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**DETERMINANTS OF URBAN POVERTY AND THE SURVIVAL STRATEGIES: EMPIRICAL
EVIDENCE FROM KOLLA-TEMBIEN WEREDA, TIGRAY, ETHIOPIA.**

By;

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Declaration

I, Endrias Tsegay, hereby declare that this thesis work entitled “A Thesis on the determinants of Urban Poverty and the Survival Strategies: Empirical Evidence from Kolla-Tembien Wereda, Tigray, Ethiopia.” Submitted by me in partial fulfillment of the requirements for the award of the degree of Master of Science in Economics (Development policy analysis Specializations) to the Department of Economics in Mekelle University, is an original work carried out by myself. The matter embodied in this thesis work has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief. Where other sources of information have been used, they have been duly acknowledged.

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Certification

This is to certify that this Thesis work entitled “A Thesis on Determinants of Urban Poverty and the Survival Strategies: Empirical Evidence From Kolla-Tembien Wereda, Tigray, Ethiopia.” was Submitted in partial fulfillment of the requirement for the award of the degree of Master of Science in Economics (Development Policy Analysis Specializations) to the Department of Economics in Mekelle University, done by Endrias Tsegay, ID NO: CBE/EpA24/11, is an original work carried out by himself. The matter embodied in this Thesis work has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief. Where other sources of information have been used, they have been duly acknowledged.

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Dedication

I dedicated this thesis document to my wife, my entire family, for tending me with love, and for their wholehearted partnership in the success of my life.

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Abstract

Urban poverty remains a significant challenge in Ethiopia, particularly in medium-sized towns like Kolla-Tembien Wereda, despite national economic progress. This study investigates the incidence, depth, determinants, and coping strategies of urban poverty in this context, where rising living costs, limited employment, and inadequate institutional support persist. The research aims to identify key poverty determinants and assess survival mechanisms of poor households. A cross-sectional survey was conducted with 300 randomly selected household heads across six kebeles in Kolla-Tembien Wereda, using a structured questionnaire to collect data on demographics, income, expenditure, education, employment, access to services, and coping strategies. Descriptive statistics revealed that 62% of households fell below the local poverty line, with an average household size of 5.3 persons and low educational attainment (primarily primary school). Most households relied on informal employment, such as daily labor and petty trade, while having limited access to stable jobs and basic services like water, electricity, and healthcare. A binary logit model identified education, family size, gender, access to credit, and non-farm activities as significant determinants of poverty. Higher education and access to credit reduced poverty likelihood, while larger families and female-headed households faced greater vulnerability due to higher dependency and unequal opportunities. Coping mechanisms included informal borrowing, reducing food consumption, renting dwellings, selling assets, and participating in group solidarity schemes like “Idir” and “Iqub.” Some households limited children’s schooling or delayed healthcare, often increasing long-term vulnerability. These findings highlight the multidimensional nature of urban poverty, driven by structural, demographic, and institutional factors. The study recommends strengthening local credit institutions, promoting skill development, and improving urban infrastructure to address poverty’s root causes. This research provides empirical evidence to inform municipal poverty-reduction policies and livelihood programs in Ethiopia’s medium-sized towns.

Keywords: Binary Logit, Determinants, Urban Poverty, Marginal effect, Kolla-Tembien

Acronyms and Abbreviations

AIC - Akaike Information Criterion

ATT - Average Treatment Effect for the Treated

BIC- Bayesian Information Criterion

CSA- Central Statistical Agency

FAO - Food and Agriculture Organization

FAOSTAT - Food and Agriculture Organization Statistical Database

FTC - Farmer Training Center

GDP - Gross Domestic Product

PSM - Propensity Score Matching

TLU - Tropical Livestock Unit

VIF - Variance Inflation Factor

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

As it is known from various literature on development, one of the most challenging and pressing issues facing developing countries is how to reduce poverty. Indeed, reducing poverty is seen by many as a fundamental objective of development. However, achieving this objective requires greater and deeper knowledge about the poor: their number, characteristics, economic condition, the way they live, and the way they respond to their changing environment and socioeconomic circumstances. Hence, possessing this knowledge is the key element to attacking poverty.

A variety of indicators of well-being attests that Ethiopia is one of those countries severely affected by poverty and, as such, ranks among the world's poorest countries. According to the 2006 human development indicator of the United Nations Development Program (UNDP), which takes life expectancy, adult literacy, primary schooling, and per capita income into consideration, Ethiopia ranks 170th out of 177 countries (WB, 2007 cited in Yoseph, 2008).

A significant portion of the Ethiopian population lives in absolute poverty, lacking the necessities of life. According to the data of MoFED (2006), about 38.7 percent of the total Ethiopian population lived in absolute poverty in 2004/05. This implies that they were unable to fulfill the minimum livelihood standard. There is a significant difference in poverty levels between urban and rural areas of the country. For example, 39.3 percent of the rural population and 35.1 percent of the urban population are estimated to live in absolute poverty in the year 2004/05 (MoFED. 2006).

The incidence of poverty is higher in urban areas on average than rural areas. For instance, the proportion of the rural population that lived in absolute poverty dropped from 47.5 percent in 1995/96 to 39.3 percent in 2004/05, while it increased from 33.2 percent to 35.1 percent in the urban areas during the same period. Over all, the proportional change in the

Incidence of poverty was reduced by 8.2 percent in rural areas where as it increased by 1.9 percent in urban areas between 1995/96 and 2004/5 (Ibid).

The extent and severity of poverty have different causes and manifestations in the rural and urban areas of Ethiopia. For the major proportion of people in the rural areas, the causes of poverty include lack of income, decent health care, schooling and drinkable water, high rural unemployment/ underemployment, fast depletion of natural resources, increasing shrinkage of cultivated land, and a general stagnation of the agricultural economy that does not keep pace with the rising population (Stefan & Mekonen, 1999; Itana, 1999; Met align, 2005).

By rural standards, urban areas may be considered to have a better standard of living. The trend in recent years, however, indicates that poverty in most urban centers has been rising rapidly. The major reason for this is that, in most urban centers, population growth is faster than the supply of economic opportunities (Abbi, 2005). This is due to an influx of migrants from rural areas affected by drought, famine, and civil conflict (Mekonen, 1999a). Moreover, lack of initiatives to undertake urban development in post-1991 urban areas (Solomon, 2006). Therefore, this creates a formidable problem for its urban dwellers. These problems include: lack of access to education, health services, inadequate security, and lack of access to essential human needs in general. All of these could often lead to social and political instability in urban areas (Masika et al., 1997; Tegegn, 2000).

This study intends to raise the issue of urban poverty in general and the survival strategies of poor households in particular by presenting an empirical case study from six kebeles of Kolla-Tembien Wereda. The researcher conducted a study to identify the poverty line. This is the number of people who fall below the income poverty line. Some adjustments are usually made to the poverty line in terms of changes in household demographics, which includes the limits of the usual income-center concept of well-being.

1.2. Statement of the Problem

In Ethiopia, poverty is the general feature of the nation and is the leading cause of suffering and illness for the largest proportion of the population. As a result, it is one of the major agendas of the government, donor agencies, nongovernment organizations (NGOs), and other actors to mitigate the effects and their associated impact on the well-being of the poor. To this end, the government of Ethiopia has designed₂ and implemented various policy interventions

and programs that focus on poverty reduction.

Most of the previous studies conducted in Ethiopia on the subject have focused on rural rather than urban areas. Most of these studies concentrated on food entitlement failures of farmers and on determinants of rural poverty (Dercon & Krishnan, 1996; Itana, 1999; Kedir, 1997; Met align, 2005). They studied the profile of poverty in rural Ethiopia by taking income portfolios and food entitlement of households as yardsticks. Bevon & Joiermen (1997; cited in Ayalew et al., 2000) adopt a sociological approach to analyze the poverty situation in selected rural parts of Ethiopia. They concluded that in rural Ethiopia, social capital is a very important way to come out of poverty.

While in urban areas, particularly in Addis Ababa, various studies have been made on poverty (Abbi, 2005; Earmias, 2000; Goitom, 1996; Hadgu, 1995; Meron, 2002; Tesfaye, 2004; Tizita, 2001; Yassin, 1997). They tried to depict the poverty profile of the city by explaining the general characteristics, measurement, and dimensions of poverty. The result of all the papers indicated that there is a substantial increment in the incidence of urban poverty in the city.

There are also some studies carried out on poverty outside of Addis Ababa (Ame and Negatu, 1996; Dessalegh and Aklilu, 2000; Esubalew, 2006; Solomon, 2006; Mekonen, 1996; Yohannes, 1996), which used economic and social indicators to indicate poverty outcomes in their analysis. Their study also confirmed that there is a high incidence of urban poverty in their respective studied areas. But all of the papers did not highlight the survival and coping strategies of poor households. Besides, the studies done so far are confined to the prime city

and a few other secondary towns. Studies of urban poverty in medium-sized towns like Kolla-Tembien Wereda was neglected. The challenge to mitigate the effect of poverty in the medium-sized towns in the country, in general, and in Kolla-Tembien Wereda in particular, is pertinent. Therefore, this study is a significant contribution to the stock of knowledge in the study of poverty among medium-sized towns and the coping strategies of their poor residents.

To my knowledge, no study has specifically examined urban poverty and the survival strategies of poor households in Kolla-Tembien Wereda. In general, there is insufficient research-based information on how households can close the gap between their fixed income and the fast-rising cost of living in the town. Such research is useful not only to design effective strategies to mitigate poverty in the town, but also to inform decision makers, particularly administrators and stakeholders of other medium-sized towns. Besides giving baseline data for developing a strategic plan for the Town under study, the research can help as a model to launch specific studies for other medium-sized towns.

1.3. Objectives of the study

1.3.1. General Objective of the Study

The overall aim of this study is to examine the determinants of urban poverty and the survival strategies in the case of Kolla-Tembien Wereda.

1.3.2. Specific objectives

The specific objectives of the study are;

- To assess the demographic variables that affect the urban poverty of households in Kolla-Tembien.
- To assess the institutional factors that affect the urban poverty of households.
- To investigate the survival strategies of households in Kolla-Tembien.

1.4. Research Questions

The specific research questions that the study tries to answer are;

- What are the demographic variables that affect the urban poverty of households in Kolla-Tembien?
- How do the institutional factors affect the urban poverty of households?
- What are the survival strategies of households in Kolla-Tembien?

