Male	0.38	0.02
Female	0.43	0.03
Level of Education of household head		
Illiterate	0.38	0.02
Primary	0.38	0.04
Secondary and above	0.45	0.03
Source of employment of household head		
Self	0.37	0.02
Recruited	0.4	0.02
unemployed	0.48	0.04

Source: Own survey and computation

Referring to Table 16, income inequality, as measured by Gini coefficient, in wukro is found to be 0.41; and highest inequality is observed in Agazi (0.43), followed by Hayelom (0.42) and Dedebit (0.38)., there is higher income inequality (0.43) in female headed households and 0.38 Gini index has registered in male headed families.

In addition, income inequality in the wereda differs with education level and source of employment of the head. Accordingly, the researcher found that highest income inequality (0.45) has recorded in households with secondary and above education levels and same Gini coefficient has been computed with the illiterate and primary heads.

Furthermore, unemployed heads of households were living with wider inequality (0.48), followed by employed heads (government, NGO and private sector) and lower inequality (0.37) were enjoyed with heads participating in self employment category.

Hence, the researcher found that, comparing with the income inequality in Tigray (urban area), the computed income inequality in Wukro is lesser (0.41) than that 0.49 in 2005 by yearly decline rate of 0.016[34] resulting to decline Gini index by 16.33 percent between 2005 and 2010 as compared with the benchmark of Gini index of 2005 stated above.

Moreover, poverty-inequality and poverty-income elasticity in Wukro wereda were targets of the researcher as it has the power to explain the effects of income and inequality on incidence of poverty in Wukro. As a result, the researcher came up with impressing results in which poverty-income elasticity accounts -2.08 and poverty-inequality elasticity of 0.73[35](Appendix 7).

Income inequality in Wukro can also be exemplified with the help of proportionate of income generated and out lays spent. Therefore, 20 percent of the lowest income group generates 5.5

[34] $Yearly\ growth\ rate = \frac{Inequality\ (2010-2005)}{5\ years} = \frac{0.41-0.49}{5} = -\frac{0.08}{5} = -0.016$ or

$\%\ change\ in\ five\ Years = [\frac{Gini\ index(2010-2005)}{2005}] * 100 = [\frac{0.41-0.49}{0.49}] * 100 = -16.33 \text{percent}$

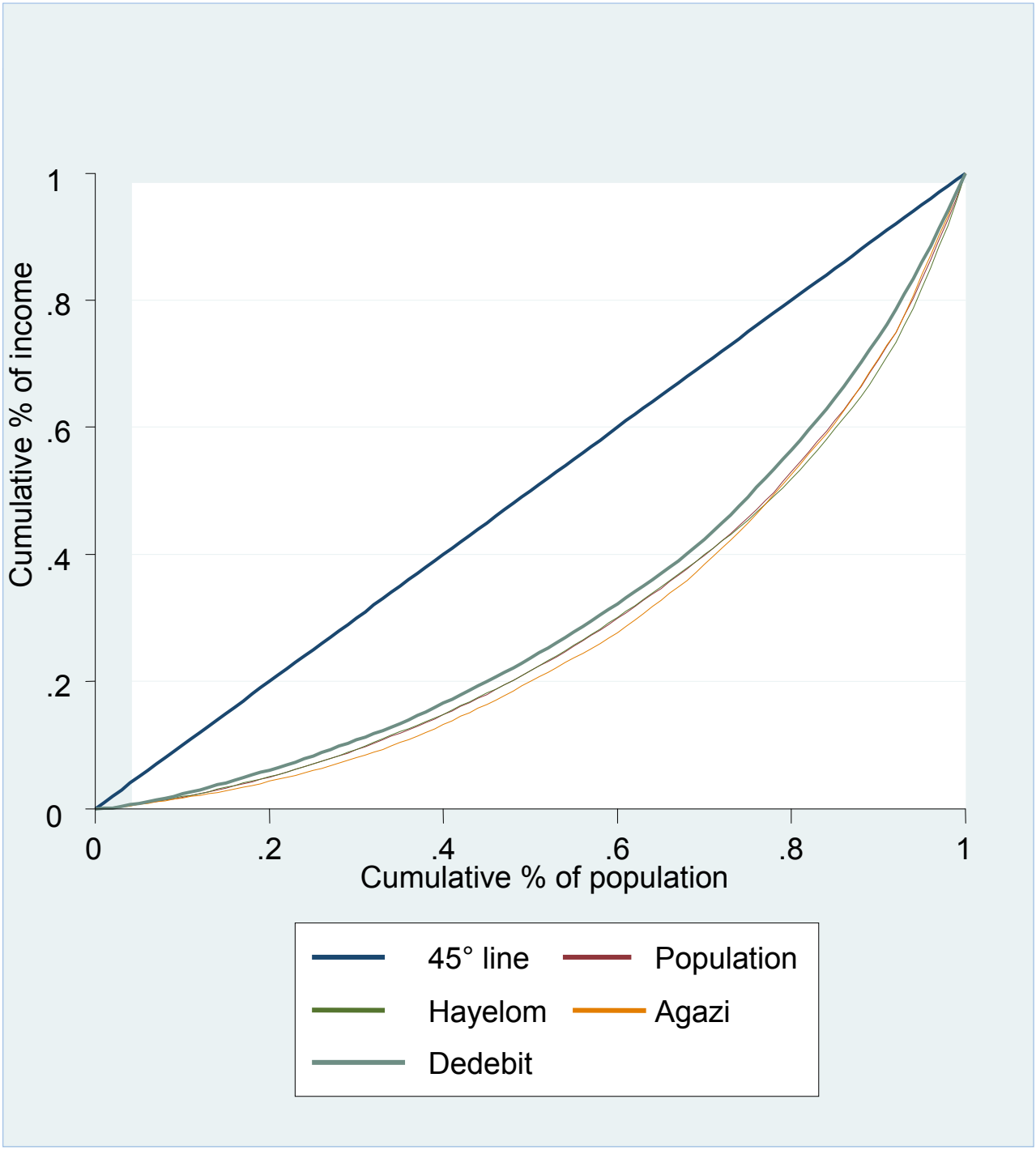
[35]For a given level of income distribution, each 1 percent increase in real consumption expenditure leads to decrease the head count index by 2. 08 percent and 1percent increase in income inequality increases poverty by 0.73 percent in Wukro.

percent of the income while the upper 20 percent earn 39.9 percent of the income. In the same way, higher differences have been observed in the expenditure category of households in Wukro. As a result, the lowest 20 percent of households consumed 7.6 percent of the total outlays and the same percentage of the upper one devoured 38.9 percent of total expenditure. This percentage share of income and / or expenditure difference, by itself, indicates to what extent income or expenditure gap is there among the households residing in Wukro (Appendix 6).

