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COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ECONOMICS



ASSESSMENT OF URBAN POVERTY USING FOOD ENERGY INTAKE
APPROACH: THE CASE OF BONGA TOWN

A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS IN
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DECLARATION

This is to certify that this thesis entitled “Assessment of Urban Poverty Using Food Energy Intake Approach”, submitted to research and post graduate studies office of business and economics college for the award of the degree of Master of Arts in Development Economics done by Mr. Biruk Legesse 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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Abstract

Addressing poverty has been an important component of the MDGs as declared by the heads of states at the Millennium Summit in September 2000 that set out goals and targets to be met by the year 2015. The major aim of this study was to assess the determinants of urban poverty in Bonga town. Data for the study was obtained from 202 household heads by using structured questionnaire. To select sample respondents, the stratified sampling technique was used. The adapted FGT index and binary logit model were used for data analysis. By making use of Food Energy Intake (FEI) approach the surveyed households are identified as the poor and non-poor. The finding from FGT index revealed that 67.5 percent of households in the study area were found poor. The depth and severity index of the survey were found 0.95 and 0.90, respectively. The logistic regression model result showed that factors such as household size, educational level and occupation of women were found significant factors influencing households' incidence of poverty. The incidence of poverty is rampant among the surveyed households which calls for urgent interventions aimed at curbing the fate of the poor.

Key words: Poverty determinants, Indexes and Log it Model

Acronyms

CIA- Central Intelligence Agency
CSA- Central Statistic Authority
CBN- Cost of Basic Need
Cal- Calorie
EHNRI- Ethiopian Health and Nutrition Institute
ERHS- Ethiopian Rural Household Survey
EUHS- Ethiopian Urban Household Survey
FEI- Food Energy Intake
FGT- Foster Greer and Thorbecke
FHHs- Female headed Households
GNP- Gross National Product
HDI- Human Development Index
IFPR-International Food Policy Research
MDGs-Millennium Development Goals
MHHs- Male Headed Households
MEDAC- Ministry of Economic Development and Cooperation
MoFED- Ministry of Finance and Economic Development
NEC-National Economic Council
NGO- Non Governmental Organization
NSO-National Statistical Office
RDA-Recommended Daily Allowance
SNNPR- Southern Nation Nationalities and Peoples Region
SIDA-Swedish International Development Association
UNDP- United Nation Development Program
WB- World Bank
WFP-World Food Program
WBI- World Bank Institute
WHO- World Health Organization

CHAPTER ONE

1. INTRODUCTION

Background of the Study

Ethiopia is one of the world's poorest countries by GNP per head in the world, and its purchasing power parity adjusted GNP is ranked 174th out of 190 countries (WB, 2016). Human development indicators of the United Nations Development Program (UNDP, 2016) also attest to the seriousness and extent of poverty in the country. For instance, the Human Development Index (HDI) of Ethiopia is the eleventh lowest out of 182 countries in the world.

The World Bank (2015) quoted in Mohammed (2017), Ethiopian urbanization rate (16%) is lower than the sub-Saharan average of 30%. However, recently due to high rural-urban migrations and population growth of nearly 3.8%, remarkable urban expansions are observed. If managed proactively, the expansion of urban areas presents a huge opportunity to shift the structure and location of economic activity from rural agriculture to the larger and more diversified urban industrial and service sectors. However, poor management and planning in urban Ethiopia results in rising unemployment, challenges in the provision of infrastructures, services, and housing. Hence, low quality of life, low life expectancy, food shortages and high incidence of poverty characterize most of the urban areas.

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 kilo Cal), with 42 percent of children under 5 years old being underweight (Human development report, 2007, WHO, 2008and CIA world Fact book, 2008).

Urban areas account for only 16 percent of the total Ethiopian population, but also have a high rate of incidence of poverty. Unlike the findings elsewhere in the developing world, urban and rural poverty levels in Ethiopia are not dramatically different from each other. Depending on the methodology adopted and the data analyzed, the estimated urban overall poverty and food poverty range from 33 to 50 percent (Kedir, 2003; Bigsten et al 2003; MEDAC, 1999 Tadesse and Dercon, 1997).

According to Ministry of finance and economic development of Ethiopia (MoFED, 2012), southern nations, nationalities and peoples' region (SNNPR) has the third largest urban poverty incidence of 25.8% next to Amhara and Gambella regions. With an estimated of nearly 2.5 million urban population in the region (CSA, 2010), the above figure leaves more than half a million of the region's urban population trapped in absolute poverty. Moreover, though the incidence of rural poverty in the region (30.7%) is higher than the urban, the region owns the second minimum rural poverty next to Harari (10.5%) which relatively puts the region in better rank as far as rural poverty is concerned.

This paper will contribute to the literature examining poverty in Ethiopia. In particular, updated estimates will be provided of the nature and extent of poverty experienced by Ethiopians residing in Bonga town. Further, the determinants of poverty will be sorted out by using the appropriate econometric model. This will have a direct bearing on policymaking, as it will aid in prioritizing women and different types of households in the effort to tailor resources to the needy.

1.1 Statement of the Problem

Despite significant improvements over the past half century, extreme poverty remains widespread in the developing world. More than 1.2 billion people live on less than \$1 per day and more than 2.8 billion (almost half of the world's population) live on less than \$2 a day (Todaro, 2003). This worldwide chronic poverty is extensively manifested in our country in general and in urban centers in particular.

In Ethiopia poverty is the general feature for the nation and causing many sufferings and anguish to the largest proportion of the population. It is high agenda of the government, donor agencies, NGOs and other actors. The government has been formulating and implementing various policy interventions and programs that are in one way or another related to poverty reduction.

Currently, though poverty is taken as the country's rural phenomena there is a diffusion and growth of urban poverty. Indeed, the number of urban poor is increasing at unprecedented rate. This is due in part to the highest rural-urban exodus and alarming internal population growth (Dessalegn and Aklilu, 2002). In effect, the urban economy has limited capacity to accommodate the populous. In such a situation, employment in the formal sector is tough and the probability of getting commendable job opportunities, in fact, could be daunting.

The impoverished people who live in urban centers of Ethiopia often suffers from under nutrition and health problem, have little or no literacy, have little political voice, live in environmentally degraded areas and attempts to earn a meager living on dilapidated urban slums.

High family size coupled with very small; perhaps fragmented arable land which is characterized by hills and mountains is the main feature of the area.

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 (Ranjan Ray, 1999; Mok T.Y., et al., 2007).

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. Esubalew (2006) revealed that 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.

World food program studied the issue of food insecurity at national level in Ethiopia. It stated that the common factors that cause household food-insecurity in urban areas of the country are: household size, age of household, sex of household head, marital status of household, education level of household, dependency ratio, access to credit, ownership of saving account, total income per adult equivalent, expenditure level, asset possession, access to social services, owner of home garden, access to subsidized food, sources of food, availability of food commodities, and supply of food commodities(WFP,2009)

Women constitute a substantial majority of urban centers poor. Across Ethiopia, women and children experience the harshest deprivation .They are malnourished, receive less medical services, clean water and sanitation, lower earning capacity, less access to education, formal sector employment, social security and government employment programs. Low wages characterize the Ethiopian urban labor market although it differs among the type of employers, sector and worker characteristics. Women in urban Ethiopia are relatively more affected by unemployment and they are paid lower wages (World Bank, 2007).

Because of these factors financial resources of poor women are meager and unstable relative to men's.

Therefore, the present study is aimed at filling the above gaps via adding body of knowledge to the existing literatures by assessing urban poverty and its determinant, food security situation and women employment among urban households in Bonga town.

1.2 Objective the Study

The overall objective of the study is assessing the urban poverty, food security and women employment in Bonga town. Specifically, the study aims:

- To identify household who live below poverty line in the town
- To identify the different factors that determines poverty in town
- To measure poverty using food energy intake approach in the town
- To assess women's employment
- Based on the findings, to draw some policy implication

1.3 Significance of the Study

According to Getachew (2002), the measurement and analysis of poverty could have "*cognitive purpose*", "*analytical purpose*", "*policymaking purpose*" and "*monitoring and evaluation purpose*". This study will have, at least, the first three significant purposes. First, it helps to know the situation better; second, it helps to understand factors determining the situation and third, it helps to design development interventions. Hence, this paper believed to be significant since it attempts to address the determinants of urban poverty, food security and gender issues in the town. In addition to this, it is presumed that the paper has a paramount significant as a springboard for those researchers who conduct a study on the topic.

1.4 Scope of the Study

Since studying the overall features of poverty, food security and women employment at the national level calls for a good deal of knowledge, skill, experience, finance, time and organized data ,the researcher only attempts to cover Bonga town for which the required data is available.

In addition, so many factors are influencing poverty; hence its boundary is limited with the household and community level characteristics.

1.5 Limitation of the Study

The study is limited in its area of consideration to only Bonga town. Therefore, the opportunity to extrapolate the output from the study to other areas will be limited. Urban poverty is a function of multitude of factors. In this study, only some variables, like family size, education, occupation, etc. were assumed to affect the incidence of poverty considered.