1.5. Significance of the study

A growing number of studies in the area of poverty in Ethiopia have been published. The issue of rural poverty has dominated the study of poverty, and little has been done on the varied problems of urban poverty. Even the studied ones are confined to limited urban areas. Therefore, assessing urban poverty and survival and/ or strategies of poor households in medium-sized towns like Kolla-Tembien Wereda has the following importance:

- ❖ It can give an input for the town administrators and stakeholders/actors who, in one or another way, are engaged in the development of the town.
- ❖ The study contributes to the stock of knowledge by understanding the determining factor of poverty in medium-sized towns.
- ❖ No similar study has been conducted in this area before. This research, therefore, serves as a springboard for future study.

1.6. Scope and Limitation of the Study

The study is conducted on urban poverty and the survival strategies of poor households in Kolla-Tembien Wereda. In so doing, 6 kebeles out of 16 kebeles of Kolla-Tembien Wereda were included in the study. Although there are many variables that can play a role in urban poverty studies, in this study, only a few dominant variables are analyzed. These include: household demographic characteristics (such as sex, age, family size, and marital status), educational level, income, employment, and housing and housing facilities (like water, electricity, toilet, etc.). In addition, there are at least four dimensions of poverty. The first dimension is a lack of opportunity that can be measured by income or consumption. The second dimension is the absence of capabilities expressed in terms of low achievement in education and health. The third dimension is vulnerability to risks and insecurity, and the fourth dimension is voicelessness (World Bank, 2000, cited in Tassew and Daniel, 2002). The scope of this paper is limited to the dimension of poverty that can be expressed in terms of consumption expenditure of the households.

1.7. Organization of the Paper

The research has five chapters: Chapter one is an introductory chapter that covers the introduction, research objectives, scope, and limitations of the research, and a description of the study areas. Chapter two deals with the review of theoretical and empirical literature relevant to the major theme of the study. Chapter three describes the methodology part of the study, which includes: sampling size, sampling techniques, source of data and data type, method of analysis, and model specification. Chapter four deals with the results and discussion, and it describes the data collected from the field. It identifies the poor from the non-poor and assesses the determining factor of urban poverty in Kolla-Tembien Wereda. The main essence of the descriptive part of the study is to give a qualitative description of the coping and survival practices applied by poor households to bridge the gap between income and expenditure. Chapter five comprises the conclusion and policy implications.

CHAPTER TWO

2. Related Literature Review

2.1. Theoretical Orientation of Poverty

Poverty, which is a widespread problem in developing countries, has its negative impact on and implications for a large segment of the population of these countries. Thus, identification of the poverty-affected population counts top priority in the possibility of designing any consistent poverty combating policies. This requires the demarcation of concepts, definition, methodology, and the appropriate measure to be used to ascertain the magnitude of poverty (Debarja, 1998; Sen, 1981, cited in WB, 2005).

2.1.1. Concepts and Definitions of Poverty

Identifying the extent and nature of poverty requires establishing a clear definition of poverty (Tesfaye, 2004). A simple, unanimous formulation which has almost universally been quoted was that of "the inability to lead a decent life" (Schubert, 1994; WB. 2005). Indeed, what constitutes and is meant by a "decent life" could raise different answers, opinions, perceptions, i.e., it is a subjective issue. This could be evolved historically, and varies tremendously from one culture to another (WB, 1990a). Further, it implies having not enough to eat, a low standard of living, and a high mortality rate, low life expectancy, high rates of unemployment, illiteracy, social exclusion, marginalization, persecution, as well as psychological and physical losses.

However, in spite of the growing concern about the issue of poverty among scholars, there is no consensus on a precise definition of poverty. Hence, there are different debates on the conceptualization of poverty from different approaches, schools of thought, disciplines, and countries' experiences point of view.

Among the approaches, the biological approach tries to conceptualize poverty as a lack of basic survival needs. The approach puts forward that poverty exists when the necessary minimum requirements for physical existence are not fulfilled (Debarja, 1998; Sen, 1987). The normative approach, on the other hand, conceptualizes poverty as the minimum adequate

level of welfare below which one is said to be poor (Esubalew, 2006). Whereas the Inequality approach conceptualizes poverty based on the economic gap that exists between the rich and the poor, the approach also attempts to see to what extent the gap existed between the bottom 10% or 20% and the rest of the society (Debarja, 1998; Todaro, 2003). Finally, the social poverty approach explains poverty as the absence of access to enjoy fundamental human rights (Tizita, 2001).

The three major schools of thought concerning the definition and measurement of poverty are: the Welfare school, the Basic needs school or non-welfare school, and the Capability School (Garza2001; and Yared, 2005). The welfare school defines poverty in relation to the economic well-being of the society or poverty in relation to the well-being solely derived from the utility information. It assumes a person or a society is facing poverty, when the minimum levels of economic well-being in a given society standard were not attained (Ravallion, 1995). On the other hand, the Basic needs school or non-welfares' school defines poverty as the level of well-being at which one lacks the basic needs for survival such as food, shelter, clothing, access to health service and so on (Tesfaye, 2004). The Capability school conceptualizes poverty as the human abilities or capabilities to achieve a set of functions. It also states that the extents to which people have capabilities to be and to do things are inherent (Esubalew, 2006).

Scholars in different professions have also tried to define poverty. For environmentalists, poverty is faced in a situation where a society has access to fragile natural resource (Tegegn, 2000). Economists view poverty as a situation in which the individual's command on resource falls below a certain level (Todaro, 2003). An Anthropologist likewise defines poverty as to the level where an individual or a society lacks genuine participation in the norms, values and culture of one's society. A Political Scientist could define poverty as lack of participation in political arena and voting system of a country (Sen, 1987).

Definition of poverty also differs from country to country. Chronic and mass poverty are often used to characterize poverty for developing countries. Chronic poverty, which is common in both urban and rural areas of developing countries, refers to the state where poverty is passed from parent to child and also a state of being poor and failure to move out

of it (Abbi & Andrew, 2003; Tizita, 2001). Mass Poverty is also common in developing countries and it refers to a situation where more than half of the total population is in poverty i.e. the bulk of the population is striving to win a daily bread (Met align, 2005).

2.1.2. Measuring the Standard of Living

The fundamental approach towards a pertinent identification of the poor assumes that there exists a predetermined and well-defined level of welfare below which an individual is to be identified as poor. The more this level is becoming depressed, the poorer the person is considered to be (WB, 2005).

Poverty exists in a given society when one or more persons do not attain a level of material well-being deemed to constitute a reasonable minimum by the standard of that society (Yohannes, 1996).

There are different methods to measure an individual's and a household's well-being in the literature, which is commonly known to be the "standard of living". Standard of living is affected by various factors such as income, expenditure, health status, educational level, and area of residence (Abbi, 1997). Further, the standard of living is also used in developing countries to reflect a specific form of commodity deprivation, particularly food insecurity (Ravallion, 1992). Subsequently, in trying to measure the standard of living, the WB (2005) adopts the household income and expenditure per capita alone as adequate criteria to assess the well-being of an individual. From this, it is possible to deduce that either of the two variables (consumption or income) can be used to evaluate an individual's or household's level of welfare.

In countries where reliable income data can be found, income has often been used to conduct poverty and welfare analysis. However, for most developing countries like Ethiopia, this is not the case. Hence, the general preferred indicator of welfare has been consumption expenditure, in part because of the volatility of income. Income may fluctuate unpredictably, making it a "noisy" indicator of welfare. Consumption tends to be less volatile than income because consumption smoothing opportunities, such as saving, borrowing, and community-based risk sharing, are available to the poor. This suggests that current consumption is a better indicator of the current standard of living (Deaton, 1999, cited in Abbi, 1997; Lipton and Ravallion, 1995; Ravallion, 1994).

In addition, current consumption may also be a good indicator of long-term average well-being, as it reveals information about incomes at other dates, in the past and future. This is because incomes of the poor often vary over time in predictable ways. Moreover, in economies where most people earn their living from employment in the informal sector, the consumption approach is more realistic than the income approach to measure the welfare of an individual or households (Mekonen, 1996; Stefan & Mekonen, 1999).

Another consideration in poverty analysis relates to the fact that measures of consumption are generally available at the household level; to have a clear picture of the degree of deprivation requires that appropriate correlation be made to total household consumption or income to take account of the different needs of households. A common approach is to divide aggregate household consumption by household size to obtain consumption per capita (Tesfaye, 2004). However, using consumption per capita as a measure of well-being has a serious drawback because it is based on the presupposition that each household member has the same consumption needs. A better measure of welfare can be obtained by aggregate household consumption into 'consumption per adult equivalent' using an appropriate equivalence scale. The equivalence scale vary across sex and age taking into account the different consumption requirements of household members (Dercon & Krishanan, 2000). Moreover, one basic question in using consumption as an index for the standard of living is: how could we determine a minimal standard of living, which is fundamental when trying to quantify poverty. According to Sen, the specification of certain "consumption norms" or a "poverty line" may do part of the job. Accordingly, those whose consumption standards fall below the norms or whose incomes lie below that line are regarded as poor (Sen, 1987). Therefore, to distinguish between the poor and the non-poor, it is important to define "a standard of consumption which must be reached if a person is not to be deemed poor. This standard is called the poverty line".

The determination of poverty line is the first step towards the quantification of poverty. But, the decision of this poverty line in numerical terms is a function of the way poverty is defined in a qualitative terms. In general, Poverty line is defined as a cut-off living standard level below which a person is classified as poor (WB, 1993 cited in Yohannes, 1996). or, it's defined as an expenditure threshold that is regarded as minimally necessary for "adequate" participation in economic life, and People below this threshold be said to be poor (Debarja,1998).

According to Ravallion and Badin (1994), poverty line is constructed through three alternative approaches these are absolute, relative and subjective poverty lines.

An absolute Poverty line

An absolute poverty line is "estimate the cost of a bundle of goods (both food and non-food) deemed to assure that basic needs are met in the specified domain of the poverty comparison. This is then augmented by a modest allowance for non-food goods" (Ravallion, 1992).

This means that, in estimating poverty line, both food and non-food item are to be accounted for in the costing exercise. Absolute poverty, consequently, can be viewed as "the inability to secure the minimum basic needs for human survival" (Seragedin, 1989 as cited in WB, 2005). This means that there is no bare provision of food to keep oneself alive and to be able to earn his livelihood. Those affected, therefore are unable to satisfy their primary needs and can no longer be able to lead a life that is estimated of human decency.

Moreover, most of applied research attested that in most developing countries like Ethiopia, absolute poverty line is the most relevant and widely used definition of poverty. In these countries absolute poverty lines have been set based on food expenditure necessary to attain some recommended food energy intake (i.e., Usually 2,100 kcal per day as recommended by WHO, plus some essential non-food requirements (Yohannes, 1996; WB, 2005). Moreover, According to this method, the poor are those who are unable to earn the minimum income which is enough to cover their basic needs, i.e. cannot meet minimum nutritional requirements defined by a basic food basket as defined by Sen, 1987 in his "Biological Approach" (WB, 2005), Therefore, in this study the concept of absolute poverty is the working definition.