In the study, respondents were asked to state the existing income inequality in the town and the researcher analyzed and came up with severely widens (43 percent), widens (21 percent) and moderate (37 percent) coverage were computed. Respondents were also requested to rate the reasons for having high income inequality (if so) and four driving forces were systematically treated in which the effort difference among residents (68.6 percent) take the largest share followed by very limited attention was given to the poor by the government (25 percent) and poor economic performance of the town comprises 6.4 percent (refer to Appendix 4).

Inequality in Wukro can also be illustrated using the Lorenz curve and graph 3 below represents the income inequality in Wukro, kebelle wise. The straight line represents perfect equality line (GC=0) and the other curves are curves reflecting where the income inequality rests. Accordingly, the most outer curve indicates income inequality in Agazi, the inner most belongs to Dedebit and the middle one is the income inequality curve for Hayelom. Then, the Lorenz curve below indicates, as one is far away from the equality line, the income inequality becomes wider and if it reached the two legs (vertical and horizontal), inequality is utmost and will have Gini coefficient of one.

Graph 3: Lorenz Curves



Source: Own survey and computation

4.3. Econometric Analysis on Determinants of Poverty

As introduced in the model specification part, a Logit model was employed to analyze determinants of poverty. This model is appropriate when we assume the random components of response variables follow binomial distribution & when most variables have categorical responses.

The suitability of the chosen model for econometric analysis very much depends on how much it predicates from the actual observation or what percent of the actual observation is really predicted by the model. There are no fixed points as to judge the model as a best or bad predictor yet it is generally agreed that a model with its overall predictive power of three percent or more is good (Mangus *et al.,* 2006).

There are several R2 type measures that have been suggested with models having qualitative dependent variable. However, there is a problem with the use of conventional of R2-type measures when an explained variable y takes only two values. Then, the different types of measures are not equivalent in this type of models (Maddala G.S., 1992).

Therefore, to assess whether or not the model fits the data, the researcher run the logit regression and visit the value of R^2(0.2686) and use other alternative (28.31%)[36] stated in Madala G.S.(1992) which is quite accepted goodness of fit of the model.

The explanation of the logit results rest on the Odds (coefficient) and the odds ratio of the model in which the former tells by what factor the dependent variable change does whenever a unit change occurs in an independent variable. Odds ratio is the predicted change in odds for a unit increase in the predictor (Log value of odds) and is always positive.

$$Fitness = 1 - [\frac{\log likelihood\ of\ the \bmod el}{\log likelihood\ of\ the\ dependent\ with\ cons\tan t}]$$

36 $$= 1 - (\frac{-92.373959}{-128.85928})$$
$$= 0.2831$$
$$= 28.31\%$$

Table17: Estimated determinants of poverty in Wukro

Explanatory variable	Odds	Odds ratio	t-value
Household and individual level variables			
Sex of household head(fm1sex)	-0.067(0.137)	0.935	-2.05**
Age of household head(fm1age)	-0.095(0.5)	0.911	-0.19
Education level of household head(fm1edu)	-0.608(0.284)	0.544	-2.14**
Marital status of household head(fm1ms)	-1.317(0.64)	0.267	-2.06**
Household head's year of stay in Wukro(yearstay)	0.123(0.487)	1.13	0.25
Employment situation of the head(emp)	0.285(0.486)	1.329	0.59
Family size of the household(fsize)	0.529(0.124)	1.697	4.24*
Number of productive members of household(tfamily)	2.08(1.203)	8.01	1.73***
Dependency ratio(dratio)	0.442(0.339)	1.556	1.3
House ownership (ownhouse)	-0.154(0.548)	0.856	-0.28
Saving condition of the household(saving)	0.423(0.607)	1.526	0.7
State of remittance of the household (remitance)	0.14(0.416)	1.15	0.34
Community level variables			
Access to health(govsick)	0.763(0.614)	2.146	1.24
Owing water supply in private compound(wpippri)	-0.824(0.557)	0.438	-1.48
Having electric meter in the household(elecmetown)	-1.656(0.581)	0.191	-2.85*
Phone subscription of the household(phoneuse)	-0.89(0.411)	0.41	-2.16**
Access to credit of the household(takecredit)	-0.586(0.396)	0.555	-1.48
-cons	-0.534(1.136)	--	-0.47
Number of obs = 200			
LR chi2(17) = 67.85			
Prob> chi2 = 0.0000			
Pseudo R2 = 0.2686			
Log likelihood = -92.373959			

Source: Own survey and computation

Value in brackets is standard errors

*significant at 1%; **significant at 5 % and *** significant at 10 %

Examination of the Logit maximum-Likelihood estimates demonstrates that 17 predictor variables were regressed and seven variables were found statistically significant at 1 percent (family size and owing electric meter) , 5 percent(sex, education level of the head, marital status and phone subscription of the household) and 10 percent(number of productive members).

Moreover, to see the sign of some variables, years of stay in Wukro, employment situation of the household head, number of productive members, dependency ratio, saving, remittance and public health service have positive signs and are directly correlated with the probability of being poor. The negatively signed variables that are inversely correlated with the probability of being poor are sex, marital status, age, own house, education, phone subscription , access to credit, electricity and private water(refer Table 17).

4.3.1. Household and Individual variables

The logit result (Table 17) revealed that four household and individual variables were statistically significant to determine the incidence of poverty in Wukro.

Family size of the households in Wukro is found to be statistically significant at 1% significant level. A unit increase in household size, ceteris paribus, leads the odds and odds ratio of the household of falling to poverty to increase by a factor of 0.529 and 1.697, respectively.

Confronting to most empirical finding and the hypothesis, education level of the head was found statistically significant, to influence poverty in Wukro, at 95% level of confidence. Holding other variables constant, educated household head has higher probability of escaping poverty with a unit increase in level of education of the head leads the odds and odds ratio of falling to poverty to decrease by factor of 0.608 and 0.544, respectively.

Sex of the household is also found out significant to determine poverty in Wukro (95% confidence level). Male headed households have lesser probability of falling to poverty in that a unit increase of the head of the household to be male leads the odds and odds ratio of falling to poverty to decrease by a factor of 0.067 and 0.935, respectively.

As indicated earlier 48% of the respondents were married and the remaining 52% constituted by unmarried, widowed and divorced household heads. Marital status of the household (whether they live together or not) is statistically significant variable to influence the head count index in Wurko at 5% significant level. Referring to the logit Table 17, marital status of the head negatively correlates with being poor. As one unit change in marital status (get married), other variables remain constant, the odds and odds ratio of the household falling to poverty decreases by factor of 1.317 and 0.267, respectively.