Moreover, analyzing poverty and food security using cross-sectional data at household level is too hard to infer and might differ if we use panel data at town level.

1.7 Organization of the thesis

The rest of the thesis organized in five chapters. Conceptual frame works and empirical investigations and experiences of countries have been developed in chapter two. More importantly, poverty and its determinants (household, individual and community level variables) related points in respect of concepts and findings have been addressed in it. The third chapter deals with the methodology of the paper in which area description, sampling techniques, size, and model specification has been stated. Chapter four, the main body of the study, assessed poverty and its determinants food security and women employment in Bonga. In this part, poverty profile of Bonga with respect to different variables (households and community) has been computed using Stata. In addition, the variables influencing poverty in Bonga 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

Review of Related Literature

2.1. Conceptual Frameworks of Poverty

Poverty is a polysomic object of research that can be defined in several ways. It affects many aspects of human conditions like economic, social, physical, moral, psychological etc. As a result, there are different approaches in the conceptualization of poverty.

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).

Food security is a central topic in the development debate and the discussion about what it involves and how to best address this feature has evolved over the last decades, resulting in multiple definitions and concepts. However, one definition of food security has become widespread accepted and used: “When all people, at all times have physical and economic access to sufficient and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Rome Declaration on World Food Security and World Food Summit Plan of Action, 1996).

After the Second World War, food security was defined by means of the availability of food in a country. This perspective endorsed the supply side of the food system and questioned whether a country was sufficient in delivering food to the local population through the food markets present; to meet the dietary and energy needs of its population (Pinstrup-Andersen, 2009). When supply and demand was balanced equally, a country could claim to be self-sufficient in delivering food and was therefore considered food secure. Definitions of food security stemming from that era are reflecting this vision, for instance: “availability at all times of adequate world supplies of basic food-stuffs..., to sustain a steady expansion of food consumption... (Report of the World Food Conference, 1974). The FAO finally paraphrased this in the food security framework as: “the level of food production in a country, the stock levels and net trade” (FAO

Food Security Programme, 2008). This can relate to production, or how much and which types of food are available through local production; distribution, or how food for consumption is physically moved to be available, in what form, where, when and to whom, and finally exchange, how much of the food is available through exchange mechanisms such as barter, trade, purchase or loans rather than local production (Ericksen, 2008) (Ingram, 2011)

Much of the food security debate still revolves around food production and the availability of food, as the most prominent solution remains growing more food (Crush and Frayne, 2011). However, this approach hides the multi-complex dimensions of food security and has been, and still is, contested on a regular basis.

2.1.1. 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.

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).

2.1.2. 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.

2.1.2.1. 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 (Dorothee B., 2004; and Yared, 2005). Nevertheless, this approach has been criticized in two grounds (Garza, 2001; Fitsum T., 2002; and Dorothee B., 2004).

2.1.2.2. 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.

2.1.2.3. 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 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 and 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.

2.1.2 Food poverty

Given our focus on food security poverty definitions, we next consider food poverty, which can be defined generally as a condition where the household lacks the resources necessary to acquire a nutritionally adequate diet. The food energy intake (FEI) method is often used to estimate a food poverty line, defined as the minimum nutrition required by households to lead a healthy life (Greer and Thorbecke, 1986; Kyereme and Thorbecke, 1987). Typically, the poverty line can then be set as the minimum food expenditure per adult equivalent per month required to obtain the nutrient RDA.

To derive this poverty line in the present context, we first converted quantities of food reported in non-metric units into their metric equivalents using relative conversion factors defined using the unit value information obtained from the survey. Such computations are often overlooked in poverty measurement and this is inappropriate because such an omission gives a misleading measure of the level of food consumption by households (Krishnon and Dercon, 1998). Then we used the food composition table compiled by the EHNRI to convert quantities consumed of each of the food commodities that we observe to be purchased in the household survey data into their calorific equivalents. The food composition tables have been regularly compiled since 1968 and include information on 180 food types checked by the Institute of Medical Chemistry in Uppsala with the assistance of SIDA. Samples are collected in all the main Ethiopian regions, normally at least twice a year (EHNRI, 1999). Given the care in the research and the longitudinal nature of these data, we believe the calorific conversions are of good quality and representative of the main regions, crops and diets. Our household questionnaire also permits it to distinguish ‘food consumed’ from ‘food purchased’ and enable us to arrive at the actual food consumption of households.

Given information on food expenditure and calorie consumption, we estimated the cost of acquiring 2200 kcal per day per adult using the cost-of-calorie function given in Greer and Thorbecke (1986). For each city, separate regressions were run to derive city-specific food poverty lines, because tastes and commodity availability may differ across cities.

In the 'food share' method, the cost of the food bundle that meets the minimum energy requirement is estimated for each population sub-group. These food poverty lines are then divided by the share of food in total expenditure of the poorest households, such as the poorest deciles, in each sub-group to obtain the total poverty line. This method may also lead to inconsistencies in poverty comparison since the share of food in total expenditure does not remain constant across sub-groups (Ravallion, 1994).

An alternative method of deriving the poverty line, which is a version of the cost of basic needs approach, is suggested in Ravallion and Bidani (1994). In this method, a basket of goods for which basic food requirements will be met is defined. The cost of this basket at market prices becomes the food poverty line. An allowance for non-food goods is then added on the food poverty line to obtain the total poverty line. This is done by estimating a food Engle curve and determining the food share of the representative household whose total consumption is exactly equal to the food poverty line (Ravallion, 1994; Ravallion and Bidani, 1994).

World Food Programme stated (2009) that the common factors that cause household food insecurity in urban areas of the country are: household size, age of household, sex of household head, marital status of household, education level of household, dependency ratio, access to credit, ownership of saving account, total income per adult equivalent, expenditure level, asset possession, access to social services, owner of home garden, access to subsidized food, sources of food, availability of food commodities, and supply of food commodities.

2.1.3. Gender and poverty

Recently, Quisumbing et al (2001) examined the association between gender and poverty based on household survey data sets from ten developing countries [six from sub-Saharan Africa (including Ethiopia), three from Asia, and one from Latin America]. The paper computes income and expenditure-based poverty measures and investigates their sensitivity to the use of per-capita and per-adult equivalent units, and different specifications of the poverty line. It also tests for differences in poverty measures between individual males and females, and between households headed by males and females, using Foster-Greer-Thorbecke poverty measures and stochastic dominance analysis. Their results show weak evidence that females, as well as households headed by females, are over represented among the poor. "While female-headed households are worse off in terms of a number of poverty measures, these differences are

statistically significant in one-fifth to one-half of the datasets, depending on the poverty measure used. Poverty measures are also higher for females than males; these differences are significant in a smaller proportion of the datasets (about a fifth to a third).” Particularly, their analysis using stochastic dominance tests reveals that it is only in two countries (rural Ghana and Bangladesh) out of the ten where FHHs have consistently higher poverty among the bottom third of population. They also point to the need to analyze the determinants of household income and consumption using multivariate method focusing on female headship.

Bigsten, A. et al (2002) in their studies of the link between economic growth and poverty based on the household data between 1994 and 1997 in the country, looked at the correlates of poverty in rural and urban areas separately. Of the many independent variables they have considered is a dummy for the gender of the head. Their results showed that in rural areas, compared to MHHs, FHHs face higher probability of being poor. In terms of the magnitude of its effect, this variable seems to be the most important correlates of poverty. Even though female headship can be caused by different factors, civil war seems to play an important role in Ethiopia. If we look at the percentage of FHHs by surveyed villages, the three with the highest percentages are found in areas where the civil war was for a long period of time. Unlike their counterparts in rural areas, the result further showed that FHHs in urban areas do not face a higher chance of being in poverty. They argued that the fact that agriculture is probably the only viable occupation and farm activities are traditionally male-dominated in rural areas and in contrast the availability of a variety of occupations that females can participate in urban areas is probably the main explanations for this result. However, the model employed in the study does not allow us to further look into other important variables (such as education, and employment status of the female head) other than female headship, which can contribute to poverty or welfare status of households with female heads.

Another more extensive study is by Girma (1997) on comparisons of poverty on female and male-headed households in Addis Ababa. The paper examines the relative welfare level of FHHs compared to MHHs and found that there is no significant difference between them. It further identifies other characteristics, which are generally believed to be correlated to poverty, such as household size and education of head to have significant influence in determining the welfare level of the household rather than female head-ship. Thus, the study concludes that the issue of

female-headship as a proxy for targeting program of poverty alleviation is not important as far as the definition of headship is not changed to reflect economic support. However, this study has its own limitation in that the data used in the study included only households in Addis Ababa hence do not represent the country or urban or rural regions of the country. In terms of the models used also, it is observed that the study is limited to modeling welfare and poverty incidence only.

2.1.4. 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).

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:

2.1.4.1. 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).

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).

2.1.4.2. 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).

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 percent¹³ 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 (0.514) 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).

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).

2.1.4.3. 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).

2.1.5. 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 wellbeing 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).