Relative poverty line

It defines how income and inequality is distributed in a society. It sees 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 activities for their society (Garza, 2001 cited in Saith, 2005b). Relative poverty is said to exist if the satisfaction of the basic needs is insufficient or at inadequate level than that of others (Schubert, 1994). But, this does not imperatively mean that those who are involved, are all necessarily living below a minimum level assuring a life worthy of human dignity, but that their provision with goods and services is relatively worse and that they are disadvantaged to an unacceptable extent because of the distribution structures prevailing within their society (Sen, 1987).

The problem 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 cases where this might not hold true (Ravallion, 1992).

Subjective Poverty Line

The Subjective poverty line delineated based on the perception of individual or household responses towards to their well-being. The concept of subjective welfare and poverty starts from the premise that people are the best judges of their own lived experience. Hence, the identification of the ‘poor’ and ‘non-poor’ is left to self-perception of the individual concerned. Its measures are therefore derived on the basis of survey responses of individuals to questions designed to request their opinions about their welfare (Saith, 2005a).

Moreover, recognizing poverty lines as essentially subjective judgment people make on the basis of socially acceptable standards of living in their own society, this is the rationale behind the notion of subjective poverty line. Two approaches are commonly employed to evaluate individual perception of welfare, and based on that to define poverty. One of the approaches defines poverty on the basis of individual responses to what is called “the minimum income question and the other on the basis of the “income evaluation question” (Kapteyn et al, 1985 cited in Mekonen, 1999b).

2.1.3. Setting poverty lines

According to the WB (2005), the most common procedures/methodologies for setting the poverty line are the cost of basic need (CBN) and food energy intake (FEI) approach.

Cost of Basic Need (CBN) Approach

The approach defined poverty line as the cost of a bundle of goods considered to be sufficient to meet basic consumption needs (Mekonen, 1999a). To implement this method, Ravallion and Badin (1994) suggest two procedures: first, determining the food consumption bundle just adequate to meet the required food energy requirements. Secondly, adding to this cost an allowance for non-food needs. The food consumed is then valued at the prevailing price to obtain the food poverty line. The allowance for basic non-food consumption is again added to the consumption pattern of the poor.

One approach developed by Oshansky (1993) in Mekonen, 1999a, to set a basic non-food consumption, assumes that households follow a stage budgeting strategy, i.e., households would first allocate their budget to food consumption and then to non-food items. Based on this assumption, the total poverty line is obtained by dividing the food poverty line by the average food budget share of households that are in the neighborhood of the food poverty line. An alternative approach, suggested by Ravallion and Badin 1994 is to estimate the Engel curve for food expenditure by regressing the food budget share on the logarithm of total expenditure. However, from applied research and various scholars, such application of the Engle curve in the determination of non-food expenditure results in a much higher food share than is warranted by the data and subsequently in underestimation of the total poverty line (Abbi,2005; Mekonen, 1999a).

Moreover, the Cost of Basic Need (CBN) approach is more convenient, reliable, and widely used in most developing countries like Ethiopia (MoFED, 2006; Tesfaye, 2004; WB, 2005). Mathematically:

$P_L = P_{LF} + P_{LN}$, where, P_L is the poverty line

P_{LF} is the food poverty line and

P_{LN} is the non-food poverty line

Food Energy in Take (FEI) Approach

The basic needs approach outlined above requires information on the price of the goods and services that the poor consume. In this method, there are a number of ways of estimating the total expenditure needed to arrive at the stipulated food energy intake. The common procedure is to run a regression of the cost of a basket of commodities consumed by each household over the calorie equivalence or the food energy implied from the basket of goods. Then, to proceed to calculate how much it would cost to buy a basket of commodities that would be considered sufficient.

The energy intake is a predetermined value expressed in terms of calorie equivalent or close to the stipulated calorie level, and is computed as a simple average. The FEI method automatically provides the total expenditure implied by the level of food expenditure that provides the stipulated calorie intake, since the latter are dependent variables in the regression equation. Thus, for a specified level of calories, a corresponding total expenditure is obtained immediately (WB, 2005).

However, this method may result in inconsistent estimates when the aim is to make poverty comparisons in rural and urban areas. This is because the stipulated relationship between food energy intake and consumption expenditure not be the same in rural and urban areas, and tend to vary due to difference in tastes of the household (e.g. urban tastes in food may differ from rural), change in relative prices of different foods and non-food items; the level of activity of household members, and the presence of publicly provided goods (Mekonen, 1999a; WB, 2005). Ravallion and Badin (1994) have compared and contrasted the two methods of constructing poverty lines using the Indonesian data and concluded that the CBN method offers a consistent and robust poverty profile.

2.1.4. Measuring Poverty/Poverty Induces

The measurement of poverty can be carried out into two major steps, namely, identification and aggregation. In the identification stage, the aim is to distinguish the poor from the non-poor, while in the aggregation stage addresses the question of how we can conglomerate the individual measures of poverty into an amalgamated or composite index that gives a symptomatic characterization of the poverty group. Moreover, like the identification stage, the aggregation stage is also critical for answering the question of “who the poor are.” This is because it’s senseless to distinguish the poor from the non-poor without having deliberation of the

extent, depth, as well as the severity of their poverty (Sen, 1987).

Usually, a measurement of poverty is launched when a poverty threshold is decided. Defining a poverty threshold, one can investigate how sensitive it is to any shifting of that threshold. In addition, the number of those who fall below the poverty line could also be portrayed, and several aggregate measures of poverty computed. Hence, poverty can be measured in terms of incidence, depth, and severity.

The incidence of poverty i.e., the ratio of the poor living below the poverty line; the intensity of poverty, i.e., the extent to which the income of the poor falls below the poverty line, and the severity of poverty i.e., the distribution of income among the poor or its degree of inequality (Debarja, 1998; Todaro, 2003; WB, 2005).

Head Count Index (P0)

The head count index, denoted by P0, simply measures the percentage of the population living below the poverty level, or it shows the proportion of that population which is counted as poor. Mathematically expressed as;

$$P_o = \frac{N_p}{N} \text{ or } P_o = \frac{1}{N} \sum_{i=1}^n I(Y_i \leq z) \dots\dots\dots(1)$$

Where N_p is the number of poor and N is the total population or sample of the population. and $I(.)$ is an indicator function that takes on a value of 1 if the bracketed expression is true, and 0 otherwise, so if expenditure (Y_i) is less than the poverty line (z), the $I(.)$ is equal to 1 and the household would be counted as poor.

Although the method does only reflect the incidence of poverty, i.e., it estimates the percentage of that population that falls below a minimum level of income deemed necessary to purchase a predetermined minimum level of basic needs. However, it fails to express the extent to which the poor are below the poverty threshold (i.e., the severity of poverty). Moreover, it also fails to consider the distribution of income even among the poor units (i.e., the intensity of poverty).

Poverty Gap Index (p_1)

Poverty gap index shows the extent to which individuals, on average, fall below the poverty line, and is expressed as a percentage of the poverty line. Mathematically, the index is expressed as;

$$P_1 = \frac{1}{N} \sum_{i=1}^q \frac{(Z - Y_i) I(Y_i \leq Z)}{Z} \quad \text{or} \quad P_1 = \frac{1}{N} \sum_{i=1}^q \frac{G_i}{Z} \dots \dots \dots (2)$$

Where G_i is the poverty gap, Z is the poverty line, and Y_i is a poor individual. This is simply the average of the poverty gaps expressed as a fraction of the poverty line. It reflects the incidence and intensity of poverty. Therefore, relatively better measure of poverty as compared to the head count index. But the method does not consider the distribution of income among the poor units.

Squared Poverty Gap (P_2) or (“Poverty Severity”) Index

The squared poverty gap index is a simple weighted sum of poverty gaps as a proportion of the poverty line, where the weights are the proportionate poverty gaps themselves. It considers inequality among the poor i.e., the severity of poverty.

Mathematically, the index is explained as;

$$P_2 = \frac{1}{N} \sum_{i=1}^q \frac{(Z - Y_i)^2}{Z} I(Y_i \leq Z) \quad \text{or} \quad P_2 = \frac{1}{N} \sum_{i=1}^q \frac{G_i^2}{Z} \dots \dots \dots (3)$$

Where G_i is the poverty gap, Z is the poverty line, and Y_i is a poor individual. In general, one useful measure that satisfies these three indexes is what was suggested by Foster-Gereer-Thorbecke (FGT), 1984, as cited in WB, 2005. The FGT poverty index could be expressed mathematically in the following equation:

$$P_{\alpha} = \frac{1}{N} \sum_{i=1}^q \frac{(Z-Y_i)^{\alpha}}{Z} I(Y_i \leq Z), \alpha = 0, 1, 2, \dots \dots \dots (4)$$

Where, α is a measure of the sensitivity of the index to poverty, and z is the poverty line

All the above poverty measures can be derived as a special case of FGT. If we take the parameter $\alpha=0$, then the FGT simply becomes the Head-count ratio, and can, therefore, be expressed as P_0 , reflecting the incidence of poverty, and tells us only the proportion that are poor. Alternatively, when $\alpha=1$, the index is the Poverty gap index P_1 , it measures the depth of poverty or simply shows how much, on average, the poor fall below the poverty line. Further, the FGT index also has another advantage attributed to its sensitivity to income distribution among the poor population. i.e., the severity of poverty, this is when $\alpha=2$, it give the poverty severity index P_2 (Debarja, 1998; WB, 2005; Todaro, 2003).

Although the FGT measure provides a well-designed unifying framework for measure of poverty, it leaves unanswered the question of what is the best value of (WB, 2005). In this paper the measurement of poverty can be calculated using the combination of all the above methods.

Survival Strategies of Poor Households

The existence of poverty conditions has brought about an emergence of quite a number of complex adjustment mechanisms that capacitate household to escape (sustain the impact) of poverty. As has been revealed in this study, the monthly expenditure of the heads exceeds their monthly income. In what follows, I try to trace the coping and survival mechanisms and /or strategies applied by poor households to close the gap between their fixed incomes and ever rising expenditure on basic needs. For examples, in the survey households were asked the trend of the current monthly expenditure on basic needs like food, clothing, education, health etc.

In this particular study, coping and survival strategies refer to the ordinary mechanisms people pursue to mobilize resources to handle difficult situations. This is because as long as there is a deficit, people find themselves forced to persuade a possible alternatives to match expenditure (i.e. consume) according to the level of their income. Therefore, the concept of coping and survival practices in this study refers to the way the poor increase their earnings in order to realize the minimum standard of living. to cope with poverty, the poor household's uses a variety of quite complex mechanisms.