However, contradicting result is realized with respect to number of productive members of the household. Number of productive members in a household positively affects the poverty head count index in Wukro and is significant at 90 percent confidence level. The logit result indicates that a unit increase in the number of productive members leads the odds and odds ratio of the household falling into poverty to increase by a factor of 2.08 and 8.01, respectively. This result might be because of the productive members did not join the labor market to generate income to the household for different economic and social reasons.

4.3.2. Community level variables

Among the community variables, access to electricity and telephone are found statistically significant variable to determine poverty in Wukro.

As indicated in Table 17, the coefficient for electricity (elecmetown) of households is significantly different from zero at 1% level of significance. It means that keeping all other variables constant, as owning private electric meter of the households increased by one unit, the odds of the household to fall into poverty decreases by a factor of 1.656. It is quite inline with most empirical studies and the hypothesis stated.

The researcher found similar finding with respect to access to telephone service. Telephone subscription is statistically significant, at 5 percent significance level, to decrease the incidence of poverty in Wukro. Hence, from the same logit table, it is observed that a unit increase in telephone subscription of the household leads the odds and odds ratio of escaping from poverty to increase by factor of 0.89 and 0.41 respectively.

Chapter Five: Conclusions and Recommendations

5.1. Conclusions

The objective of this research work was to investigate the poverty situation, determinants and income inequality in Wukro wereda. Primary data were collected from three kebelles using stratified proportionate sampling technique and 200 households were selected with sample proportion of 51 percent, 26.5 percent and 22.5 percent for Hayelom, Agazi and Dedebit, respectively.

The Cost of Basic Needs approach was employed to compute the food poverty line and the researcher came up with bench mark of Birr 155 per month per adult equivalent. This food line alone is not sufficient to measure the incidence of poverty and total poverty line has to be developed. Accordingly, he took the percentage food share of the lowest 20 percent of the population and got Birr 198 per month per adult equivalent as the total poverty line in Wukro. The estimated poverty line is much greater than the national poverty line because of the escalation of prices of goods and services at country level and much sever in Tigray region, for previous years. Then, poverty profile of the households was computed with the help of DASP version 2 software.

Variables, which were hypothesized to account for the incidence of poverty in the town, were selected and analyzed systematically. These were household and individual level characteristics (education, sex, age, family size, employment, marital status, number of productive members, dependency ratio, remittance, years of residence in Wukro) and community level variables like access to social services (telephone subscription, electricity, health, water and credit) were analyzed.

Poverty profile was computed with respect to these variables through descriptive statistics and Logit regression model was also employed to quantify the relationship between being poor and explanatory variables stated above. In the descriptive part analysis was made by making use of SPSS-16 version and DASP V-2. In this part categorical responses were treated via percentages, mean, frequencies, and FGT; and are presented with suitable tables, graphs and charts.

In the econometric part of identifying determinants of poverty, the study employed the Logit model and analysis was carried out with the help of Stata -10 version soft ware. It is found that the robustness (predictive) power or goodness of the model is 28.31% percent. The odds (coefficients) which tell by what factor does the dependent variable change given a unit change of the predictor variable was discussed and significances of each predictor variable were quantified.

Based on the descriptive and econometrics analysis, the study found out that out of the 200 surveyed households, 69 of them are found below the poverty line. The fact that 34.5 percent of the sampled households live below the poverty line with head count ratio (0.345), depth of poverty (0.089) and poverty severity index of 0.034. Despite significant difference is not realized, incidence of poverty differs from kebelle to kebelle; highest poverty was recorded in Dedebit (0.356), followed by Hayelom (0.34) and Agazi (0.339). Female headed households were challenged with 0.43 level of incidence as compared with male headed families with head count index of 0.28.

More than anything else, alarming incidence of poverty were registered in the widowed household heads (0.604) with highest income short fall rate of 0.193 and severity index of 0.086 followed by divorced with head count index of 0.371. Therefore, the researcher can infer that poverty in Wukro is lower than regional rate (48.5 percent) in which the rate decreases by 2.8 percent per year. This might be the result of the current economic performance of the town especially the development of Micro and Small Scale Enterprises, investment activity carried out, social service provisions and the good governance.

Six variables were influencing the incidence of poverty in Wukro and are statistically significant at 90 percent level of confidence (number of productive members), 95 percent (education, marital status of the head and telephone subscription) and 99 percent (family size and electricity). More importantly, the predicting power of the explanatory variables with odds values were dominated by number of productive members (2.08), having private electric meter in the household (-1.656), marital status (1.317), telephone subscription (0.89), education level of the household head (-0.608), household size (0.529) and sex of household head (-0.067).

Contradicting with many literatures and hypothesis forwarded, number of productive members was correlating positively with poverty and this might result because of productive members were unemployed and could not generate income to the family for various reasons.

When we came to the income inequality theme, the researcher found that 71 percent of the respondents were earning monthly income of less than birr 1000. The sources of income of the households were dominated by employment (self, government, NGOs and private sector) comprises 50 percent, followed by remittance (23.3 percent), rent of asset (13.6 percent) and others (12 percent). Having these alternative means of income, income inequality in Wukro, as measured by Gini coefficient, was 0.41 which is slightly lower than the regional income distribution gap (0.49) in which highest inequality (0.43) was recorded in female headed households.

Descriptive analysis of income inequality revealed that unemployed heads of families took the lead with income inequality index of 0.48, followed by secondary and above educated heads (0.45) and female headed households (0.43).

There is also a difference in the proportion of income generated and expenditure consumed. To this end, 20 percent of the lowest generate 5.5% of the total income and consume 7.6% of the total outlays. But, the upper 20 percent earn 39.9% of the income and devoured 38.9 percent of the expenditure. Moreover, one percent increase in Gini coefficient in the households leads the poverty situation to increase by 0.73% and one percent increase in consumption or income decreases poverty by 2.08% in Wukro.

Therefore, despite lower income inequality has been registered in Wukro, the poverty-income and poverty-inequality elasticity and the proportion of income and expenditure among the lower and upper quintiles values have powers to draw attention to design development interventions aiming at increasing the income of the poor.

5.2. Recommendations

The incidence of poverty among the surveyed households with head count index of 34.5 percent, 8.9 percent far away from the poverty line and 3.4 percent of severity index in the town accompanied by income inequality rate of 0.41 rings a bell for urgent interventions aimed at curbing the fate of the poor. One way of dealing with this is studying urban poverty and its determinants and inequality and communicating concerned bodies as the outcomes are important to design their ways of intervention in a manner that ensures to solve the most critical problems and improve the life of the people. Without having clear picture of poverty profile, factors influencing poverty and distribution issues that account for continuous impoverishment of life in the town, it is really ridiculous to come up with concrete solutions.