2.1.5.1. 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).

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 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 experts. Therefore, CBN computation utilizes the following main steps (WBI, 2005; Metalign, 2005; and Gaurav D., et al., 2000).

- 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 nonfood poverty line (Ravallion, 1992; Fitsum T., 2002 and WBI, 2005) 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

2.1.4.2. Food Energy Intake Approach (FEI)

This approach places the poverty line as the income or consumption expenditure level just sufficient to meet a predetermined 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 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 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 threshold across groups if it is applied to different time period and regions in the same country.

2.1.5.2. 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).

2.1.6. 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 and Fitsum T., 2002).

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 (PG) index, and the severity of poverty (PS measure) index (Ravallion, 1992; Aigbokhan, 2000; WBI, 2005; and Tassew et al., 2008).

2.1.6.1. 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. 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):

$$H = P_1 = \frac{Q}{N} \text{-----e1}$$

Therefore, introducing I , Y_i is expenditure or income and Z is the poverty line, then $e1$ can be rewritten as follows,

$$H = P_0 = \frac{1}{N} \sum_{i=0}^Q I(Y_i < Z) \text{-----e2}$$

2.1.6.2. 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 aggregatepoverty 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 ofeliminating 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 (G_i) 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):

$$PG = P_1 = \frac{1}{N} \sum_{i=0}^Q \left(\frac{G_i}{Z} \right) \text{-----} e3$$

Where $G_i = (Z - Y_i) \cdot I(Y_i < Z)$

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

2.1.6.3. 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; Tassewet al, 2008; and Fredu, 2008).

Poverty severity index 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:

$$PS = P_2 = \frac{1}{N} \sum_{i=1}^Q \left(\frac{Z - Y_i}{Z} \right)^2 \text{-----} e4$$

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 parameter¹⁹, 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 $\alpha = 0$, the FGT or the P_α becomes the Head Count Index (H) or e1, when α has value 1, P_α is the Poverty Gap Index (PG) or e3, and when α has value 2, it definitely reflects the poverty Severity (PS) or e4 above.

2.2. Empirical Literature Review

2.2.1 The poverty profile of urban Ethiopia

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 labor 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).

A study by Esubalew A. (2006) on the determinants of urban poverty in one of the town of Amhara region, DebreMarkos, found that average monthly income, family size, educational level and disease incidence as significant determinants of urban poverty. With the dynamic behavior of causes of poverty from time to time, designing policies on the basis of a research done before 10 years and in other region may not be plausible.

Tesfaye A. (2006) decomposed urban poverty in Ethiopia to growth and inequality effects and found that both growth and redistribution are useful instruments in combating poverty. Though this study is crucial regarding the general impact of growth and redistribution on poverty, the war on poverty should have to go beyond this horizon and target specific causes. Similarly the mean consumption expenditure per adult equivalent has been computed for urban Ethiopia and each of the urban centers to highlight the average standard of living enjoyed by the urban society. The average consumption for urban Ethiopia was 151 Birr in 1994, but this masks substantial variation across urban centers. The highest figure was recorded in the city of Dire Dawa, followed by Bahar Dar, Awassa, Dessie, Addis Ababa, Jimma and Mekelle. There was a 6-percentage decline in real mean consumption per adult equivalent between 1994 and 2000 for urban Ethiopia. Similarly, there was a decrease in all the cities with the exception of Awassa and Mekelle during the period. Specifically, significant declines were recorded in Dire Dawa, Dessie and Bahar Dar where the mean consumption per adult equivalent fell by 26, 25 and 21

percentage points respectively. Conversely, there was an increase in Mekelle and Awassa by 41 and 16 percent respectively.

Using a panel data Yonas A. *et al* (2012) analyzed the correlates of subjective and ordinary poverty in urban Ethiopia with the main emphasis on individuals' perception of poverty on themselves. They found that households with a history of past poverty continue to perceive themselves as poor even if their material consumption improves.

2.2.2 Empirical findings concerning characteristics of the poor

Based on panel data (1994, 1995 and 1997) Kedir reach a conclusion that says “Chronic poverty is often strongly associated with households having high dependency rates. While these may be life cycle effects, such households are nonetheless often persistently poor over many years, more than the time horizon of this data set. This is indeed the case in urban Ethiopia, where chronically poor households are more likely to be large and likely to have more children in them compared to households that are only sometimes poor. Similarly, the households that were never poor over this period are more likely to be smaller and likely to have fewer children than those that were sometimes poor. However, the never poor households are also more likely not to have any household members aged 55years and above compared to the other groups. The number of adults though tends not to vary very much across these four groups of households, so indicating that poor households in general and the chronically poor in particular typically have somewhat higher dependency rates. This of course is potentially a very important determinant of persistent poverty.

Dercon and Tadesse (1999) made a comparison of rural and urban poverty using the 1994 rounds of the ERHS and EUHS. Different poverty lines were derived in the study to overcome potential problems that could arise due to differences in household needs, prices and tastes across rural and urban areas. Thus, poverty lines were defined using four different food baskets; one national, one each for cereal and enset⁷ growing regions of rural areas, and another for urban areas. The cost of basic needs approach described in Ravallion and Bidani (1994) was used in estimating the poverty lines. The findings suggest that urban poverty is much higher than rural poverty when region specific food baskets are used as opposed to a single national basket. This finding is consistent with the hypothesis that expensive sources of calories are consumed in urban areas. Enset growing rural regions were found to be much poorer when a single basket was used,

confirming the role of enset as a low cost calorie source. Nevertheless, the difference in poverty between urban and rural areas was found to be small on average.

2.2.3. 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).

2.2.3.1. 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.

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.

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).

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.

Age of Household Head

Eyob F. and Mark Harris (2006) 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 household and the extent of poverty (NEC, NSO and IFPR, 2001).

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.,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.

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

Denu et al. (2005/07) study the characteristics and determinants of youth unemployment and underemployment in Ethiopia from 1984-2001 and conclude that the youth is substantially affected by unemployment and significant differences exist within the youth group across location (urban-rural), gender and education. The urban youth unemployment stood at 7.2% while it was 37.5% for the rural, the latter facing high rate of underemployment. Unemployment for the youth women was 17.3% in 1999 while it was 6.9% for their men counterparts.

Regarding education, 44.5% and 32.6% of the unemployed youth were illiterate or had only primary education. The paper indicates that the private sector plays a huge role in employment as a result of policy change by the current government to promote the private sector as opposed to the previous government's policy where most enterprises were government owned. Using data from the Ethiopian Urban Socio Economic Survey from 1994 to 2000, Haile (2008) studies the nature of self-employment "for the first time in Ethiopia" and finds that the young, the educated, those that migrate to urban areas recently and those whose parents are not self-employed are less likely to be found in self-employment.

The World Bank (2007), with its report in two volumes, acknowledges important improvements in urban unemployment between 1995 and 2005 though the labor market situation remained

unchanged. According to this study, the rapid rise in the urban labor force creates pressure on the labor market and it can be seen as both a challenge and an opportunity for the Ethiopian government. The rising number of educated labor force entering the market each year as a result of education expansion and internal migration necessitate enhanced job creation in the country. Another feature of the Ethiopian urban labor market indicated in this study is the increasing literacy rate. This is implicated in World Bank (2011) that the net primary school enrollment rate in Ethiopia increased to 87.9% in 2010 from 68.5% in 2005.

Low wages characterize the Ethiopian urban labor market although it differs among the type of employers, sector and worker characteristics. Even though females are relatively less skilled yet, the literacy rate and their participation in the labor force is increasing. There is labor market segmentation with a relatively wanted public sector and formal private sector, and a large number of unemployed and a large informal sector with low wages and mostly occupied by women. Women in urban Ethiopia are relatively more affected by unemployment and they are paid lower wages (World Bank, 2007).

As can be noted, many of the studies surveyed so far have concentrated on youth unemployment in urban Ethiopia and not many of them focused on general unemployment.