- Generally, the survival strategies of poor households are can be defined as follows;
 - ✓ Group solidarity strategies
 - ✓ Disposal of possessions
 - ✓ Readjustment strategies

2.2. Review of Empirical Literature

2.2.1. Determinant of Poverty in Other Countries

A study on the determinant of poverty in Ghana by Garza (2001) using both discrete and continuous indicators of poverty as dependent variables and estimating a probit model found that factors like household size, sex, and educational attainment of the household head were found to be important variables in determining the household's welfare. Another study carried out in Kenya on the determinants of poverty using binomial Logit and ordered Logit models in a two-stage analysis. In the first stage, the study tried to compute the probability of being in "poor" or "non-poor" group using the binomial Logit models, and in the second stage, it tried to compute the probability of being in "hard-core" using the ordered Logit model. The results of the analysis showed

that education, household size, and engagement in agricultural activities, which are strongly associated with poverty level are the same for the rural and urban areas. However, the size of the coefficients associated with this regression is largely in rural areas (Alemayehu & Jong, 2001). The most interesting part of their study is that those variables that are important in the binomial Logit model are still important in the ordered Logit model.

According to a study by Goiled & Ghazouni (2001) for Tunisia, the correlates of poverty are, limited transport, household's demographic characteristics, education and health status of household members are important determinants of chronic poverty. It is also, Bruck (2001) compared the determinant of rural and urban poverty in post-war Mozambique by subjecting both the log of consumption expenditure and income as dependent variable to a number of independent variables in the levels regression models. His finding revealed that the determinants of income and consumption are quite similar in the expected negative effects of female-headedness, positive effects of cotton adoption. In addition, both regressions find that refugee status and maternal education have no effects on household welfare. The largest differences between the regressions are that income is more dependent on assets and village level variables while consumption is affected by land characteristics and social institutions.

2.2.2. Urbanization and poverty

The growth and expansion of cities has led to significant improvements in living conditions for many people all over the world by facilitating a shift of workers to higher productivity sectors and occupations, facilitating the provision of services to residents, by encouraging the proliferation of businesses and industries and by increasing modernization. In spite of these advantages, however, there are times when cities have become places where the quality of life is deteriorating and opportunities are denied, particularly for the urban poor. These various kinds of deprivations including lack of access to education, health services, adequate security etc are common in urban areas, these problems often lead to social and political instability (Masika, et al. ,1997;Tegegn, 2000). In general, all these are the manifestation of urban poverty. Urban people in poverty are those without sufficient education, secured employment, stable incomes, saving ,proper housing and important net works, they are the people that are vulnerable to changes in demand in the labor market, in prices of basic goods and services in unanticipated natural and human made disasters, and who cannot afford adequate housing (Racelis, 2003).

Though the topic of urban poverty has taken attention of many international organizations like WB, IMF, and academicians, policy makers and relevant bodies, the rapidly growing urban population made it difficult for governments' poverty reduction efforts to provide the poor

with basic services and other poverty reduction benefits (Racelis, 2003). As a result, urbanization in most parts of the developing world is characterized by poverty. As Masika, et al, (1997) led to the worsening of absolute and relative poverty in urban areas.

When it comes to Ethiopia, the latest report by World Bank in Muzzini (2008) shows that Ethiopia is urbanizing fast, but from a low base compare to urbanization in the world. The growth rate of urbanization in Ethiopia (estimated at 4.4 percent per year), and the level of urbanization is still very low, only 16 percent of the total population is estimated to live in

Urban areas as of 2006, compare to 13 percent in 1999. It's on the Ethiopian government a plan for accelerated and sustained development to end poverty (PASDEP) document urban population is expected to reach 22 million people by 2020, based on the 4.4 estimate annual growth rate (MoFED, 2006).

Urban areas in Ethiopia are in a state of expansion without the necessary preconditions and this is paving the way for visible urban poverty. There is, indeed, ample evidence that urban areas are unable to cope with the increasing population, and delivery of services has deteriorated markedly over the years. Access to housing, health, and education services continues to be seriously limited. Basic sanitary conditions are atrocious by any standard. Transportation facility, energy availability and access to job, labor market, skill reproduction, work, entitlements and finance are also at their lowest level (Dessalegh & Aklilu, 2002).The deterioration of housing and housing facilities which includes; unavailability of adequate shelter, poor sanitation, lack of access to safe drinking water, and unavailability of proper toilet facilities also been underscored by the Ethiopian government in its current five year development plan i.e. PASDEP (MoFED, 2004) .

In addition, in the Ethiopian participatory poverty assessment (PPA) report, regarding to housing. 49 percent of the urban residents live in rented houses or rooms; and 78.4 percent live in single or two room dwellings. though about 90 percent of households use tap water in urban areas, only 23 percent has their own laps, leaving the rest to use public water taps. Only 75.3 percent of the households in urban areas use electricity as sources of energy for lighting. In relation to source of energy for cooking 65.4 percent use firewood. As for the availability of toilet facilities, close to 20 percent of the urban households go to field or forests to relieve themselves; and 71.4 percent have out house facilities. The problem of sanitation has been one of the serious complaints made in the PPA undertaken in 2004 (Ellis & Tassew, 2005).

2.2.3. Poverty Profile in Ethiopia

One of the earlier attempts to assess urban poverty profile in selected urban areas was conducted by Mekonen (1996) using the 1994 Ethiopian urban socioeconomic

survey. The survey provided, among other things, information on the demographic and consumption behavior of 1500 households in seven major urban areas like Addis Ababa, Awassa, Dissie, Mekelle, Jimma, Bahir Dar, and Dire Dawa. In the study, food poverty line was obtained in accordance with the food energy intake method, where by total expenditure of food is regressed on calorific consumption (Greer & Thorbecke, 1986). The result of the study suggests that the incidence, depth and severity of poverty are quite high in the studied areas. The highest incidence of poverty was recorded for the city of Abase, followed by Addis Ababa, Dessie, Mekelle, Jimma, Bahir Dar, and Dire Dawa.

It is also, the determinant and dynamics of urban poverty was analyzed by Mekonen (1999a) using the 1994, 1998 and 1997 round of the Ethiopian urban household survey (EUHS). The measure of welfare used in the study was consumption per adult equivalent while the estimate of the poverty line was obtained following the cost of basic needs approach. Thus, a consumption basket that would meet a minimum energy requirement of 2200 Kcal of energy per adult per day was constructed and its cost calculated at regional specific price to obtain the food poverty line. The food poverty line then scaled up to obtain the poverty line. This was done by dividing the food poverty line by the average food budget shared households in the neighborhood of the poverty line. The analysis in Mekonen (1999a) indicated an increase in poverty between 1994 and 1995 and the decreased from 1995 to 1997.

The study also advocated human capital development and family planning programs as instrument to fight against poverty. Abbi and Andrew (2003) analyzed the status of poverty for selected areas of urban Ethiopia. They conducted their study in the primate city Addis Ababa and other secondary cities Bahir Dar, Dire Dawa, Mekelle, Awassa, Jimma, and Dessie. They use total households consumption expenditure as a best proxy for their analysis they found out that during 1994-1997, median consumption expenditure per adult declined for the total sample from 100.46 Ethiopia Birr (ETB) to 73.4Birr. Their result suggested that there is a household welfare deteriorated in studied urban areas. In general, their study confirm that 40 percent of the case indicated that there is a significant match between the change depicted by the qualitative evidence which shows that the percentage of their income change is close to the percentage on standard of living changes. The study further revealed that the correspondence between the subjective evaluation responses based on income and standard of living opposed to expenditure. Over all, the finding showed that the incidence of urban poverty increased over the studied period.

Tesfaye (2004) also tries to analysis the trend of poverty using panel data between the year 1994 and 2000 collected by Economics department of Addis Ababa University. In

the study households were classified on the basis of their socioeconomic characteristics and their poverty incidences and the study was conducted in seven urban centers of Ethiopia (Bahir Dar, Dessie, Dire Dawa, Addis Ababa, Jimma, Awassa and Mekelle). The results attest that poverty has generally increased in all studied areas.

Trends of Regional Poverty Incidence: According to available government official document of MoFED 2006 shows that regions which have ranked high in the level of poverty are Tigray, Amhara, Somalie and Benshangul, the two regions (Tigray and Amhara) have also rated high in previous years of 1995/96 and Harari, Addis Ababa, Dire Dawa, these regions have also shown a relatively persistently low levels of poverty in the previous years as well.

In general, the incidence of poverty at national level declined consistently over the periods of (1995/96 to 2004/5) from 46% in 1995/96 to 44% in 1999/00 to 39% in 2004/05. However, the trends of regional poverty incidence over the same periods have shown different pictures. Two regions SNNP and Amhara have registered consistent decline. In other regions, poverty in 1999/00 has increased over 1995/95 before it declined in 2004/5. Tigray, Afar, Oromiya, Benshangul belong to this category. Somale, Dire Dawa and Harar have shown a persistent increase. It is noted above that Harar and Dire Dawa have the lowest poverty head count.

Table 2.1: Regional Trends in Poverty Headcount Index

Regions	1995/96	1999/00	2004/05
Tigray	0.561	0.614	0.485
Afar	0.331	0.560	0.366
Amhara	0.543	0.418	0.401
Oromiya	0.340	0.399	0.370
Somali	0.309	0.379	0.419
Benshangul	0.468	0.540	0.445
SNNP	0.558	0.509	0.382
Harari	0.220	0.258	0.270
Addis Abeba	0.302	0.361	0.325
Dire Dawa	0.295	0.331	0.252
Total	0.455	0.442	0.387

Source: MoFED 2006

Trends of National Poverty Incidences: urban poverty increased by 4 percentage points (from 33.2 to 36.9 percent) over the period 1995-1999, while rural poverty declined by two percentage points (from 47.5 to 45.4 percent) over the same period. While the proportion of poverty that lives in absolute poverty over the period 1999 to 2005 dropped from 44.2 to 38.7 percent. In the

same year in rural poverty saw only a significantly reduction (from 45.5 to 39.3 percent) while urban poverty shows a slight declined from 36.9 to 35.1 percent (MoFED, 2006). The 2004 round of nationally representative household survey reported in PASDEP (a plan for accelerated and sustained development to end poverty) also substantiate the view that urban poverty may be more difficult to curb than rural poverty. The report further note that the significant decline in rural poverty over the period 1999 to 2005 attributed to the wide-ranging and multi-faceted pro-poor program that have been implemented in rural areas, such as food security programs and the recent productive safety net programs and among other.