Therefore, taking all the challenges of dealing with urban poverty, determinants and inequality resulting from the multitude impact of one variable as a cause and effect, the researcher come up with the following recommendations:

- The study found out that family size and number of productive members of the household has the power to aggravate poverty in Wukro. Therefore, working more on family planning, HIV AIDS and its consequences ,to decrease the extent of death and reduce the number of widowed, and motivating and creating employment opportunity to the productive members might change this endeavor and improves the livelihood of the poor. With this regard, Wukro Health Office and the Trade and Industry Office (MSSE development core process) can play vital role.
- Productive members of households could not generate income and there is also awful income inequality which demands to create employment opportunity in the town. Thus, ways of diversifying the means of increasing income should be introduced. At this juncture both the households and the government should have the joint effort and responsibility to find possible panacea. One of the potential ways of doing this is through skill training, entrepreneurship development and convincing the youth to join the labor force and expanding urban agriculture should be intensively practiced so as to increase the employment and income generating scheme of the households. As expenditures of households mainly increased because of increment of prices of goods and services, affordability of these consumable goods might be

ensured if households have sufficient and continuous means of income that demands to work more on providing income generation schemes of the households. In addition, different stakeholders should work to attract investors using the resource location and proximity advantage the town has. For these expectations, technical and vocational training center, woreda administration, Development associations and NGOs avail in the town can play instrumental roles.

- Poverty incidence in the unemployed households was 0.415 and 35.8 percent of the households fail to take credit due to various reasons were living below the poverty line. Therefore, despite the variables remained insignificant, working with micro finance institution to motivate the unemployed households (21 percent) to be employed should be remarkable. This will be commenced with the help of DECSI, Trade and Industry, TVET center existing in Wukro. In addition, working more on education to enhance the human capital of the residents through skill and market based short and medium level trainings, like stone works, can improve the income and employment opportunity and able to equip households with basic skills and make them self reliant. Having own electric meter, phone subscription and private water supply also influences poverty and the former two are statistically significant variables. To improve the electricity and private water tap demand of the poor, there should be possibilities that the households ensure having it. This might be done by introducing and promoting periodic payment (installments) for the meter, phone and water supply and the government should expand the electric line and polls and water connection lines to improve its access and distribution. For this part, EEPCO, ETC Wukro branch, Wukro Water Supply Office can take the imitative in collaboration with financial institutions.

- Poverty in Wukro is highest in the female headed households (0.43), thus working more on gender issues is crucial. As female is every thing of the household, supporting and enabling them to generate their own income has multi effects to improve the lives of the households and the whole town; providing loans at reasonable interest rate, creating employment opportunity, providing trainings on skill development, business ethics and money management, self- confidence development are fundamental inputs to empower and reduce

the incidence of poverty in female headed households. For this endeavor, Wukro Town Women Office, Trade and Industry and TVET can take the lead.

- This research depends on cross sectional data which infers the results of one time data that challenged to clearly investigate the real picture of poverty and its determinants and income distribution in Wukro. Therefore, it is timely important to organize stakeholders (researcher, NGOs, government, the society) to have panel data and continuous household surveys so as to have comprehensive poverty profile of the town vital for any intervention.
- The study assessed the incidence of poverty and income inequality by selecting 200 from more than 5000 households. It only can tell the outcome based on these households. It is of the researcher's feeling that future studies should study the town's poverty and income inequality by incorporating other variables like institutional, good governance and customs and values other than the household level so as to get wider implications. In addition, using the other means of computing poverty line and other measures of income inequality like, the generalized Entropy index should be tested against with.

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APPENDIX

Appendix 1: Adult Equivalence Scale

Years of Age	Sex	
	Male	Female
0-1	0.33	0.33
1-2	0.46	0.46
2-3	0.54	0.54
3-5	0.62	0.62
5-7	0.74	0.7
7-10	0.84	0.72
10-12	0.88	0.78
12-14	0.96	0.84
14-16	1.06	0.86
16-18	1.14	0.86
18-30	1.04	0.8
30-60	1.00	0.82
60 plus	0.84	0.74

Source: Dercon and Krishnan (1998) cited in Fitsum H., and Stein H., 2003.

Appendix 2: Estimated poverty by house ownership and community level variables

Variable	frequency	percent	P0	P1	P2	Poverty line
House						
Own	119	59.5	0.294(0.042)	0.074(0.013)	0.027(0.006)	198.0
Kebelle	10	5	0.222(0.139)	0.071(0.047)	0.025(0.018)	198.0
Individual	71	35.5	0.437(0.059)	0.106(0.019)	0.038(0.009)	198.0
Telephone						
Yes	109	54.5	0.229(0.040)	0.046(0.011)	0.015(0.005)	198.0
No	91	45.5	0.484(0.053)	0.141(0.020)	0.057(0.012)	198.0
Electric meter						
Yes	152	76	0.270(0.036)	0.070(0.011)	0.024(0.005)	198.0
No	48	24	0.583(0.071)	0.150(0.030)	0.065(0.019)	198.0
Toilet						
Yes	186	93	0.312(0.034)	0.074(0.010)	0.025(0.005)	198.0
No	14	7	0.786(0.110)	0.288(0.068)	0.147(0.053)	198.0
Shower						
Yes	53	26.5	0.189(0.054)	0.053(0.018)	0.019(0.008)	198.0
No	147	73.5	0.401(0.041)	0.102(0.014)	0.039(0.008)	198.0
Water						
private	124	62	0.266(0.040)	0.071(0.013)	0.026(0.006)	198.0
Shared+ Neig	30	15	0.429(0.094)	0.088(0.024)	0.024(0.008)	198.0
Public(Bono)	46	23	0.500(0.074)	0.124(0.026)	0.046(0.013)	198.0
Take credit						
yes	94	47	0.330(0.049)	0.079(0.016)	0.029(0.007)	198.0
No	106	53	0.358(0.047)	0.098(0.017)	0.039(0.010)	198.0

Saving						
Yes	33	16.5	0.182(0.067)	0.031(0.014)	0.007(0.005)	198.0
no	167	83.5	0.377(0.038)	0.100(0.013)	0.039(0.007)	198.0

Source: Own survey and computation

Appendix 3: households' health center preference & reasons for

Variable	**Frequency**	**percent**	**Variable**	**Frequency**	**percent**
Member sick			**Why not medication?**		91
Yes	189	94.5	Affordability	10	9
No	11	5.5	Holy water(tsebel)	1	100.0
	200	100		11	
Number sick	**No.**		**Why government?**		
Mean	1.61		Low cost	65	40.4
Range	3		Professional	49	30.4
Maximum	4		Facility	29	18.0
Minimum	1		Ease access	18	11.2
				161	100.0
Degree of illness	**Frequency**	**percent**	**Why private?**		
Very serious	9	4.6	Hospitality	12	46.2
Critical	19	9.6	Better medicine	3	11.5
Moderate	150	76.1	Efficient service	11	42.3
Simple	18	9.1		26	100.0
very simple	1	0.5			
	197	100.0			