2.2.3.2 Conceptual framework of poverty

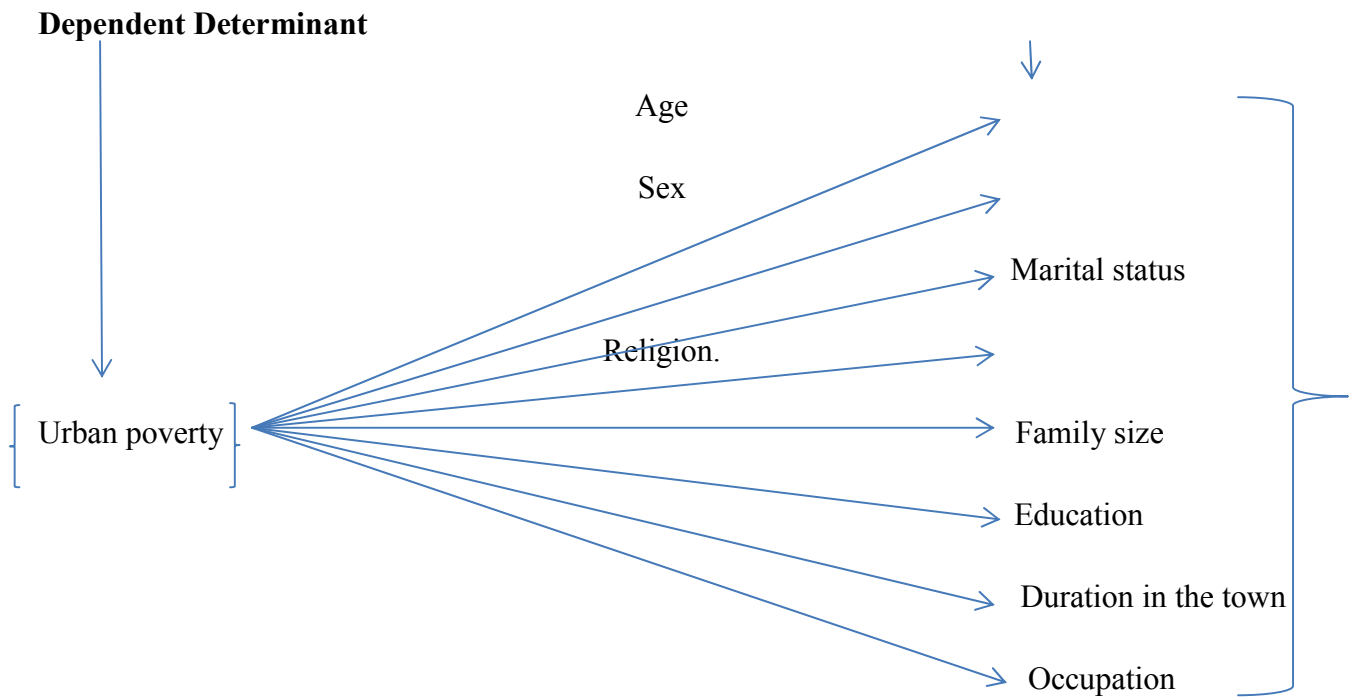
As a concept, "poverty" has its origins in social ethics and thus belongs to the field of political philosophy, on which the theory of the arrangement of society is based. It subsequently found itself in the center of the economic theory of social choice (Boccanfuso, 2004).

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).

If the concept of poverty is, therefore, multidimensional and no consensus has been reached, then it goes without saying that its definition is complex, a matter that needs rigorous task to comprehend. In line of this the conceptual framework of the study is depicted as follows.

Figure 1: Conceptualizing Determinants of Urban Poverty



Source: Own Creation

CHAPTER THREE

3. Research Methodology

3.1. Description of study area

Bonga is a town and separate woreda in south-western parts of Ethiopia. Located southwest of Jimma in the Keffa Zone of the Southern Nations, Nationalities and Peoples Region upon a hill in the upper Barta valley, it has a latitude and longitude of 7°16'N 36°14'E with an elevation of 1,714 meters above sea level. It is surrounded by Ginboworeda. Bonga is the administrative center of the Keffa Zone, with a major market on Saturday and lesser ones on Tuesdays and Thursdays. Note that there is another town in Ethiopia named "Bonga", near Gambela.

Based on the 2007 Census conducted by the CSA, this town has three administrative kebeles with a total population of 20,858, of whom 10,736 are men and 10,122 women. The majority of the inhabitants practiced Ethiopian Orthodox Christianity, with 72.53% of the population reporting that belief, 11.17% were Muslim, 9.85% were Protestants, and 6.18% embraced Catholicism.

3.2. 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, previous working literatures and reports of wereda Administration were used. The structured questionnaires were posed to the heads of the households which was first prepared in English and then translated into Amharic. They were interviewed about the demographic characteristics (age, sex, marital status, and family size), religion, education, duration in the town, employment, expenditure on food.

To collect the information, six enumerators and three guides (from kebelles) were recruited on daily basis. Enumerators were 12th 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.

3.3. Sample Size

The study employed a cross-sectional survey to examine urban poverty using food energy intake approach. The research covered three kebeles of the town. A total of 200 respondents were surveyed. This, 200, sample is determined using the minimum sample size formulae of Yemane (1967) as shown below.

$$n = \frac{N}{1 + N(e)^2}$$

where n is the sample size, N is the household size and e is the level of

precision at 95% confidence level.

$$n = \frac{20,858}{1 + 20,858(0.07)^2} = 202.10 \text{ approximated to } 202$$

Thus, the sample size for my study was 202 and proportionate stratified probability sampling technique was used from all the three kebeles of the town. Accordingly, from the registry-frame of kebelles, 43.5 percent was covered by kebele 02, followed by kebele 03 (31.5percent) and the remaining 25percent was allocated to kebele 01.

To select the households to be surveyed, the registry-frame works of kebeles were used and Systematic sampling technique was employed, i.e., the Kth household head was selected using the formula:

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

Where K is the Kth household from the list, N is number of households in the kebele and n is the proportionate size (sample size) from each kebele to be surveyed.

3.4. 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, chi square and poverty indices); and are presented using Tables, charts and graphs.

Determinants of poverty in Bonga 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 Stata Version 13.

3.5. Model Specification

In order to explore the correlates of urban poverty with the variables thought to be important in explaining in urban poverty a Logistic regression model was employed, with the dependent variable being the dichotomous variable of whether the household is poor (1) or not poor (0). The explanatory variables considered in the analysis are demographic (sex, age, household head, family size) religion, educational level, occupation, duration in the town.

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

$$y_i^* = \beta_i X_i + U_i \dots\dots\dots 1$$

Where y_i^* is the status of household i

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_i^* is latent variable, what is observable is an event represented by a dummy variable defined by:

$$y = 1 \text{ if } y^* > 0, \text{ and}$$

$$y = 0 \text{ otherwise} \dots\dots\dots 2$$

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,

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

$$\text{Prob}(y_i = 1) = 1 - F(\beta X) \dots\dots\dots 3$$

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

Therefore, our Logistic regression model is given by:

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

Where $\beta_1, \beta_2, \dots, \beta_n$ 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.

3.6. Variable Definitions and Measurements

Sex of the head: Refers to the sex of the head of the household. It is hypothesized that households headed by female has greater probability of falling to poverty (If the head of the household is female it takes the value of 1, and, 0 otherwise).

Education level of the head: Refers to the level of education of the head of the household with dummy (If the attainment is literate it takes the value of 1, and 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 (If the head of the household head live together it takes the value of 1 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. The total number of households converted into the standard adult equivalent unit.

Women occupation of the household head: This refers to the type of occupation that the woman is engaged in. In this category five dummies were identified. If the woman is self-account it take the value of 0, 1 otherwise. If the woman is wage earner it take the value of 1, 0 otherwise. If the woman is housewife it takes the value of 1, 0 otherwise. If the woman is a private worker it takes the value of 1, 0 otherwise. If the woman is government worker it takes the value of 1, 0 otherwise. . If the women is NGO worker it takes the value of 1, 0 otherwise.

Duration Of living in the town:It is expected that households living more than 10 years in the city are less vulnerable to poverty than new comers with dummy(1 if the house hold live less than 10 years, 0 otherwise)

3.7. Setting Poverty Line

The food energy intake (FEI) approach is employed to determine the poverty line than cost of basic needs approach (CBN), based on a predetermined value expressed in terms of calorie intake equivalents. This approach is preferred due to different premises. First, during the survey period (April 2018) the prices of all commodities in the country and the study area as well have increased drastically. Second, a large number of residents, particularly, those who reside in the peripheries of the town have their own lands (who are urban farmers) do not buy cereals and have little expenditure for cereals for they consume from what they grow. Third, the FEI is preferred to the CBN for the latter needs enumeration and quantification of basics and non-basics of different items in monetary terms. Having such rationale for the FEI, the following six steps were employed to obtain the poverty line:

Step one: This step is left for enumeration of food items consumed in the study area. The lists of food items included in the analysis are: Teff, Wheat, Maize, Barely, beans, peas, Lentil, vegetable (Cabbage, Carrot), Dry Pepper, Edible Oil, Cow Milk, Onion, Butter (Cow and Vegetable), Meat, and Sugar.

Step two: Each bundle of food item is weighted with the appropriate unit of measure (in kilograms or litters).

Step three: To get the total amount of food bundle a household consumed in a month each of the weighted bundles of food items are summed up. $Teff + Wheat + Maize + Barely + Potato + Onion + Beans + Peas + Vegetable (Cabbage, Carrot) + Dry Pepper + Edible Oil + Milk + Butter (Cow and Vegetable) + Meat + Sugar$. Mathematically it can be represented as, $K_1 + K_2 + \dots + K_n$ (up to the last food item) where K refers to the value in kilogram or Litter of each food basket.

Step Four: The aggregate value of baskets of food items consumed by a household in a month is divided to the corresponding sample size of the household to get the amount of kilograms each adult individual gets in a month.

$$\frac{\sum_{i=0}^{200} x_i}{\sum_{i=0}^{200} y_i} = F$$

Amount in Kilograms or Litters of food items an individual consumed in a month

Where x_i is a total basket of different food items in kilograms or litters a household consumed in a month and y_i is the family size of the surveyed household?