Table 2.2: Poverty Incidence

Headcount Index				Change in The Indices		
	1995/00	1999/00	2004/05	1999/0 Over 1995/96	2004/05 Over 1995/96	2004/05 Over 1999/00
National	0.455	0.442	0.387	-2.7	-14.8	-12.4
Rural	0.475	0.454	0.393	-4.4	-17.1	-13.4
Urban	0.332	0.369	0.351	11.1	5.9	-4.7

Source: MoFED, 2006

Urban population and urban poverty distribution by locality in Ethiopia: The World Bank (2008) report tries to compare the distribution of the urban population with the distribution of urban poverty in Ethiopia. Based on these as indicated there is a slight higher concentration of urban poverty in small/medium towns than major towns. For example, 69 percent of the urban poor live in small/ medium towns, compared to 65 percent of the urban population the remaining 31 percent of the urban poor live in major towns, which represent 35 percent of the total population. The incidence of urban poverty is also higher in small/ medium towns (50 percent) than in major towns (41 percent) (Muzzini, 2008).

2.2.4. Determinant of urban poverty

The above discussion about poverty profile describes the pattern of poverty, but is not predominantly concerned with explaining its causes. This section devoted to answer the question of what causes poverty. There are different sets of poverty determinants or correlates studies by different scholars for different countries that fall within the domain of economic, social, political and nature spheres. Understanding of the correlates of urban poverty is useful since it helps us to design appropriate policies for poverty reduction in urban areas.

I. Demographic Characteristics

Poverty correlates with different demographic factor such as; age, household size and structure, dependency ratio, gender of the household (WB, 2005).

Household size and poverty: Indicator of household size and structure are important in that they show a possible correlation between the level of poverty and household composition. Household composition, in terms of the household member is quite different for poor and non-poor households. Most studies attest that there is a positive correlation between household size and poverty, for instance, the study by Muzzini (2008) for urban Ethiopia confirmed that poor household tends to live in larger households with an average family size of 6.6 Person, as compare to 5.4 Person for non-poor households. Likewise, Mekonen (1999b), Tesfaye (2004), Yohannes (1996) and for Ethiopia also reached at similar conclusion that the probabilities of falling into poverty increases as the size of household increases.

Age and poverty: The relation between age of an individual and poverty, studied by various scholars. For instance, Garza (2001) studied determinants of poverty in Cote d'Ivoire by using probit model. He used the data from Cote d'Ivoire living standard survey, which was conducted annually from 1985 to 1988 for analysis. The results of the study

attest that, the relationship between age and poverty might not be as such linear as we would expect. Because, incomes would be low at relatively young age, increases at middle age and then decreases again. Therefore, Poverty is relatively high at young ages, decreases during middle age and then increases again at old age. Hence, poverty is relatively high at young ages, decreases during middle age and then increases again at old age. Similarly there are other researchers in different part of the world reached at the same conclusion such as Esubalew (2006) for Debre Markos, Goiled & Ghazouni (2001) for Tunisia. However, other argues that the prevalence of poverty increases at old age. This is because productivity of an individual at old age decreases and individual has few saving to compensate for the decrease of productivity and income. This is, of course, more to be the case in developing countries where saving are too low because of low income (Szekely, 1998 cited in Mekonen, 1999b).

Dependency ratio and poverty: The dependency ratio is calculated as the ratio of the number of family member not in the labor force (whether young or old) to those in the labor force in the household (WB, 2005). This ratio allows one to measure the burden weighing on member of the labor force within the household. Various researchers concluded that high dependency ratio associate with greater poverty incidences. The Study by Esubalew (2006), Yohannes, (1996) also reached at similar conclusion.

Gender of Household head and poverty: It is widely believed that the gender of household head significantly influences poverty. Compare to households headed by men, women are poor. Study by Meron (2002), Shewaye (2002) confirmed that in Ethiopia female-headed households are those who are the most affected and vulnerable groups in experiencing hard core urban poverty. Likewise, Tizita (2001) attest that female-headed households in Addis Ababa are more likely to be in poverty than their male-headed counter parts.

II. Economic characteristics

Apart from income or consumption there are a number of other economic characteristics that correlates with poverty, most notably household employment and the property and other assets they owned by the household (WB,2005).

Income and poverty: urban poverty could also be determined by the income of individual. In most cases the family depends on the head of the household. The household head, usually, doesn't have the capacity to fulfill the need and interest of the whole family, particularly those families composed of children, youngsters, the old ones, and the extended families. This would have an impact for the family to face vulnerable

life. Lack of access to skill development and upgrading of workers have had effect on income of an individual. Since urban life is a function of monetized economy, absence/presence of income play a direct and great effect on urban poverty (Ame & Negatu, 1996; Esubalew, 2006; Mekonen, 1999b; Tizita, 2001).

Employment and poverty: unemployment has a direct and multiplier effect on the well-being and poverty status of an individual or a household. Study made by Dessalegh & Aklilu (2002) in urban Ethiopia witnessed the problem of unemployment. Their study revealed the depressing vision in that the prospect for economic growth and improvement in the labor market are very poor. In addition, the issue of job insecurity is high in urban Ethiopia. Further, their study revealed that unemployment is a major reason for low-income situation of the majority of the population of Ethiopia. Hence, unemployment individual is more vulnerable to poverty.

III. Social characteristics

Aside from the demographic and economic indicators, several social indicators are correlated with poverty and household living standards. The most widely used are measures of health, education and housing facilities (WB. 2005).

Health and poverty: Health is one of the a fundamental factors to assess the extent to which urban poverty prevails, simply because in the absence of proper health, the working force be it professional, skilled or trained cannot have the capability and opportunity to do jobs effectively and efficiently. Efficiency of workers considerably depends on their health status (Debarja, 1998; Somashekar, 2003).

Education and poverty: Most empirical studies undertaken on poverty concluded that education has a negative impact though the magnitude is different depending in the socio economic condition in which the study is undertaken. A remarkable correlation between poverty and level of education, is for example, observed in urban Ethiopia Berket & Abebe (2002) cited in Esubalew (2006) the study found out that the percentage of poor significantly declined as the level of education of the household head increase. Another study by Garza (2001) finds out that in Gana education of the household head and spouses all had strong positive influences on the likelihood to become the household non-poor. In addition, Cortes (1997) in Yared (2005) for Mexico, Alemayehu and Jong, (2001) for Kenya found that education particularly high school and university level are negatively correlated with poverty.

2.2.5. Conceptual Framework

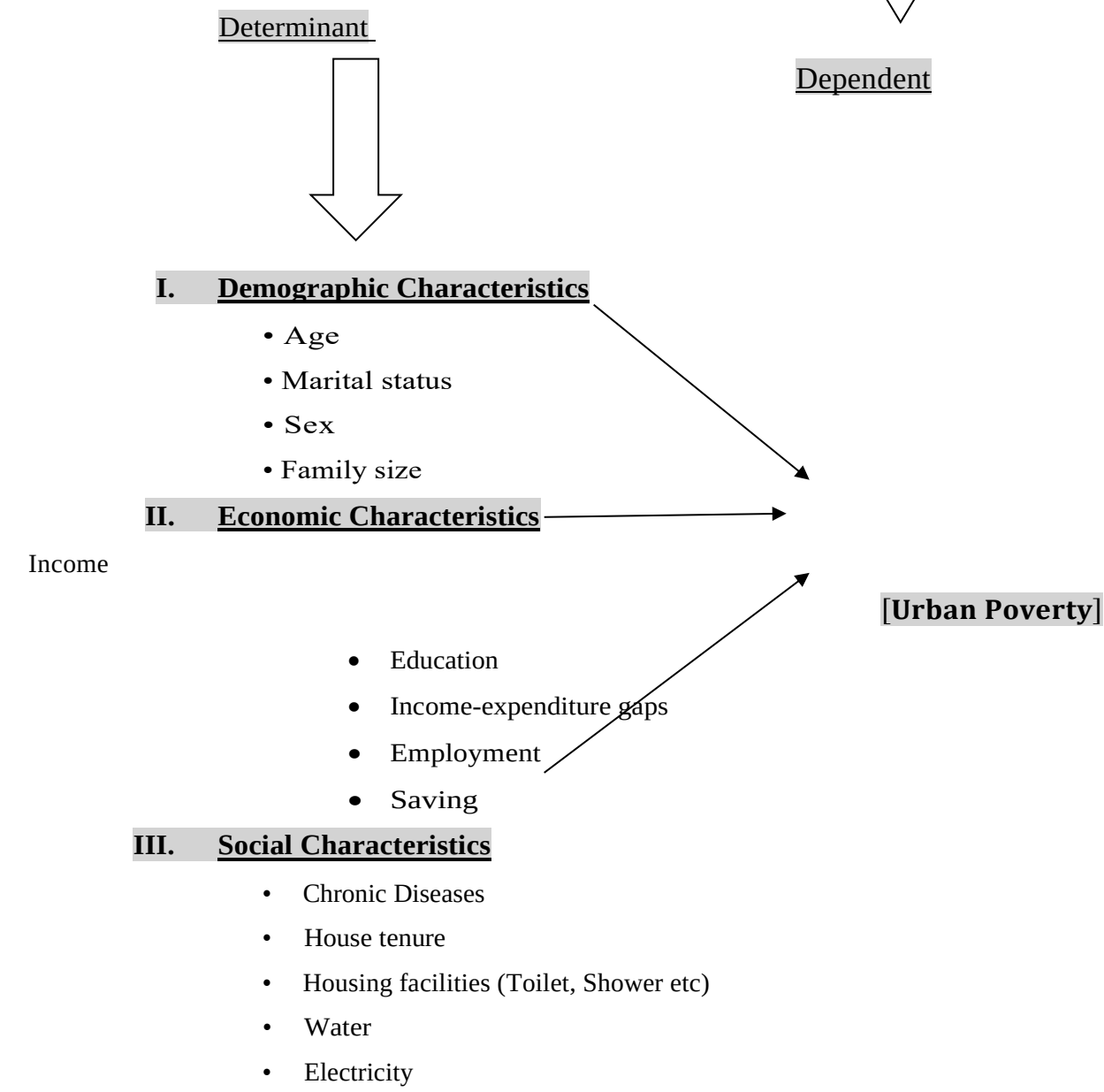


Figure 2.2: Conceptual Frame Work of the Study
Source: Developed by Author from Empirical Studies, 2025

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Description of the Study Area

This study was made in Tigray regional state, which is the home of 1,265,420 people (CSA, 2015). In this region, there are 7 zones and 7 special urban zones. A total of 246 rural districts and 36 towns with respective district governance and 6,500 rural kebeles and 564 urban kebeles exist in the regions. It has six administrative kebeles, namely: Guya, Mtsawerki, Smret, Bega, Guroro, and Merere. Its population size, climatic conditions, location, and socio-economic characteristics are briefly described below.