Medication			**Why traditional?**		
yes	181	95.8	Curability	2	100
No	8	4.2		2	100.0
	189	100.0			
Health center					
Gov	161	85.185			
Private	26	13.757			
Traditional	2	1.058			
	189	100.000			

Source: Own survey and computation

Appendix 4: frequency of inequality, poverty, saving and reason variables

Class	**frequency**	**Percent**	**Variable**	**Frequency**	**Percent**
			Reason for income to decrease		
Very poor	11	5.5	No employment for additional		
Poor	63	31.5	labor force	15	41.5
Medium	101	50.5	Become unemployed	7	10.8
Rich	25	12.5	Weak alternative employment	27	23.1
Very rich	0	0	Poor economy of town	14	21.5
	200	100	No support for the poor	2	3.1
			total	65*	100.0
Poverty situation of the town			Reasons for poverty to increase		
Increased	108	54	General unemployment	70	64.5
Decreased	50	25	Less government & NGO supports for the poor	14	12.5
Remain the same	12	6	Low investment in the town	12	11
unrecognized	30	15	Price goods &services escalation	8	7
Inequality			Poor interest to work	5	5
Severely widens	86	43			
Widens	42	21	Reason for inequality to widen		
moderate	74	37	Effort difference	118	68.6
			Less attention to the poor (government)	43	25
Total	200	100			

Income of households		
Increases	98	49
Decreases	47	23.5
Remain the same	55	27.5
	200	100
Expenditure of households		
Increase	195	97.5
Decreases	3	1.5
Remain the same	2	1
Total	200	100
Reason for expenditure to increase		
Increase income	40	8.7
Increase price	192	41.6
poor saving	48	10.4
Improve consumption	101	21.9
Increase family size	80	17.4
Total	461*	

Poor economic performance of the town	11	6.4
Total	172*	
Do you have saving		
yes	33	16.5
No	167	83.5
Reason for not saving		
Lack of sufficient income	120	67.8
Transfer to other duties	20	11.3
Poor interest on saving	17	9.0
Poor money mgt	20	11.3
Total	177*	100

*More than the sample size because of households have more than one choice and treated as separate observation

Source: Own survey and computation

Appendix 5: Estimation of Poverty in Wukro on the basis of Education level

Education level	P0 (percent)	P1 (percent)	P2 (percent)	Poverty line
Illiterate	41.2(0.05)	12.8(0.021)	5.5(0.012)	198.00
Religious	50(0.35)	16.7(0.118)	5.6(0.039)	198.00
Elementary (1-6)	47.5 (0.08)	9.6(0.022)	2.9(0.01)	198.00
Junior(7-8)	47.4(0.12)	11.7(0.037)	3.9(0.017)	198.00
Secondary (9-12)	12.5(0.06)	0.9(0.006)	0.1(0.001)	198.00
Diploma (10^{+3}, 12^{+2})	8.3(0.08)	1.6(0.016)	0.3(0.003)	198.00
First Degree +	0.0(0.0)	0.0(0.0)	0.0(0.0)	198.00
Population	34.5(0.03)	8.9(0.011)	3.4(0.006)	198.00

Source: Own survey and computation

Appendix 6: Quintile distribution of income and expenditure of households

	Expenditure			Income		
Quintile	Mean	Sum	percent	Mean	sum	percent
1	380.44	15217.6	7.6	241.4	10380	5.5
2	625.85	25034	12.5	500.6	23530	12.5
3	875.79	37659	18.8	787.5	31500	16.7
4	1194.49	44196	22.1	1232.3	48060	25.5
5	1941.9	77676	38.9	2425.8	75200	39.9
Total	998.9	199782.6	100.0	943.35	188670	100.0

Source: Own survey and computation

Appendix 7: Poverty-income and poverty-inequality elasticity in Wukro

Kebelle	Poverty-inequality		Poverty-income	
	Elasticity	StD	Elasticity	StD
Hayelom	0.8	0.18	-2.44	0.31
Agazi	0.63	0.16	-1.73	0.29
Dedebit	0.67	0.23	-1.77	0.38
Population	0.73	0.15	-2.08	0.22

Source: Own survey and computation

Appendix 8: Estimated Correlation Matrix of Explanatory Variables

Variables	fm1sex	fm1age	fm1edu	fm1ms	yearstay	emp	fsize	tfamily	dratio	ownhouse
fm1sex	1.0000									
fm1age	0.0886	1.0000								
fm1edu	-0.2116	0.4091	1.0000							
fm1ms	-0.7321	-0.1065	0.0939	1.000						
yearstay	0.0072	0.5643	0.3747	-0.0774	1.0000					
emp	-0.1544	0.1681	0.1034	0.2040	0.0665	1.0000				
fsize	-0.2899	-0.3861	-0.1523	0.3756	-0.2960	0.0215	1.0000			
tfamily	0.1725	0.5440	0.2880	-0.2604	0.4099	0.0410	-0.6430	1.0000		
dratio	-0.0879	0.1065	-0.0086	0.0923	0.0342	0.0859	0.0126	0.3383	1.0000	
ownhouse	-0.1372	-0.3376	-0.1745	0.1968	-0.3381	-0.0426	0.4692	-0.3796	-0.0789	1.0000
saving	-0.0157	0.0385	0.1384	0.1338	-0.0475	0.1205	0.0535	-0.1020	-0.0955	0.1452
remitance	0.0535	-0.2593	-0.0647	-0.1293	-0.2532	-0.3062	0.1385	-0.2940	-0.1882	0.0726
govsick	0.0854	-0.1552	-0.0776	0.0406	-0.2057	-0.1360	0.1701	-0.1794	0.0346	0.0687
wpippri	-0.1400	-0.2267	-0.0769	0.2319	-0.2243	-0.0434	0.4056	-0.3293	-0.0731	0.6058
elecmetown	-0.1616	-0.0805	-0.0527	0.1883	-0.1806	0.0208	0.2668	-0.2521	-0.1494	0.4897
phoneuse	-0.2070	-0.0361	0.2033	0.2214	-0.0419	0.1070	0.1818	-0.1848	-0.1013	0.2476
takecredit	0.0984	0.0257	-0.0606	-0.0472	-0.1298	0.1381	0.1724	-0.0280	0.1047	0.1513

	Saving	remitance	govsick	wpippri	elecmetown	phoneuse	takecredit
saving	1.0000						
remitance	-0.0339	1.0000					
govsick	-0.3155	0.1747	1.0000				
wpippri	0.2357	0.1090	-0.0142	1.0000			
elecmetown	0.2192	0.0648	0.0743	0.5741	1.0000		
phoneuse	0.2750	0.0117	-0.0381	0.3407	0.2278	1.0000	
takecredit	-0.0430	0.0212	-0.0001	0.0196	-0.0671	0.0508	1.0000

Source: Own survey and computation

ANNEX: QUESTIONNAIRE

Dear Respondents,

I, Araya Mebrahtu, am a prospective graduate of Masters of Arts in Development Studies in Mekelle University, college of Business and Economics, dealing with my master's thesis.