Step Five: The amount of Kilograms each household consumes in a month is again divided for 30 days to get the amount of kilograms each adult equivalency individual consumed in a day. This is equivalent to $F/30$.

The conversion factor for the mentioned food items is indicated in the table below.

Table 1: Calorie content of different food items

Consumption per 100 grams	Energy in calorie	Consumption per 100 grams	Energy in calorie
Teff	355	Vegetable(cabbage, carrot)	75
Wheat	340	Dry pepper	73
Maize	344	Edible oil	900
Barley	370	Cow milk	79
Potato	75	Butter	700
Onion	38	Meat	626
Beans and peas	310	Sugar	373
Lentil	325	Coffee	50

Adopted from Esubalew(2006)

Note: For foodstuffs of more than one item the average values are taken

Step Six: This is the last step the research used to get the number of poor and non-poor households in the study area.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Descriptive Analysis

In this section, descriptive analysis of the data is made. Based on the poverty line-2200 calorie per day per adult equivalent, 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, ratios, chi-square and the three poverty indices (FGT).

The study is carried out with 202 households selected from three kebelles, namely, kebele 01, kebele 02 and kebele 03.

4.1.1. Identifying the Poor

The food energy intake (FEI) approach is employed to determine the poverty line than cost of basic needs approach (CBN), based on a predetermined value expressed in terms of calorie intake equivalents.

Calibrating the poverty line using the FEI international agreed figure -2200 calorie per day for an adult person as recommended by nutritionists, yields: -

1. $\frac{\sum_{i=0}^{200} x_i}{\sum_{i=0}^{200} y_i} > 2200$ calorie = 65 households (above poverty line)
2. $\frac{\sum_{i=0}^{200} x_i}{\sum_{i=0}^{200} y_i} < 2200$ calorie = 135 households (below the poverty line)

In the research there exist three indices of poverty as follows.

1. Head Count : $P_0 = \frac{q}{N} = 135/200 = 0.675$

Where q is households with per capita energy intake less than the standard per capita requirement of 2,200 kilocalories and N is number of households.

2. Poverty Gap: $P_1 = \frac{1}{N} \sum_{i=0}^{200} (z - y_i)^1 / z = 0.95$

Where, Z is the food security line, Y_i is the per capita calorie intake of household i adjusted for per adult consumption expenditure and N is the total household sample size.

$$3. \text{ Severity Gap: } P_2 = \frac{1}{N} \sum_{i=0}^{200} \left(\frac{Z-x_i}{Z} \right)^2 = 0.90$$

Where, Z is the food security line, x_i is the per capita calorie intake of household i adjusted for per adult consumption expenditure and N is the total household sample size.

The number of non-poor (in the above poverty line) and poor (below the poverty line) households, according to the above poverty line is, therefore, 65 and 135 respectively.

The finding of this study revealed that the head count ratio, the food insecurity gap (short-fall), and the squared food insecurity gap (severity of food insecurity) were estimated to be 0.675, 0.95, and 0.90, respectively in the study area. This implies 67 percent of the sample households cannot meet the minimum energy requirement recommended for healthy and active life.

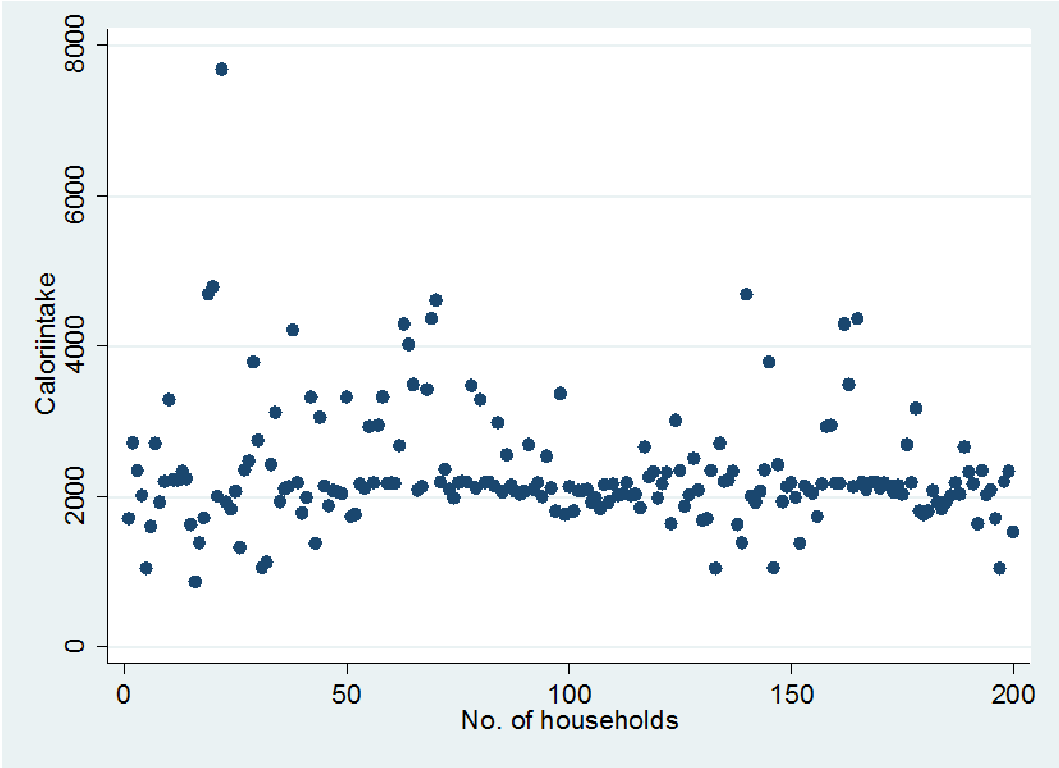
The FGT1 or P1 index shows the gap (depth) of food insecurity or the average short fall of food energy from the minimum amount of deity energy required for food insecure households. In other words, it measures the total amount of kilocalorie necessary to remove the food insecurity. In the present study, each food insecure household needs, on average, 95 percent extra daily caloric consumption to bring them up to the minimum recommended daily caloric requirement level.

The FGT2 or P2 index of food insecurity indicates the severity of food insecurity by giving more weight for the more deprived households; i.e., households with higher amount of food energy deficit from the recommended minimum allowance are given more weight in the computation of average level of shortfall of per capita kilocalorie consumption. As such, it takes more resource to lift those households which are more impoverished than those which are closer to the minimum recommended kcal per capita per day. The survey result has identified that the relative deficiency among food insecure households is 90 percent. Hence, FGT2 index shows food consumption inequality in a generic sense.

The following figure shows distribution of households along the poverty line. Zero value of the figure represents the poverty line-2200 calorie per day per adult equivalent. Households above and below zero value respectively tell the number of households who did and did not secure a predetermined minimum energy requirement of 2200 calories per day per equivalent. In the

figure it is clear to observe that a large number of the households are concentrated below the zero value signifying that most of them are food insecure. Extreme values are observed around 5000 and 1800 calorie in the above and below poverty lines in order.

Figure 2
Distribution of Households along the Poverty Line



Source: Graphed based on own survey result

4.1.2. Household Characteristics and Poverty

Age 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. In Bonga, age of household was not found to be significant in linear terms. The research classified the age of the household into below 35, 36-45, 46-55, 56-65 and above 65 and the results of the survey is indicated below.

Table2: Age and Poverty

Age of the HHH	Poverty Level		Total
	Below poverty line	Above poverty line	
<35	25	21	46
36-45	23	11	34
46-55	38	12	50
56-65	38	12	50
>65	11	9	20
Total	135	65	200
Chi2 = 11.5111		prob = 0.074	

Source: Own survey and Computation

Highest poverty (28.14 percent belongs for the heads in the range of 46-55 and 56-65 years old, household heads less than the age of 35 have a head count index of 21.2 percent and lowest head count index (8.15percent) is recorded in the age range of greater than 65 years.

The effects of age of the household on poverty was tested using a Pearson Chi square and found out that it has no significant outcome at the significant levels of 99% and 95%.

Poverty and Sex

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, 47.4 percent of male headed households and 52.6 percent of female headed households are living below food poverty line per adult equivalent. Therefore, comparing the incidence of poverty in the male and female headed households, Female headed households are experiencing higher incidence of poverty than their counter parts in Bonga (Table 4).

Table 3: Poverty levels based on sex

Sex of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Male headed	34	64	98
Female headed	31	71	102
Total	65	135	200
Chi2 = 1.8906		prob = 0.389	

Source: Own survey and computation

The Chi square test showed the probability that a household will be poor across sex (when headed by male and females) has no significant outcome in any of significant levels (99%, 95% and 90%).

Marital status and Poverty

In poverty correlates analysis, marital status of the household head is an important constituent of the demographic variables. Economic theory and most empirical literatures support the notion that the chance of falling into poverty increases as one is married. This is due to 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. On the other hand as one is married the probability of falling into poverty decreases, as there would be more labor forces in the household.