3.1. Population Size

The 2007 population and housing census conducted by the Central Statistics Authority enumerated the Wereda's population at 92,861. Disaggregating by sex, 44,496 (47.92%) are male, while the remaining 48,365 (52.08%) are female. Regarding the age structure, about 34 % of its population was under 15 years of age, 3 % above 64 years, and 63% in the intermediate age group (15-64). This indicates that a significant portion of the population was within the age group of 15-64, implying a higher intermediate age group in the Town. The young dependency ratio for the town was estimated to be 59.9% meaning, of 100 persons in the working age group (15-64) had to support on average 55 persons whose age is between 0-14. And also, the old dependency ratio for the Town was estimated to be 4.7% meaning that, of 100 people in the working age group (15-64) had to support nearly on the average 5 person whose age is above 65 years.

In addition, the Population and Housing Census of 2007 and the town administration revealed the fact that more than seven different ethnic groups were co-existing in Kolla-Tembien Wereda. The nation is home to different religions and, in the composition, Christians make up 62.8percent of the country's population (43.5 percent Ethiopian Orthodox, 19.3 percent other denominations), Muslims 33.9 percent, practitioners of traditional faiths 2.6 percent, and followers of other religions constitute 0.6 percent (CSA, 2007).

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

Climate of Wereda Kolla-Tembien

The average daily temperature ranges between 16.3°C and 19.73°C, and the annual average rainfall of 690.25mm. The main rainy season starts in June and lasts up to the beginning of November. This indicates that Kolla-Tembien has a long rainy season. The Town receives a fairly uniform amount of rainfall from March to October. Therefore, the Town and its surrounding areas have an advantage of growing different types of cool-weather vegetables and producing different types of cool-weather crops (Kolla-Tembien city services, 2015).

Location of Wereda Kolla-Tembien

Tigray is one of the 9 regions of the Federal Democratic Republic of Ethiopia which lies in the north tip of Ethiopia, extending from 12°15' North to 14° 54' north and 36°27' East to 39°59' East (BoFED, 2008). Wereda Kolla-Tembien is located between Tanquamlash and Keyhtekli. It is found at a road distance located about 1030 kilometers north Addis Ababa, 27kms from Abi-Adi and 123kms south west of from Mekelle along the highway of Mekelle to Abi-Adi and central Zone of Tigray regional national state. The relief of Kolla-Tembien is not uniform. The gradient of the town inclines from east to west direction. That means there is maximum altitude in the eastern peripheral areas of the town. This rises up to 2700 meters above Sea level in the south east but declines up to 2210 meters above Mean Sea level in the west direction of the town. The overall altitudinal range of the town is 490 meters.

In relative terms, Kolla-Tembien is surrounded by peasant associations in all directions. Kolla-Tembien is bounded by the peasant associations of Tanqamlash in the north and northeast, Keyh tekli in the west and Southwest, Adet in the east, and Tekeze in the south and southeast (Kolla-Tembien city services, 2015).

3.1.2. Socio-Economic Description of Kolla-Tembien Wereda

Infrastructure has remained to be a crucial tool in flourishing investment, increasing productivity, ensuring efficiency and effectiveness of work and in the development endeavor of urban areas. This variables when available at sufficient level in urban centers has a positive multiplier effort for the growth and development, it also brings comparative advantage, economies of scale, and in the overall requisite performance of institutions. In Kolla-Tembien, the basic infrastructures, such as water, electric, telephone and transport are available but not to the commendable level.

In the Town, the major source of water for the population is river water. The water treatment plant of the Town is located at Tekeze River. The maximum discharge capacity of the

Present water supply system is 3600 m^3 to 7200 m^3 per day. However, of the water produced in the Town, large quantities of water are wasted, due to different reasons and one of the most frequently cited is found to be leakage because of old age of the pipe lines (Kolla-Tembien water service bureau, 2016).

The Town got its electric power service from Tekeze power station in 1989.

Currently, the electric power coverage of Kolla-Tembien is 76%. But the street light coverage of the town is 42%. Both services are small compared to the status of the town and investment opportunities the town has. According to Electric light and power Authority of Kolla-Tembien district, the major problems related to electric power delivery in Kolla-Tembien are absence of a buffer zone along the high tension lines of the Wereda. In some residential compounds electric power poles are also erected. Apart from this, very large trees are also creating problems on the electric power delivery of the Wereda. All these have impacts on the residents of the town. Therefore, the high tension lines of the Wereda should be separated from the residential quarters and other land uses by a buffer zone in order to minimize their impacts. Additionally, very large trees creating electric power delivery problem should be cut. But in the future, the vegetated areas of the Wereda should not be chosen so as to distribute electric power for the residents and investors (Electric light and power Authority of Kolla-Tembien district, 2016).

Telephone services play a crucial role in exchanging information among individuals, wholesalers, and retailers and traders. According to Abi-Adi Telecommunication Corporation (2016), the major telephone services in the town are Fixed Lines, Mobile lines, Internet, and Fax. There is a demand for such services in the Wereda. The numbers of customers of fixed lines are 550 which exclude those customers in the expansion areas. The number of mobile lines in the town during the first phase is 1000 GSM or Global System for Wireless communication and the number of internet clients of the Wereda is 350. There are both domestic and international calls to and from Kolla-Tembien. Both of the calls were irregularly increasing from time to time.

The major problems related to telephone service of the Wereda are lack of accessibility of networks for residential areas. Currently, the corporation has taken measures than actions so as to minimize the major problems of telephone service in the town. But there should be coordination among different infrastructure services when

establishing services like water, power service, road and recreation centers all of which are necessary for a society. The telecommunication corporation office of the Town should also expand its services in line with the current investment flow to Kolla-Tembien. With regard to transport facilities in the Wereda, According to information obtained from trade and industry office of the Wereda, (2016) there are 2 taxis, 20 Bajaj's and 30 carts in Kolla-Tembien. The vehicles are mainly giving transport services along the main or asphalt road and carts usually give services along gravel or poor surfaced roads. But carts usually cross the main asphalt road in many areas especially in commercially active areas.

Education play a significant role in improving the welfare of the society, to this end, the quality and distribution of education service in the Wereda is still not remarkable. Regarding the number there are forty two (42) Kindergartens, twenty two (22) full primary schools (1-8), three (03) secondary schools (9-12) level educational institutions. As it can be clearly understand from the educational accessories like student to class ratio, students to teacher ratio, books and availability of qualified professional are poor in the town (Kolla-Tembien education office, 2015).

Regarding health institution in Kolla-Tembien there are 35 health institutions. Among these institutions 12 of them owned by government (Health sector offices and government owned institutions such as schools, colleges, and development firms), 2 by non-governmental organization, and 19 privately owned and 2 by faith based organization (FBO). The hospital is owned by Government serves the major portion of Central Zone and its surrounding including some part of Abi-Adi. According to the information obtained from Kolla-Tembien health office, the health services in terms of Population health institution ratio, Population health personnel ratio, Population bed ratio, Facilities and physical condition of health institutions in the Wereda reveal that the existing serves is by far less than the standard set by ministry of health.

3.1. Research Design

The research used a mixed approach. People's well-being change over time and hence there is a tendency of moving in to and out of poverty. Accordingly, determinant factors also change over time. Because of this nature of the subject of study, poverty is best studied by having a panel observation in a longitudinal study design. However, often requires taking repeated measurements that have cost and time implications. Hence, it becomes difficult to employ such kind of design in a thesis work like this. However, tire best way to do it in a cross sectional study design is to take indicator of welfare that reflect people's past and future situation, like for example, taking consumption expenditure rather than income (Kyereme & Thorbecke, 1991). This study therefore, is primarily designed to undertake a cross-sectional survey of the urban poverty and survival strategies of poor households in Kolla-Tembien Wereda.

3.2. Sampling Technique and Sampling Size

3.2.2. The target population

The total number of households in Kolla-Tembien Wereda in the six Kebeles is 11374 (Kolla-Tembien office of plan and finance, 2016). The appropriate sample size for this study is computed to be 300. There are several methods for determining the sample size of respondents from a finite population. But, for this study, it uses a simple formula from Yamane (1967) formula which is an additional formula used.

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

Where; n = is the sample size

N= is the population size =11374

e= is the level of precision (Sampling error) = 5% or 0.05

$$n = \frac{11374}{1 + 11374(0.05)^2} = \frac{11374}{29.435} * 300, \text{ then } \underline{\underline{n=300}}$$

❖ This sample size is allocated to six kebeles using the proportionate stratified sampling formula. Through this formula, each Kebele is fairly represented as follows:

1. Sample size for 03 Kebele $= \frac{300 \times 2173}{11374} = 57$
2. Sample size for 04 Kebele $= \frac{300 \times 2786}{11374} = 74$
3. Sample size for 06 Kebele $= \frac{300 \times 1741}{11374} = 46$
4. Sample size for 07 Kebele $= \frac{300 \times 1973}{11374} = 52$
5. Sample size for 11 Kebele $= \frac{300 \times 1285}{11374} = 34$
6. Sample size for 12 Kebele $= \frac{300 \times 1416}{11374} = 37$

As already mentioned above, for this study, it used a simple formula from the Yamane (1967) formula. Among the target population of 11374 the researcher take 300 respondents and women participation involve 59% and men participation involve 41% as calculated based on the above formula.

To select the households to be surveyed, the registry-frame works of kebeles were used and Systematic sampling technique was employed, I.e. the k^{th} household head was selected using

the formula: $K = \frac{N}{n}$

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

N is the number households in the Kebele and

N is the proportionate size (Sample size) from each Kebele to be surveyed.

3.2.3. Sample Frame and Sampling Techniques

Though an effort was made, the researcher could not trace official or unpublished documents of the town that could tell how the socioeconomic profiles of each kebele differ from and resemble each other. The list of households recoded by the Kebele officials was used as a sampling frame. A representative sample population was obtained based on a multi-stage sampling technique. At the first stage, the purposive sampling technique was employed to select Kolla-Tembien Woreda due to the need to investigate the urban poverty determinants.

In the second stage, out of 16 kebeles of the Wereda, 6 kebeles were selected purposively based on spatial consideration; Kebele 03 & 04 are taken from the core areas, Kebele 06 & 07 are taken from midway between the two, and Kebele 11 & 12 are taken from the peripheral part of the town. In the third stage, households were randomly selected from each Kebele based on sampling frames prepared from the housing registry available at the Kebele administration offices. To be more precise, systematic sampling was employed and every 20th household) were selected. In each of the surveyed kebeles selection of the first household was made by simple random sampling. As Table 3.1 show the numbers of households selected from each sample kebeles were determined in proportion to the respective total household size in each kebeles.