As you are well aware, poverty and food insecurity are the daily experiences of most Ethiopians and is very hard in urban areas of Tigray. Therefore, nothing is alarming than poverty reduction. I am of the view that efforts to design strategies aimed at reducing poverty must start with identifying the magnitude and root causes of poverty. This questionnaire is, therefore, designed with the overall objectives of identifying and analyzing magnitude of poverty and determinants and income inequality in Wukroworeda. The output of the study is beyond doubt important for the poverty reduction endeavor of the woreda. Therefore, you are kindly requested to give genuine responses.

I would like to assure you that the information you are going to provide will be exclusively used for academic purpose and will remain confidential.

Thank You

Direction points

House Hold Code: _____

Kebele: _____Qetena:_____House No.:_____

Name of Enumerator: _____

1. Household Demographic

A. Household Composition and Characteristics

Family membership (Code A) Head = 1 Wife/Husband = 2 Son/Daughter = 3 Father/Mother = 4 Sister/Brother = 5 Niece/Nephew = 6 Uncle/Aunt=7 Grand Parent = 8 Servant =9 Relative = 10 Non Relative = 11 Grand Children =12	Education level of HH (code B): 0= illiterate 1=Religious 2= elementary(1-6) 3= Junior(7-8) 4= secondary(9-12) 5=diploma(10^{+3},12^{+2}) 6= first degree and above	Marital status (code C) 1=married 2=Unmarried 3= Divorced 4= Widowed 5= separated	Religion (code D) 1= orthodox 2= Muslim 3= Catholic 4=Protestant 5= Others	Main Activity (code E[37]) Petty trade/Gulit=1 Government = 2 NGO employee=3 Private sector=4 Daily laborer = 5 Urban agriculture=6 Housewife=7 Wood/metal work=8 Student=9 Hotel/cafeteria =10 Handicraft (embroidery, pottery)= 11 Sale of food and Local drink=12 Trade/ Shop=1 Child (not involved in work)= 14 Retired=15 Unemployed=16 Other_____17

[37] **Only for house hold members except the head of house hold; part B is for the head only.**

1. Using the above Table for the coded values, fill in the Table below

S. No.	Family Members	Type of Membership (Code A)	Sex Male=1 Female =0	Age	Level of Education (Code B)	Marital Status (Code C)	Religion (Code D)	Main Activity of member (code E)	Secondary Activity of member (code E)	Years of stay in Wukro
1	***M1***							***X***		
2	***M2***									
3	***M3***									
4	***M4***									
5	***M5***									
6	***M6***									
7	***M7***									
8	***M8***									
9	***M9***									
10	***M10***									
11										

2. Socio-economic and Household Asset Profiles

B. Employment and education

Employment

1. Status of employment of household head: 1. Employed 3. Pensioner

2. Unemployed

2. If "employed" to Q.1, what is your mainoccupation?

1. Self-employed /Self-account 3. Private Employee

2. Government employee 4. NGO employee

3. If "self- employed" to Q.2, in which type of own-account/self-employed are you engaged in?

(Use code E above _____)

4. How do rate the employment opportunity, both in the public and private sector, in Wukro?

1. Very good 2. Good 3. Fair 4.Low 5. Very low

5. How many economically active (productive) individuals are there in your household unemployed? _____

6. If you have productive members unemployed, what is the reason for being unemployed?

1. Lack of job opportunity related to his/her education level

2. Lack of employment even below qualification owned

3. Poor interest of member to join the labor force

4. Lack of startup capital to establish own business

5. Others (specify) _____

Education

1. In your residence (Wukro), does education have impact on life standard?

1. Yes 2. No

2. If your answer to Q1 is "yes", on what aspects does education benefits?

1. getting secure jobs 4. Increase in saving habit

2. Better salary 5. Develop Entrepreneurship

3. To educate children 6.keep house hold Hygiene 7. Others (specify) _____

3. Is there employment opportunity for residents on their interest and qualification in wukro?

1. Yes 2. No

4. If your answer for Q3 is “No”, what is the reason?

1. Poor economic performance of the Town2. Less attention given by the government

3. Poor investment activities in the town4. Higher competition5. Others (specify)

5. If your answer for Q3 is “No”, what alternatives have you taken so far?

1. Take loans from credit service providers to start business in group

2. Move to other wereda/ kilil for searching job3. Still I do not take alternatives

4. Join to family business 5. Others (specify) _____

C. Asset holding of the House hold

If you have the following list of assets in your house, please fill it?

Type of Asset	**Present Value(Birr)**	**Asset**	**Value**
House		Machineries	
Car		Tape recorder	
Motor cycle/Bicycle(underline it)		Radio	

Refrigerator		Stove	
Television		Milk cows, sheep, poultry	
Sofa set , Table and Chair		Satellite Dish	
bed		Jewelry and related	
"Bifee"		utensils	
Box, Cupboard, shelf…		others	

D. Income of the household

1. What is your house hold's monthly income? ----------
2. What is your main source of income?(rate them 1-7 based up their major means of income)

Earnings from house hold employment _____ Remittance_____

Interest from savings, dividends, etc. _____ Pension_____ Aid from Government____

Rent of assets_____ others (specify) _____

3. Do you get financial (in kind) supports from any source? 1=Yes 2= No

4. If your answer to Q 3 is "Yes", how many people in your household at present receive the following supports? Use the Table below.

Support type	**No. of beneficiaries**	**Provider: 1= Government** **2= St. marry church, 3= World Division Ethiopia,** **4= Relatives , 5= REST , 6= Local Institutions(Edir)**
Income Support		
Housing Benefit		
Widow's Benefit		
Disability Living Allowance		
Child benefit		
Orphan benefits		

5. How do you rate the supports you get?

1. Sufficient enough 3. moderate
2. Sufficient 4. Low 5. Extremely low

6. Are the supports you get long lasting and make you to be independent?

1= Yes 2= No

7. Do you get remittance supports? 1=Yes 2= No

8. If your answer to Q6 is "Yes", fill the Table below;

Source of remittance	Remitted from		Amount per year
	Domestic	Abroad	
Family			
Relatives			
Non Relatives			

E. House hold Expenditure and saving

Would you fill the Table below to indicate your monthly/ yearly expenses of the items listed?