Table4: Estimated poverty by marital status

Marital status of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Single	5	11	16
Married	40	77	117
Divorced	8	28	36
Widowed	12	19	31
Total	65	135	200
Chi2 = 2.3887			prob = 0.496

Source: Own survey and computation

The above table demonstrates that 57.01 percent who are in the married category are found in the below poverty line. The least number of household heads (8.15%) is never married heads in the below poverty line. Married households are many both in the above and below poverty line, which shows that there are not much significant differences in the way out or in of poverty as one is married. On the contrary, there is a big difference between the standards of living when one is widowed as the chance of falling into poverty is high.

The effects of marital status of a household on poverty was tested using a Pearson Chi-square and found out that it has no significant outcome in any of the significant levels (99%, 95% or 90%).

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 Fitsum T., 2002; and Esubalew, 2006.

The practice of using family planning techniques is reported to be extremely low for reasons of poor awareness of the community on the available health services (CARE-Ethiopia, 2001).

Table 5: Estimated poverty by family size

Family size of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
1-3 family members	33	30	63
4-6 family members	22	63	85
7-9 family members	9	35	44
>9 family members	1	7	8
Total	65	135	200
Chi2 = 17.1983		prob = 0.001	

Source: Own survey and computation

As Table 6 portrays, the incidence of poverty is highest (46.67 percent) in the households having family size in the range of 4-6 and lower extent of poverty (5.2 percent) is registered with household having family size of greater than nine.

The chi-square tests of this variable obtained that the explaining power of household's family size upon poverty is found to be significant at 99% confidence interval. This significance shows that the family size of household, perhaps, may be the most important variable in affecting the prevalence of poverty in the town (refer annex 6, table 5).

The increases in poverty with household family size reflect the importance of family planning for reducing poverty. However, care should be taken in interpreting the result because some studies argue that the hypothesis that poverty leads households to have more children is equally plausible implying that the direction of causation between poverty and family size require further investigation.

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).

Table 6: Educational level and poverty estimation

Educational level of HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Illiterate	1	14	15
Primary	18	59	77
Secondary	18	42	60
Collage and above	28	20	48
Total	65	165	200
Chi2=19.5146		Prob = 0.000	

Source: Own survey and computation

The cross tabulation of the survey result showed that households head highest educational level has a significant effect on the probability of being poor or non- poor at 99% confidence interval. With the exception of illiterate, the incidence of poverty was found increasing continuously as one move away from college level education to primary school. Similarly, the level of not being poor increases as one moves in the continuum line from illiterate to graduates. Thus, the explaining power of highest educational level of the household head is highly significant (99%) in Bonga town (refer appendix 12).

Duration in the town and poverty

Residence before ten years has a negative but insignificant relationship with the probability being under poverty i.e. those households which lived more than ten years in the town have relatively low probability being under poverty. As we can see from the table among the total household respondents 23 and 77 percent who lived less than and more than ten years fall below poverty line in the town respectively.

Table 7: Household head's year of stay in Bonga

Duration in the town	Poverty level of the HHH		Total
	Above poverty line	Below poverty line	
Less than ten years	26	31	57
More than ten years	39	104	143
Total	65	135	200
Chi2=8.3097		prob=0.040	

Source; Own survey and computation

Religion

In Bonga the effect of religion denomination on poverty is found to be insignificant in any of the confidence intervals. This shows that the impact of religion on the well-being of the society neither favors nor discourages people to follow suit their faith. Orthodox Christian (50%) takes the lion's share of the religion, second Islamic (2.5%), third Protestant (14%) ,catholic (7.5) and Others(3%).

Table 8: Religion Dominations

Religion domination	Poverty level of the HHH		Total
	Above poverty line	Below poverty line	
Orthodox	35	65	100
Muslim	15	35	51
Protestant	7	21	28
Catholic	8	7	15
Others	0	6	6
Total	65	135	200
Chi2=7.6804		prob=0.104	

Source: Own computation and survey

Orthodox Christian (50%) takes the lion's share of the religion, second Islamic (25.5%) and third Protestant (14%). Fifty three (53.85%) and 48.15% of the above and below poverty line group constitute Orthodox Christian followers which signifies that both the poor and non-poor groups are the Orthodox followers as there are no any other significant religion followers. Only (15.6%), (5.18) and (10.77%) and (12.31%) are found to be Protestant and catholic believers in the below and abovepoverty line groups. Though small/insignificant the number is, it is surprising to encounter, the same number of catholic and Protestant followers in the below poverty line groups.

Women Employment and Poverty

Employment has a high and negative correlation with poverty because employment which requires low amounts of capital, either human or physical can be related with low earnings and therefore with higher poverty rates. Out of the 102 surveyed households, it is good to get that

81.65 %(55) are employed while the rest being unemployed and pensioners. Disappointingly enough, though most of them were employed they couldn't escape from the status of poor. It is not only a matter of being employed or not that suffice one to be in the poor or non-poor category. A careful examination such as the type of occupation the women are engaged, their basic salaries, or monthly incomes among other things should be additional grounds upon which an individual should be treated. The following table simplifies the result more. To have a look at on the employment condition of women in the town, we should examine the main activity of housewife whose age fall under the labor forces (16-64).

Table 9: Women's Main Activity

Type of main activity of adult females	Poverty level		Total
	Above poverty line	Below poverty line	
Self employed	8	30	38
Private	11	4	15
Government	8	11	19
NGO	2	0	2
Housewife	3	11	14
Wage earner	4	10	14
Total	36	66	102
Chi2=20.8703		prob=0.002	

Source: Own computation and survey

The Chi-square test showed that the main occupations of women engaged are significant at 95 % confidence interval. A remarkable amount of woman households would join the above poverty line group provided that the self-employed /account earning capacity of individuals is increased tremendously since a large number of the household heads are found in this category.

Though the employed people are large in number they could not move away from the poverty trap (absolute poverty). The fundamental question that should be forwarded now is, therefore, why a large number of employed housewives could not escape from poverty. This perhaps will invite us to look deep into the main occupations of the women. Employed women were further interviewed to answer the question "What is your main occupation?" Based on this question a

total of 102 respondents (1 missed) have provided their responses and the results are discussed below.

A large number of the household heads whether below or above the poverty line are engaged in self-employed /self-account works. They account for 38(34.86%) of the surveyed households. Theoretically, when an individual is employed, the probability that she /he would fall into poverty decreases. The result, however, is not in tandem with theory. Out of 102 respondents who are below the poverty line, 30(41%) are engaged in self- accounts

Only private and nongovernmental organization (NGO) workers could have potentials to move away from poverty yet their number is insignificant in the town. However, it is true from economic theory that unless trade is complemented with adequate services or manufacturing activities, it is unlikely that those economies of scales for the town be in good position. Besides, since the linkage of trade is too loose or not at all with production activities in the town, it has not produced any commendable result.

The other classification of main occupations is that of the not self-employed group which comprises of 72(61.14%). This category, the non-self-employed one is government, private, wage earner and NGOs. In principle, in Ethiopian case, a government or wage earner individuals are supposed to lead decent life. This principle goes in harmony with the case of Bonga town. Out of the total 102 respondents 19(17.4%) are government worker of which 15 percent live below poverty line. Whichever the type of main occupations the women engaged in, the chi square test showed that the main occupations of women currently engaged is significant at 95 % confidence interval. A remarkable amount of households would join the above poverty line group provided that the self-employed /account earning capacity of individuals is increased tremendously since a large number of the household heads are found in this category.

Food Security

The idea of food as a human right might be as old as human history, since food and nutrition security is a primary concern in any society. In 1948, the United Nations incorporated for the first time the freedom from hunger and malnutrition into the Universal Declaration on Human Rights, Art. 25:

Access to adequate food and nutrition is one of the basic correlates of urban poverty in any country. In Ethiopia, many households in urban areas suffer from perpetual food insecurity as shown by high prevalence of malnutrition, which is especially devastating for children and pregnant.

Nevertheless, although accepted nation-wide, the right to adequate food and to be free from hunger has not yet been given sufficient attention in the context of operational development concepts. Access to adequate food and nutrition is one of the basic correlates of urban poverty in any country. In Ethiopia, many households in urban areas suffer from perpetual food insecurity as shown by high prevalence of malnutrition, which is especially devastating for children and pregnant. To have a crude look at on food security, let us take meals per day of the concerned household.

Table 10: Meals Eaten Per Day

Meals per day	Household	
	In number	In percentage
1	3	1.5
2	24	12
3	149	74.5
4	16	8
>4	8	4
Total	200	100

Source: Own survey and computation

As we can observe from the above simple presentation, households, which constitute the lion's share of the total, ate 3 meals per day. On the other hand, those households taking 3 meals per day have relatively higher figure than the others. However, meals per day do not suggest the achievement of food security or not, it gives some rough clue about it i.e. those households which can afford 2 or 3 meals per day for each members of the household have a higher probability of being food secured.