Total 3.1: Household Size of Surveyed Kebeles

Surveyed Kebeles	Ambera (Kebele 03/04)		Begasheka (Kebele 06/07)		Meteka (Kebele 11/12)		Total
	Kebele 03	Kebele 04	Kebele 06	Kebele 07	Kebele 11	Kebele 12	
Total Households	2,173	2,786	1,741	1,973	1,285	1,416	11,374
Sample Households	57	74	46	52	34	37	300
Total	131		98		71		300

Source: Respective Kebele Roaster and Own Computation, 2016

3.3. Data Source, Data Type, and Method of Data Collection

The data for the study were collected from both primary and secondary sources. Primary data was obtained from household heads³³ through structured questionnaires. The structured questionnaires were administered to the heads of the households. They were interviewed about the demographic characteristics (age, sex, marital status, family

size, employment, assets, income, expenditure, saving, water, health, electricity, house tenure, vulnerability, survival, and coping strategies).

Secondary data were obtained from published and unpublished documents, which includes: Government statistical reports, FAO, MOFED, books, previous working literature, journals, and various government offices in Kolla-Tembien Wereda. This information was used to give background information and partially identify problems that characterize poverty and its survival, and coping strategies of poor households in the Wereda.

Regarding the data type, this study employed both qualitative and quantitative data types. The qualitative data was collected from responses from structured questionnaires that could not be quantified numerically. The quantitative data was used to obtain various information about; demographic composition, income and expenditure, and survival and coping strategies of poor households which could be quantified numerically.

3.4. Methods of Data Analysis

The data was analyzed using descriptive statistics and the econometrics model. The different descriptive statistics were interpreted using tables, means, frequency, and percentages. In the empirical analysis, the Logit model was used. The chi-square test was run to see if there is any systematic association between poor and non-poor households for some categorical variables.

Moreover, a logistic model was fit to determine the factor affecting poverty the most. The model was used to estimate the probability of poor households, that takes either 1($Y=1$) for poor households or 0 ($Y=0$) for non-poor households.

3.5. Poverty Analysis

3.5.1. Method of Poverty Analysis

In measuring welfare at the household level, consumption-based measures rather than income are used. Aggregate household consumption expenditure is obtained by adding reporting household expenditure on food and non-food items. The definition of consumption is quite compressive as it incorporates all food and non-food items consumed by households. Aggregate household consumption expenditure is converted into a per adult equivalent measure to adjust for household size and composition. The adult equivalent conversion codes used are consistent with those used in Dercon and Krishanan (1998). The factors used vary by age and gender, capturing the different consumption needs within a household. After identifying the size of the household in terms of number of adult equivalents, total consumption to the household is divided by the number of adult equivalent to get consumption per adult equivalent.

Absolute poverty line is delineated for the town following the cost of basic need (CBN)

approach. The basket of food items that particularly represent the poor calculated for all cereal growing urban areas of Ethiopia is adopted from (Mekonen, 1999a), which is the minimum food basket that gives 2200 Kcal per adult per month. It's the minimum calorie intake suggested by WHO, which is required for an adult to perform daily duties. Then, to get the food poverty line the basket of food item is valued at local prices of Kolla-Tembien Wereda market. To account for non-food expenditure Oshansky method in Mekonen, (1999a) was followed. The method assumes that the total poverty line is obtained by dividing the food poverty lines by average food budget share of households that are in the neighborhood of the food poverty line.

3.5.2. Econometric Model Specification

In order to explore the correlates of urban poverty with various poverty variables logistic regression model was employed as opposed to probit model, the difference between these two models is that the former uses logistic while the later uses normal distribution. Logit model also concentrate data in the tails. Moreover, in most urban poverty studies binary Logit model have been used like those conducted by (Abbi, 1997; Esubalew, 2006; Tesfaye, 2004) in different places of urban Ethiopia. In addition, as opposed to other models, Logit model is simple and accommodates qualitative (categorical or discrete) responses (Gujarati, 1995). Hence, this research has adopted the Logit model.

In this study, urban poverty is the dependent variable being the dichotomous variable of whether the household is poor (1) or not poor (0). The explanatory variable considered in the analysis are demographic (sex, age, marital status, family size of household heads) educational level, health, income, water, and house tenure.

The Logit Regression model is specified following the Gardson (2008) and Gujarati (1995) stated the logistic prediction equation as:

$$Z = \ln(\text{odds}(\text{event})) = \ln(\text{prob}(\text{event})/\text{prob}(\text{nonevent})) = \ln(\text{prob}(\text{event})/[1 - \text{prob}(\text{event})]) = B_0 + B_1X_1 + B_2X_2 + \dots + B_nX_n \text{-----} (1)$$

Where B_0 is the constant and there are 'n' independent (X) variables with $B_1, B_2, \dots, B_n$ coefficient used to predict the log odds, and prob represents probability. To simplify the procedure, let $Z = B_0 + B_1X_1$, for one independent variable X.

(a) If X_1 is binary (0, 1) variable, then $Z = X_0$ (that is constant for the '0' group on X_1 and equals the constant plus the coefficient for the '1' group.

(b) If continuous variable Z equals constant plus the B coefficient times the value of X_1 .

Hence for single independent model the probability of household head being poor, Prob (poor), can be rewritten as:

$$\text{Prob (poor)}= \frac{e^{\beta_0+\beta_1x_1}}{1+e^{\beta_0+\beta_1x_1}} \text{-----(2)}$$

Then dividing equation (2) by $e^{\beta_0+\beta_1x_1}$, $\text{prob(poor)}=1/1+e^{\beta_0+\beta_1x_1}$ ------(3)

for more than one independent variable, the model can be generalized as:

$$\text{Prob (poor)} = \frac{e^z}{1 + e^z} \text{----- (4)}$$

Dividing equation (4) by numerator, Prob (poor) = $1/1+e^{-z}$ -----(5)

Once equation (1) is computed, it is applied to compute the probability of poor, Prob (poor), by inserting the Z values in (5)

Since it is easier (Gardson, 2008) to think of odds rather than log odds the odds ratio can be written as follows from equation (1)

$$\text{Prob (poor)}/ \text{prob (non-poor)} = e^{\beta_0+\beta_1x_1+\beta_2x_2+\cdots+\beta_nx_n} \text{----- (6)}$$

The logistic coefficient is the change in the log odds associated with a one unit change in the independent variable. The e raised to the power of β (odds ratio), written as $\text{Exp}(\beta)$ in SPSS output, is the factor by which the odds change when the i^{th} independent variable increases by one unit. The coefficients vary between plus and minus infinity, with 0 indicating the given explanatory variable does not affect the Logit; and positive or negative β coefficients indicate the explanatory variable increases or decreases the Logit of the dependent.

3.5.3. Definition of Hypothesized Variables

The relationship between the dependent and independent variables was drawn from the literature review, which indicates the determinants of urban poverty and its survival strategies in the Kolla-Tembien Wereda. Therefore, based on the literature review, the following explanatory variables were hypothesized.

• Gender of Household Head

It is widely argued that the gender of the household head significantly influences urban poverty. Therefore, in this study, it is hypothesized that the probability of the household being poor is high if the head is female, and it takes the value of 1 if the head is female, 0 otherwise.

• Household Family Size

Various empirical studies attest that there is a positive correlation between household size and poverty. The household with a large number of family members tends to be poorer than

household with fewer family members. In this study, it is hypothesized that as the size of the household increases the more the probability of falling into the poor category than for those with a smaller family size. Hence, large family size is positively associated with poverty.

•Age of Household Head

People of the productive age group are believed to earn more income than the unproductive ones. However, this may not be the case in developing countries where there is high unemployment among the productive section of society. In this study, it is hypothesized that household heads in the age range of 31-60 are the productive ones, whereby the probabilities of getting income are higher. The rest of the household heads, who are found in the age range of 18-30 and above 60, are assumed to experience poverty more than the other sections of society. It's hypothesized that household heads with age ranges of 18-30 and more than 60 take the value of 1, 0 otherwise (31-60 age range).

• Household Head Marital Status

In this study, it is hypothesized that households headed by married individuals are expected to be larger in family size. Large families in developed countries mean a large labor force, which in turn reduces the incidence of poverty. But in developing countries, the reverse in most cases holds in that larger households are associated with a high incidence of poverty because many of the labor force are unemployed. Therefore, if the head of the household is married, it takes the value of 1, 0.

• Educational level of the household head

Various scholars argue that the educational attainment of the household head negatively correlates with poverty. In this study, it is hypothesized that as the educational attainment of the household head increases, the probability of the household head becoming poor decreases. To explain for the highest educational level attained, the research hypothesized, if the household head's highest educational level is greater than elementary school, it takes the value of 1, 0 otherwise.

• Household Health Condition

The status of a health condition in a family member is one of the fundamental factors to assess urban poverty. If the head of the household or its members get sick with major chronic diseases, the family likely faces poverty. Lack of proper health in a family member adversely affects the productivity of the household head. In this study, therefore, it is hypothesized that if the household member suffered from major chronic diseases, the household is higher probabilities to fall into poverty and take the value of 1, 0 otherwise.

•Household Head Income

Economic theory supports the view that households with a relatively better income lead a decent life and hence reduce the incidence of poverty. Therefore, in this study, it's hypothesized that as the income of the household head increases, the probability of

household head becoming poor decreases and vice versa. It is expected that household income affects urban poverty negatively.

- **Household house Tenure**

House ownership has become a critical parameter of urban dwellers and assumed to play significant roles in the incidence of poverty. In this study it's assumed that the probabilities of households to fall into poverty decreases as the household head have their own houses and increases if they don't have. Therefore, it's hypothesized that households without their own house are poor and it take the value of 1, 0 otherwise.

- **Household Water Service**

This refers to the type of water service the household has. It's hypothesized in this study that the probability for a household to be poor is low if the household head have their own private tap water in their compound. Those who don't have private tap water in their compound takes the value of 1, 0 otherwise.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics Analysis

Table 4.1: Descriptive Statistics of Continuous Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	300	46.843	8.372	27	68
family size	300	5.49	2.119	1	15
farm experience	300	12.833	5.662	2	30
Education	300	4.97	2.474	0	10
Landsize	300	1.224	.767	.02	7
Distance market km	300	1.39	.682	0	5
TLU	300	7.875	8.878	0	68.625

Source: Own Survey, 2025

The average age of respondents (46.84 years) indicates that most participants are in their middle productive years. This suggests that urban agriculture in Kolla-Tembien is largely managed by mature individuals with moderate experience. The average family size (5.49 persons) exceeds the national urban average of 4.4 (CSA, 2021), indicating a potential dependency burden, which could influence poverty outcomes (Dercon, 2006).

The mean farm experience (12.83 years) shows that most respondents possess significant practical experience in urban agriculture. However, the average education level (4.97 years) reveals limited formal education, consistent with Woldehanna and Hagos (2015), who found that educational attainment among small-scale urban farmers remains low, affecting technology adoption and income diversification.