Expense category	Amount Consumed/Kg	Total Price(Birr)	Expense category	Amount Consumed/Kg	Total Price(Birr)
Food expenses/ Monthly			**Fruits and VegeTables**		
Cereals			Onions (KeihShigurti)		
Teff			Tomatoes (komidere)		
Barley (sigem)			Potatoes (dinish)		
Wheat (sinday)			Garlic (tsaedashigurti)		
Maize (mishelabahri, ilbo)			Other vegeTables (carrot, keisir, hamli, karia…)		
Sorghum (mishela) or Leqhua			Orange/Lemon		
Dagusha			Banana		
Groud Wheat (Fino)			Other Fruits (zeithun, papaya, mango		
Ground Barley (Tihni)			**Other consumables**		
Kiki'e(pea, beans ,lentils, Dekoko)			Papper/Berbere		
Shiro			Salt		
Flux (entatie), Selit&Nuhig			Other Spices		
Oil, Meat and other animal products			Sugar		
Beef (nay keftisiga)			Coffee		
Mutton (nay begie/tiellsiga)			Tea (koslishahi)		
Chicken (derho)			**Expenses on Clothing/ yearly basis**		
Eggs			Student Uniforms		

Milk/Yogurt (tseba, riguo)			Clothing for father/mother		
Cooking Oil			Clothing for other family members (excluding uniforms)		
Cooking Butter			Shoes		
Honey			Bed sheets and Blankets		
Flour Milk (HiruchTseba)			Other clothing items		
Children Food (milk formula, and others)			**Utility expenses/ Monthly basis**		
Expenditure on eating outside home			Medical Expenses		
Bread (bani, himbasha)			Expenditure on Water		
Pasta / Macaroni/ Rice (ruz)			Cleaning, and Personal Care items		
Injera (Derek injera)			Recreation and cosmetics expenses		
Drinks (soft drinks, beer,siwa,teg.)			Firewood and Fuel		
Non food expenses			House rent(if You rent it)		
Educational Expenses/ yearly basis			Telephone expenses		
Exercise books and books			Electricity expenses		
Pens and pencils			Grinding Expenses		
Tuition fee			**Social Occasions or festivities/ yearly basis**		
Transport to and from school			Tsebel, Mahber		
Other expenses on education			Eddir		
			Wedding (merea) ,Teskar, Kiristina		
			Other social expenses		

1. Are there any household members who have had their meals out of house, at least once in a day?

1. Yes 2. No

2. If your answer to question 1 is "yes", how many are they? Could you state their expected expenses per month? _____

1. One 3. Three

2. Two 4. Four 5. More than four

3. How much is your household's monthly expenditure(in Birr)? _____

4. Does your household monthly income cover your expenditure? 1= Yes 2= No

5. If your answer to Q_4 is "No"; how do you fill the gap ofyour household monthly income and expenditure?

1. Sale of assets 3. No option except leading meager life
2. Support from relatives 4. Loan 5. Others(specify) _____

6. Do you have a saving account? 1=Yes 2= No

7. If your answer to Q6 is "Yes", how much does your family save per month? _____

8. If your answer to Q.6" No", what is the reason?

1. Lack of sufficient income 3. Poor interest for saving

2. Transfer to other duties 4. Others (specify)_____

F. Housing and Utilities and social services

Housing

1.Would you fill the housing condition, rent costs and other related issues in the Table below?

Nature of house owner ship	No. of rooms	Rent amount per month (give an estimate if it would have been rented)	Construction material used: 1= stone 2= bricks/blockets 3= wood plus mud	Quality of house: 1= Excellent 2= Very good 3= Good 4= poor 5= very poor
Own house				
Rented from kebele				
Rented from private				
From relatives for free				
Others(specify)_____				

2. Toilet facility condition of your house;

1. No toilet 3. Shared pit

2. Private Pit 4.Other (specify) _____

3. Bathing/Shower facility

1. None 3. Shared shower

2. Private shower 4. Other (specify) _____

4. Concerning your family's housing which of the following is true?

1. It is less than adequate for my family's need

2. It is adequate for my family's need

3. It is more than adequate for my family's need

Utilities and social services

Water

1. What is the main source of water for your household?

1. Piped water 2. Ground water 3.River

2. If piped, what kind of piped water services does your household consume currently?

1. Tap in the compound, private 2. Tap in the compound, shared

3. Tap outside the compound (maybono) shared

3. If "Tap in the compound, private", how much, on average, are you charged per month, for using this source? _____

4. If "Tap in the compound, shared", how many households shared the tap in the compound?

_____households and expected number of residents in the compound_____

5. From which source of supply do you get water currently?

1. Public tap 2. Private vendors

6. If "Public tap" to Q. 5, why do you prefer this source?

1. No capacity to pay for other alternatives 3.Lower Volume charge

2. Its reliability 4.Other (specify) _____

7. How much do you pay for Etro/ Jerican in the Public Tap_____and private vendors_____?

8. Are you satisfied with tap water outside the compound? 1. Yes 2. No

9. If your answer to Q8 is "No", why are you dissatisfied? Rate your response by putting your dissatisfaction as 1, 2, 3, 4 & 5.

High volume charge _____ Poor Quality_____

Low quantity _____ Unreliability _____Others (specify) _____

10. Why do you prefer tap water outside the compound? Rank your responses by putting your

Choices as 1, 2, 3,4 and 5

I cannot afford to have own tap_____ Low volume charge_____

No access to the existing pipe system_____ its reliability_____ other (specify) _____

11. How do you rank the current status of water services based on its quality, amount, and reliability? (Good & above =3, Satisfactory =2 and Poor =1)

category	rate		
	Good and above	satisfactory	poor
Quality			
Quantity			
Reliability			
Cost/Barel/Jerican/Etro			

12. To what extent do you think the current provision of piped water in Wukro town is an issue worth discussion?

1. Too serious 4.Less serious

2. Serious 5.No Problem at all

3. Moderately serious

13. To what extent does the town water supply/service introduced problem solving mechanisms in the provision of piped water to households?