The finding from FGT index revealed that 67.5 percent of households in the study area were found food insecure. The depth and severity of food insecurity were found 0.95 and 0.90, respectively. The logistic regression model result showed that factors such as household size,

age, women activities, and education were found significant factors influencing households' food security status.

To determine the Household's Food security Status, the Direct Calorie Intake (FEI) method was used for reasons discussed in the previous section. The survey result has showed that from 200 sample households, 135 (67.5%) households were food insecure and only 65 (32.5%) were found food secure. Associated with this, the result has underlined the existence of a mean dietary calorie consumption difference between food secure and food insecure households in the study area.

4.2 Econometrics Analysis

4.2.1 Determinants of poverty

The descriptive analysis in the previous section has already clearly identified some determinants of the probability of being under poverty. However, to investigate this more carefully calls for a multivariate analysis, considering many factors together. This is considered here by estimating the factors influencing the likelihood of a household being under poverty, by means of a logit model.

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)

Multicollinearity

In most economic variables it is likely that a set of independent variables within themselves correlated each other. In situations where there is significant collinearity among the independent variables there is a difficulty of differentiating which variable should be the interest of the study. Collinearity ranges from 1 where there is complete relationship within the independent variables to 0 where there is no relationship at all. In reality, however, there are rare or no such complete presences or absence of relationships among economic variables. If the interconnection between

the explanatory variables is perfect (1) then: estimate of the coefficients are indeterminate and the standard errors of these estimate become infinitely large.

Therefore, after analyzing the effect of independent variables on the dependent variable, all variables, which were hypothesized to depict the incidence of poverty, were checked for multicollinearity using bivariate correlation matrix table. The result of the test did not show significant collinearity among the variables.

Moreover, to test the natures of phenomenon under study have an increasing or decreasing trend, heteroskedasticity in the data is introduced. To test the presence of hetroskedasticity Breusch Pagan test is used.

If null hypothesis is accepted, it implies that the explanatory variables have no effect on poverty or the variance is not related to explanatory variable. Therefore we reject null hypothesis of constant variance in favor of heteroscedasticity, since test statistics i.e. probability of chi2 is less than p-value (0.05). From the result below we reject the null at 95% and concluded that the residuals are not homogeneous. However at 90% we fail to reject the null and conclude that residuals are homogeneous (refer annex , appendix 16).

If there is heteroscedasticity in our model then one solution is to use correct formulas for variances and standard errors (**so-called heteroscedasticity-robust standard errors**).

Testing for omitted variable bias is important for our model since it is related to the assumption that the error term and the independent variables in the model are not correlated ($E(e/x)=0$)

If we are missing variables in our model and “is correlated with included repressors and the omitted variable is a determinant of the dependent variable” (Stock and Watson, 2003, p.144).
.....then our regression coefficients are inconsistent.

The result from Ramsey RESET test reveal that the null hypothesis in the model does not have omitted-variables bias, the p-value is higher than the usual threshold of 0.05(95% significant),so we fail to reject the null and conclude that we do not need more variables(refer annex , appendix 17).

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.

Table11: Estimated determinants of poverty in Bonga

Explanatory variable	Odds ratio	z	p > z
Age	.487(.210)	-1.67	0.096
Sex	.919(.542)	-0.14	0.887
Marital status	1.507(.646)	0.96	0.339
Religion	1.106(.329)	0.34	0.733
Family size	15.584(11.148)	3.84	0.000*
Education	.333(.130)	-2.80	0.005*
Duration in the town	.397(.313)	-1.17	0.242
Occupation.	.642(.125)	-2.26	0.024**

Number of obs = 200

LR chi2(17) = 44.15

Prob> chi2 = 0.0000

Pseudo R2 = 0.3282

Log likelihood = -45.179595

Source : Own survey and computation

Value in bracket is standard error and 2 respondents missed

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

Examination of the Logit maximum-Likelihood estimates demonstrates that 8 predictor variables were regressed and three variables were found statistically significant at 1 percent (family size and education) and 5 percent (occupation).

The explanatory variables used in this model are summarized in chapter three; these include characteristics such as household demographics; main economic activity of the head; education of the head; gender, and residence before ten years. While many of these were considered individually in the previous section, the regression model enables the simultaneous effects of these different factors to be considered and so gives a more robust assessment of their importance. For the estimation of the model, stata-13 application software was used.

After analyzing determinants of urban poverty, all variables, which were hypothesized to depict incidence of poverty in the study area, were checked for multicollinearity using pair-wise correlation coefficient.

Basing the estimates and tests, I have interpreted and analyzed the significance of each explanatory variable in determining the probability of being poor. In addition, the type of relationship that exists between the explanatory variables and dependent variable was analyzed.

The logit result (Table 11) revealed that four household and individual variables were statistically significant to determine the incidence of poverty in Bonga. Family size of the households in Bonga is found to be statistically significant at 1% significant level. A unit increase in household size, *ceteris paribus*, leads the odds ratio of the household of falling to poverty to increase by a factor of 15.584.

Confronting to most empirical finding and the hypothesis, education level of the head was found statistically significant, to influence poverty in Bonga, at 90% 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 ratio of falling to poverty to decrease by factor of 0.333

Looking on the econometrics results, we can also identify the relationship that exists between type of economic activity (occupation) of women and the probability of being poor. As we have seen from the table, households who have occupation are less likely to be exposed to poverty while those families whose head are unemployed and pensioner are in risk of poverty.

Holding other variable constant, household head with occupation has higher probability of escaping from poverty with a unit increase in occupation of the head leads odds ratio of falling to poverty to decrease by factor of 0.642(refer Table 11).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The objectives of the study were: to assess determinants and their quantitative relationships up on urban poverty, food security and the condition of women employment in Bonga town. To this end, primary data sources that were obtained from questioners were used from three kebeles to carry out the study. A total of 202 households were selected by systematic random sampling from the dwellers of the town.

The research used the food energy intake approach in the identification of the poor from the non-poor. Based on this approach out of the 202 surveyed households 135(67.5%) of them were found below the poverty line. That incidence of poverty is rampant and hardcore among the surveyed: 0.67 the head count, 0.95 normalized poverty gap, and 0.90 as the severity index in the town respectively calls for urgent interventions aimed at curbing the fate of the poor. One way of doing this is through identifying factors that account for urban poverty. This, however, requires analytical rigor, as the factors are complicated and important as well in fighting against poverty.

Variables, which were hypothesized to account for the incidence of poverty in the town, were selected and analyzed systematically. These were education, sex, age, family size, women occupation, marital status, and years of residence in Bonga town household and individual level characteristics were analyzed.

These variables were analyzed 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 STATA 13 version. In this part categorical responses were treated via percentages, mean chi-square and frequencies; 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 -13 version software. It is found that the robustness (predictive) power or goodness of the model is good. 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.

One of the determinant that played roles in the incidence of poverty in the town is women employment. Overall, 81 percent of the surveyed population is employed and yet most of them couldn't escape from falling into the poor. This is because the return they get from being employed is not sufficient to have effect on their life standard.

Occupation of women households are found in the lower income groups. Most woman household heads are engaged in petty trade, preparing and selling local drink and foods.

Three variables were influencing the incidence of poverty in Bonga and are statistically significant at 95 percent level of confidence (occupation) and 99 percent (family size and education). More importantly, the predicting power of the explanatory variables with odds values were dominated by family size (15.584), occupation (0.642), and education of household head (.333).

5.2 Conclusion and Recommendations

Based on the findings reached up on, the study come up with the following recommendations

- ❖ As it was evident from the head count poverty index, more than half of the surveyed households were under poverty i.e. they were unable to meet the minimum calorie intake for survival.

One way of dealing with this is studying urban poverty and its determinants 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 and determinants resulting from the multitude impact of one variable as a cause and effect, the researcher come up with the following recommendations:

- ❖ The findings revealed that most female-headed households were engaged in non-economic and less remunerative jobs and activities. Thus, it entails that both intensive and extensive projects and programs must be done to empower women in socio-economic and political affairs. Here, it is worth mentioning to put the assertion of UNDP in its 1997 annual report i.e. "if development is not engendered, it is endangered. And if poverty reduction strategies fail to empower women they will fail to empower society."
- ❖ As the educational attainment of the head of the household is found to be the most important factor associated with urban poverty, it clearly suggests ways of focusing on the value of education. Adequate education is central in addressing incidence of poverty.
- ❖ The other most important recommendation that the study come up with is that creating a good employment opportunities for women has a paramount of significance not only in the alleviation of poverty and achievement of food security but also for realization of nutrition security.

- ❖ Household size was positively and significantly correlated with poverty in Bonga as the study depicted. This has a clear implication for the residents of the town in that households with large size will fall into the hardcore sections of poverty easily than those who have not. Thus, in order to minimize such effects, family planning and/or education of couples is provided by the concerned bodies. In this regard the town's health service can play a vibrant role.
- ❖ 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 food security and women employment. 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.

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ANNEXES

QUESTIONNAIRE

Dear Respondents,

I, BirukLegesse, am a prospective graduate of Masters of Arts in Development Economics in Jimma 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 . 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 poverty and its determinant, food security and women employment in Bonga town. The output of the study is beyond doubt important for the poverty reduction endeavor of the town. 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.

General Directions:

1. You are kindly requested to give genuine responses.
3. You don't need to write your identification.
4. Circle the corresponding number of your choices from the given alternatives.
5. Put the numbers you agree with to those questions which are not multiple choices.
6. The study is entirely academic and all responses are confidential.
7. Feel free to respond

Thank You in Advance!

Date _____ Code: _____ Kebele _____

A. Household characteristics

1. Age of the household head? 1) <35 2)36-45 3)46-55 4)56-65 5)>65
2. Sex of the household head? 1) Female 2) male
3. Marital status of the household head? 1) Never Married 2) Married 3) Divorced 4) Widowed
4. Religion Denomination 1) Orthodox Christian 2) Islamic/Muslim 3) Protestant
4) Catholic Christian 5) Others____ (specify)
5. How money children do you have (family size)? 1) 1-3 2) 4-6 3)7-9 4)>9

Total household size _____

If there to Q.5, inquire the table

Age category(Years)	Gender		Total	Weight(AI)
	Male	Female		
<10 Years				
10-13				
14-16				
17-50				
>50				

6. Educational status 1) Illiterate 2) Primary education 3) Secondary education
4) College and above

7. Duration of living in the city? 1) Less than 10 years 2) More than 10 years 3) other specify

B. Women Employment/Occupation

8. Status of women employment 1) Employed 2) Unemployed 3) Pensioner

If "employed" to Q.8, inquire

9. What is your **main** occupation?

1) Self-employed /Self-account 2) Private Employee 3) Government employee

4) NGO employee 5) wage earner 6) House wife 7) others

10. How many unemployed women are there in your households which are economically active?

1) 0 2) 1-2 3) 3-4 4) 5-6 5) >6

C. Income

11. Which category of the following best describes the total average income that your households earn per month (in Birr)?

1) Less than 500birr 2) 500-1000birr 3) 1000-2000birr 4) above 2000birr

12. Does your household monthly income cover your expenditure?

1) Yes 2) No

If "no" to Q 12, inquire

13. How do you **fill** your household monthly income and expenditure gap?

1) Sale of assets 3) No option except leading meager life

2) Support from relatives 4) others ____ (specify)

C. Consumption Expenditure

18. How many times do you take meals ^{PER} day? 1) Once a day 2) twice a day 3) three times

4) Four times 5) more

19. Of the following food items which ones does your family *frequently* consume?

- 1) Injerawith Shiro 2) Injera with Meat products 3) Bread with Shiro
 4) Spaghetti/Macaroni 5) Vegetables6) other ____ (specify)

20. Quantify the following items with the appropriate units of measure. For items 1 to 16

Expenditures will be expressed monthly while items from 1 to 5 are assumed annually.

Item No	Food /Drink Items On Monthly Bases	Amount in Kilograms, Liters And Birr
1	Teff(Kg)	
2	Wheat(Kg)	
3	Maize(Kg)	
4	Barley(Kg)	
5	Potato(Kg)	
6	Onion(Kg)	
7	Beans and Peas(Kg)	
8	Lentils(Kg)	
9	Vegetables and Fruits(Kg)	
10	Dry pepper (Kg)	
11	Edible oil(Litter)	
12	Milk(Litter)	
13	Butter(Kg)	
14	Meat(Kg)	
15	Sugar(Kg)	
16	Coffee(Kg)	
	Non-Food Items (on yearly bases)	
1	Clothes(in birrs)	
2	Ceremony(in birrs)	
3	Entertainment(in birrs)	
4	Health	
5	Domestic Service: for guard, servant salary (in Birr)	

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

- 1) Yes 2) No

25. If your answer to question 21 is yes, how many are they?

- 1) One 2) Two 3) Three 4) Four 5) More than four

22. Other than water, which sort(s) of drinks does your household frequently consume?

- 1) Tella and Local Areki 2) Tej 3) Soft Drink 4) Draft 5) Other ____ (specify)

If 1 or 2 to Q. 22, inquire

23. Why? 1) Because of its low price 2) Because of its excellent taste

3) Because of its convenience to health 4) other _____ (specify)

APPENDIXES

Appendix 1: Adult Equivalence Scale

$$AE = (A_i + \alpha c_i) \theta,$$

Where AE is adult equivalent, A_i is number of adult in households, α is cost of child, c_i is number of child in the household and θ is scale parameter usually 1.

Appendix 2: Table 1: Calorie Content of different Food items

Consumption per 100 grams	Energy in calorie	Consumption per 100 grams	Energy in calorie
Teff	355	Vegetable(cabbage, carrot)	75
Wheat	340	Dry pepper	73
Maize	344	Edible oil	900
Barley	370	Cow milk	79
Potato	75	Butter	700
Onion	38	Meat	626
Beans and peas	310	Sugar	373
Lentil	325	Coffee	50

Adopted from Esubalew(2006)

Appendix 3: Table 2: Age and Poverty

Age of the HHH	Poverty Level		Total
	Below poverty line	Above poverty line	
<35	25	21	46
36-45	23	11	34
46-55	38	12	50
56-65	38	12	50
>65	11	9	20
Total	135	65	200
Chi2 = 11.5111		prob = 0.074	

Source; Own survey and computation

Appendix 4: Table 3: Poverty levels based on Sex

Sex of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Male headed	34	64	98
Female headed	31	71	102
Total	65	135	200
Chi2 = 1.8906		prob = 0.389	

Source: Own survey and computation

Appendix 5: Table 4: Estimated Poverty by Marital Status

Marital status of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Single	5	11	16
Married	40	77	117
Divorced	8	28	36
Widowed	12	19	31
Total	65	135	200
Chi2 = 2.3887		prob = 0.496	

Source: Own survey and computation

Appendix 6: Table 5: Estimated Poverty by Family size

Family size of the HHH	Poverty level		Total
	Above poverty line	Below poverty line	
1-3 family members	33	30	63
4-6 family members	22	63	85
7-9 family members	9	35	44
>9 family members	1	7	8
Total	65	135	200
Chi2 = 17.1983		prob = 0.001	

Source: Own survey and computation

Appendix 7: Table 6: Educational level and Poverty Estimation

Educational level of HHH	Poverty level		Total
	Above poverty line	Below poverty line	
Illiterate	1	14	15
Primary	18	59	77
Secondary	18	42	60
Collage and above	28	20	48
Total	65	165	200
Chi2=19.5146		Prob = 0.000	

Source: Own survey and computation

Appendix 8: Table 7: Household head's year of stay in Bonga

Duration in the town	Poverty level of the HHH		Total
	Above poverty line	Below poverty line	
Less than ten years	26	31	57
More than ten years	39	104	143
Total	65	135	200
Chi2=8.3097		prob=0.040	

Source: Own survey and computation

Appendix 9: Table 8: Religion Dominations

Religion domination	Poverty level of the HHH		Total
	Above poverty line	Below poverty line	
Orthodox	35	65	100
Muslim	15	35	51
Protestant	7	21	28
Catholic	8	7	15
Others	0	6	6
Total	65	135	200
Chi2=7.6804		prob=0.104	

Source: Own computation and survey

Appendix 10: Table 9: Women's Main Activity

Type of main activity of adult females	Poverty level		Total
	Above poverty line	Below poverty line	
Self employed	8	30	38
Private	11	4	15
Government	8	11	19
NGO	2	0	2
Housewife	3	18	21
Wage earner	4	10	14
Total	36	73	109
Chi2=20.8703		prob=0.002	

Source: Own computation and survey

Appendix 11: Table 10: Meals Eaten Per Day

Meals per day	household	
	In number	In percentage
1	3	1.5
2	24	12
3	149	74.5
4	16	8
>4	8	4
Total	200	100

Source: Own survey and computation

Appendix 14: Test of Multicollinearity Using Pair-wise Correlation Coefficient

	age	sex	maritals	religion	family size	education	duration	occupation
age	1.0000							
sex	-0.1892	1.0000						
maritals	0.1652	0.2147	1.0000					
religion	-0.1372	0.1232	-0.0188	1.0000				
family size	0.7679	-0.2149	-0.0204	-0.0027	1.0000			
education	-0.3699	-0.0302	-0.2593	-0.0255	-0.1580	1.0000		
duration	0.6355	-0.1121	0.2520	0.0413	0.4854	-0.2714	1.0000	
occupation	0.3706	-0.2379	0.0891	-0.0878	0.2712	-0.5258	0.0490	1.0000

Appendix 15: Breusch-Pagan Heteroskedasticity test

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. hetttest
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Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of poverty

chi2(1) = 3.95

Prob > chi2 = 0.0468

Appendix 16: Omitted-Variable test

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. estat ovtest
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Ramsey RESET test using powers of the fitted values of poverty

Ho: model has no omitted variables

F(3, 97) = 1.21

Prob > F = 0.3120