1. To a greater extent 3. To a lesser extent

2. To a moderate extent 4. No attention at all

Health

1. During this year, was there an occasion in which one or more of your household members were sick?
1 = Yes 2 = No

2. If your answer to question 1 is "Yes", how many members of the family fall ill?

1= One 2 = Two 3 = Three 4 = Four 5 = Five and above

3. If your answer to question 1 is "Yes", how do you get your family members degree of illness?

1. Very seriously sick 3. Moderately

2. Critical 4. Simple 5. Very simple

4. If your answer to question 1 is "Yes", did the person take medical treatment in Wukro?

1 = Yes 2 = No

5. If your answer to question 4 is "Yes", which medical facility did you visit?

1. Government (Hospital, Health center, Clink, Pharmacy)

2. Private (Clink, Diagnostic laboratory, Pharmacy)

3. Traditional healer

4. Other (specify) _____

6. If your answer to Q 4 is "No", why did not visit modern medical facilities?

1. Unable to afford the charge

2. Uncertainty to the curable/PrevenTable nature of the treatment\

3. The very nature of the disease demands higher specialization

4. Not interested to get medication from medical units

5. Other (specify) _____

7. If your answer to Q5 is Government, why do you prefer government facility?

1. Because it has lower charge

2. Because of its good facility

3. Because of qualified professionals

4. Because of its ease access

5. Other (specify) _____

8. If your answer to Q5 is private, why do you prefer Private medical facilities?

1. Better treatment/hospitality 3.Efficient service

2. Better medicine 4.Other (specify) _____

9. If your answer to Q5 is traditional, why do you prefer traditional medicine?

1. Low charge 2. Cures better than scientific medicines

3. Better follow up 4. Other (specify) _____

10. To what extent does the town health service provided attention in solving health problem?

1. A lot attention to the problem 3. Little attention to the problem

2. Some attention to the problem 4. No attention at all 5. No Comment at all

11. If your household member has visited more than one medical facility tick them in order of frequent visits. (Often=1 & sometimes=2)

Medical Facility	Visit frequency		Evaluate the treatment based on the available drugs, diagnosis laboratory test, performance of staff etc 4= excellent,3=very good, 2= good, 1= poor and 0= no evaluation
	1	2	
Governmental			
Private			
Non-governmental			
Traditional			

Electricity

1. Do you have your own-metered electricity?

1. Yes 2. No

2. If your answer to Q1 is "Yes", for what purpose do you use?

1. Lighting only 3.Lighting, cooking and ironing, fridge

2. Lighting and cooking 4.Other (specify) _____

3. If "Lighting only" for Q. 2, which type of fuel(s) does your household frequentlyuse for cooking purpose?

1. Wood 3. Cow dung

2. Ghion Gas/ 4. Other (specify) _____

4. If Wood for Q3, why did you prefer wood to electricity for this purpose?

1. Because of its low charge/price

2. Because of it is easily availability

3. Easiness for manipulation and free of danger

4. Other (specify) ____

5. How much do you pay for electricity, on average, monthly? _____ Birr

6. How do you rate the town's electricity service coverage?

1. Very Sufficient 3. Moderate

2. Sufficient 4. Low 5.Very low

7. In your opinion has the town Electric Corporation made enough contribution in solving the problem in the provision of electricity (rate your responses)?(1-4)

High contribution ------ Little contribution-------

Some Contribution ------ No contribution at all--------

8. If your response for Q 1 is "No", what is your alternative means of electricity?

1. Made extension from Neighbors 3. Others (specify) _____

2. Use Gas/ Lump/ as an alternative

Telephone

1. If you are subscriber of a telephone line, thick one,

Type of phone	Business	Residence	Monthly expenses	How do you rate the monthly bill? 1= Very high 2= high 3= medium 4= low 5= extremely low
Fixed				
Mobile				

2. If you are not subscriber of fixed telephone, what is the reason behind?

1. Inability to pay the subscription line

2. Inability to pay monthly rent and/or bill

3. No importance /little importance to me

4. Other (specify) ___

4. If you do not have fixed telephone in your home and cell phone, what is your alternative means of communication?

1. I used my neighbors' phones as my contact number

2. I did not have any calls

3. I used public phones when I need to call

4. I used private tele centers when I need to call

5. Others (specify) _____

Credit service

1. Do you have an access to credit services? 1. Yes 2. No

2. If your answer to Q1 is "yes", rate the credit providers based up on your customer relation

Credit provider	Priority rate					Amount of loan
	1	2	3	4	5	
DECSI/Maret						
Commercial bank						
Government office						
St. marry Church wukro branch						
Other nongovernmental office						
Individuals						

3. If you are customers of credit providers, for what purpose do you take loans?

1. To start new business 3. For consumption purpose

2. To expand existing business 4. To construct residence house 5.Others (specify) _____

4. Do you think that credit is the means for employment and income generation?

Yes_____ No_____

3. Perceptions and manifestations on urban poverty

1. To which category does your house hold's welfare situation belong, among the community?
   1. Very poor 2. Poor 3.Moderate 4. Rich 5.Very rich

2. What factors do you think that aggravates the poverty situation inthe town? Rate them according their severity.

Factor	rate									
	1	2	3	4	5	6	7	8	9	10
Lack of education										
unemployment										
Households headed by women										
Old age of the household head										
Large family size										
Poor access to social services										
Poor market										
Rising price of goods & services										
Housing problem										
Lack of access to credit										
Lack of good governance										
others										

3. Put your opinions on income, expenditure and over all life of your house hold.

Factor	Improved	Declined	Remain the same	unrecognized
expenditure				
Income				
Asset holding				
Social services/health, sanitation, roads, electricity				
Over all life situation				

4. If your answer to Q3 (Expenditure) is increased what is the reason so far? Rate them 1, 2, 3, 4, 5and 6 according their degree of influence.

Improvements in income ____ Improvements in consumption behavior_____

Escalation of price of goods and services____ Increment in family size____

Poor saving habit and interest _____ others (specify) _____

5. If your answer to Q3 (Income) is declined, what do think the reason for that? Rate them according their severity, 1,2,3,4, 5and 6.

Unable to get jobs for the additional labor force of the house hold_____

Become unemployed_____

Unable to get additional employment opportunity_____

Reduce working hours of the house hold_____

Poor economic performance of the town_____

Others (specify) _____

6. Would you rate the economic performance of the town?

1. Decrease from time to time 3. There are improvements from time to time

2. No change at all 4. Not recognized 5.others (specify)

7. If your answer to Q6 is 3, are you benefiting from the growth? 1. Yes 2. No

8. If your answer to Q 7 is "yes", in what way are you benefiting from?

1. You able to get employment 3. Your income has increased

2. You able to start your own business 4. Others (specify) _____

9. If your answer to Q7 is" No", what is the reason behind?

1. Low employment generation capacity of the activities carried out

2. Poor interest to enjoy with the opportunities created

3. Provisions of services are beyond your capacity

4. Others (specify) _____

10. How do you rate the income inequality in your town?

1. Severely widens 3. Moderate

2. Widens 4. Becomes down/low 5. Very low

11. If your answer to Q10 is “1 and 2”, what can you say about the reasons?

    1. Effort difference among residents or households

    2. Efforts of the government is biased towards the haves

    3. Less attention is given to improve the lives of poor residents

    4. Poor working environment in the town

    5. Others (specify) _____

Thank you for your time!!