The mean landholding (1.22 ha) demonstrates that land constraints are significant, especially for urban households. Similarly, proximity to markets (1.39 km) implies relatively good access to commercial centers, which can facilitate better market integration. The mean Tropical Livestock Units (7.88) shows considerable variation, indicating inequality in asset ownership, an important factor influencing income and poverty (Barrett et al., 2001).

Table 4.2: Descriptive Statistics of Households' Poverty Status distribution by Kebeles

Kebele	Household Poverty Status		
	Poor	Non-poor	Total
Guya	0	57	57
	0.00	100.00	100.00
	0.00	34.55	19.00
Mtsaewerki	8	66	74
	10.81	89.19	100.00
	5.93	40.00	24.67
Simret	33	13	46
	71.74	28.26	100.00
	24.44	7.88	15.33

Bega	28	24	52
	53.85	46.15	100.00
	20.74	14.55	17.33
Gurroro	29	5	34
	85.29	14.71	100.00
	21.48	3.03	11.33
Merrere	37	0	37
	100.00	0.00	100.00
	27.41	0.00	12.33
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 164.04 Prob = 0.0000

Source: Own Survey, 2025

Table 4.2 presents the distribution of households' poverty status across the six kebelles of Kolla-Tembien town. Out of the total 300 surveyed households, 45% were classified as poor and 55% as non-poor. The Pearson Chi-square test ($\chi^2 = 164.04$; $p = 0.000$) indicates a statistically significant association between kebele residence and poverty status, implying that the likelihood of being poor varies significantly across kebelles.

In Guya, none of the households were poor; all 57 households (100%) were categorized as non-poor. This kebele exhibits the highest welfare status, likely due to its better infrastructure, business activity, and proximity to the central market. Similarly, Mtsaewerki showed a relatively low poverty incidence, with only 10.81% of households classified as poor. The majority (89.19%) were non-poor, reflecting stronger engagement in non-farm employment and access to public services.

In contrast, Simret and Gurroro displayed considerably high poverty rates, at 71.74% and 85.29%, respectively. Merrere recorded the highest poverty incidence, with all (100%) of its 37 households categorized as poor, underscoring extreme welfare disparity within the town. Bega, while moderately better, still had more than half of its households (53.85%) below the poverty line.

These findings reveal spatial inequality in urban poverty, suggesting that socioeconomic opportunities, infrastructure access, and resource endowments differ substantially among kebelles. The results align with *Bigsten et al. (2005)* and *Woldehanna (2019)*, who documented significant spatial disparities in urban welfare in Ethiopian towns. Similarly, *Ravallion (2016)* emphasized that urban poverty is often geographically concentrated, with peripheral and less-served neighborhoods experiencing higher deprivation levels. Overall, kebelles such as Guya and Mtsaewerki appear to be urban growth hubs, while Simret, Gurroro, and Merrere represent poverty pockets. This calls for geographically targeted poverty reduction policies that address location-specific barriers to employment, infrastructure, and social services.

Table 4.3: Descriptive Statistics of Dummy Variables

Variable		Household Poverty Status		
		Poor	Non-poor	Total
Sex	Male	76	101	177
	Female	59	64	123
Total		135	165	300
Marital status	Single	93	89	182
	Married	42	76	118
Total		135	165	300
Access credit	No	89	28	117
	Yes	46	137	183
Total		135	165	300
Off-farm participation	No	34	3	37
	Yes	101	162	263
Total		135	165	300
Extension service	No	45	87	132
	Yes	90	78	168
Total		135	165	300
healthaccess	No	52	40	92
	Yes	83	125	208
Total		135	165	300
houseownership	No	111	88	199
	Yes	24	77	101
Total		135	165	300

Source; Own Survey, 2025

Table 4.3 summarizes the distribution of major categorical (dummy) variables by poverty status. The analysis provides insight into how demographic, social, and institutional factors are associated with household welfare conditions.

Gender and Poverty

Among the poor households, 56.3% were male-headed, while 43.7% were female-headed, compared to 61.2% male among the non-poor group. Although male-headed households slightly dominate both categories, a higher proportion of female-headed households is found among the poor. This finding supports the notion of feminization of poverty, consistent with Quisumbing et al. (2015) and Fentaw et al. (2019), who highlighted that women in Ethiopia often face limited access to credit, assets, and extension services, increasing their vulnerability to poverty.

Marital Status

About 68.9% of the poor and 53.9% of the non-poor households were married, while single household heads accounted for 31.1% of the poor and 46.1% of the non-poor. The data suggest that single-headed households tend to perform relatively better economically, possibly due to smaller dependency burdens or diversified income activities. However, the relationship is not strong enough

to be conclusive, reflecting mixed findings in the literature (Dercon, 2006; Hoddinott, 2014).

Credit access shows a strong inverse association with poverty. About 76.1% of poor households lack credit access, while 83% of non-poor households have access to credit services. This difference indicates that credit availability is a critical determinant of household welfare, supporting Zeller and Sharma (1998) and Bekele & Worku (2020), who found that access to finance significantly enhances productivity and income diversification in urban and peri-urban Ethiopia. The majority of poor households (91.9%) do not participate in off-farm activities, compared to 98.2% of non-poor households who do engage in off-farm income generation. This demonstrates that off-farm employment is a vital poverty-reducing mechanism, allowing households to supplement income from agriculture. This finding is consistent with *Ellis & Freeman (2004)* and *Bezu et al. (2014)*, who argue that livelihood diversification plays a central role in reducing poverty and smoothing consumption in urban contexts.

Extension access is relatively widespread (56% overall), but a larger share of poor households (66.7%) reported receiving extension support compared to 47.3% of non-poor households. This might indicate that extension services are more targeted toward poorer farmers, or that the service effectiveness varies. However, the lack of a significant difference suggests that access alone does not guarantee impact without quality and appropriate application, as discussed by Davis et al. (2012). Among poor households, 57% reported inadequate access to health services, while 60.6% of non-poor households had better access. This confirms that health infrastructure contributes to welfare improvement, echoing World Bank (2018) findings that urban poverty correlates strongly with limited access to health and sanitation services. Housing ownership shows a strong welfare implication. 82% of the poor are renters, whereas 76.2% of the non-poor own their homes. Home ownership serves as an asset and a proxy for stability and long-term wealth accumulation (Barrett et al., 2001). The findings align with Woldehanna (2019), who emphasized that property ownership significantly lowers poverty vulnerability in urban Ethiopia.

The descriptive results demonstrate that urban poverty in Kolla-Tembien Town is multidimensional and spatially heterogeneous. Poverty is highly concentrated in kebelles with limited infrastructure and public service access (Simret, Gurroro, Merrere). Furthermore, factors such as gender, credit access, off-farm participation, and housing ownership show strong associations with welfare outcomes.

These findings mirror the broader Ethiopian urban poverty literature: Dercon (2006) emphasized that household assets and access to credit shape poverty dynamics. Woldehanna (2019) reported that urban inequality often reflects differential access to basic services and employment. Ellis & Freeman (2004) and Bezu et al. (2014) found that income diversification reduces vulnerability. Quisumbing et al. (2015) underlined gender-based disparities in poverty incidence. The overall

pattern highlights that structural and locational inequalities are key determinants of poverty in Kolla-Tembien. Addressing these requires multi-sectoral strategies, including improved access to finance, empowerment of female-headed households, and equitable urban infrastructure development across kebelles.

4.2. Econometric Results

The determinants of urban poverty were analyzed using the logit regression Model. Thus, the coefficients of the logit regression model were interpreted using the marginal effect due to the need for interpretation of the sign and magnitude of the dependent variable.

Table 4.4: Marginal Effect Estimation of the Logit Model

Variable	dy/dx	std. err.	Z	P>z	[95% conf. interval]	
Age	0.005	0.004	1.530	0.127	-0.002	0.012
Sex	-0.105	0.052	-2.010	0.044**	-0.208	-0.003
Family size	-0.023	0.012	-1.960	0.050*	-0.046	-0.000
Farm experience	-0.004	0.005	-0.700	0.484	-0.014	0.006
Education	-0.031	0.016	-1.990	0.047**	-0.062	-0.000
Marital status	-0.015	0.056	-0.280	0.782	-0.125	0.094
Land size	-0.075	0.042	-1.780	0.075*	-0.157	0.008
Access credit	-0.505	0.256	-1.970	0.049**	-1.007	-0.003
Distance market (in km)	-0.145	0.053	-2.730	0.006***	-0.249	-0.041
Off-farm participation	-0.378	0.155	-2.430	0.015**	-0.682	-0.074
Extension service	0.061	0.054	1.120	0.262	-0.045	0.166
TLU	0.011	0.003	3.560	0.000***	0.005	0.016
Health access	-0.049	0.083	-0.590	0.555	-0.211	0.114
House ownership	-0.025	0.073	-0.340	0.731	-0.169	0.118
Water access	0.042	0.099	0.420	0.674	-0.152	0.236

***, **, * refers to a 1%, 5%, & 10% probability level of significance.

Note: dy/dx for factor levels is the discrete change from the base level.

Number of obs = 206

source: Own Survey, 2025

The marginal effects show the magnitude and direction of influence of each variable on the probability of being poor. Sex (-0.105, p = 0.044): Male-headed households are 10.5% less likely to be poor compared to female-headed ones. This supports findings by Quisumbing et al. (2015) and Fentaw et al. (2019), who found that gender disparities in access to assets and information significantly affect poverty status.

Family size (-0.023, p = 0.050): Larger households are 2.3% less likely to be poor, possibly due to labor availability in urban farming. However, this result contrasts with Dercon (2006), who found that large family sizes increase dependency and poverty likelihood. The difference may reflect urban-specific dynamics where household labor contributes directly to income generation.

Education (-0.031, $p = 0.047$): Each additional year of education reduces poverty probability by 3.1%, confirming Todaro and Smith (2015) that education enhances human capital and earnings potential. Access to credit (-0.505, $p = 0.049$): Credit access dramatically reduces the likelihood of poverty by 50.5%, highlighting financial inclusion's role in poverty alleviation. This is consistent with Bekele and Worku (2020) and Zeller and Sharma (1998), who emphasize credit as a key enabler for smallholder productivity and income stability. Note that in general, due to the multicollinearity among the Kebele Variables, around 94 observations were excluded from the analysis.

Distance to market (-0.145, $p = 0.006$): A one-kilometer increase in distance reduces poverty likelihood by 14.5%, suggesting that households closer to markets may face higher living costs, while peri-urban farmers may benefit from land access. However, this result contrasts with Barrett et al. (2001), who argued that remoteness generally worsens poverty by limiting access to markets. Off-farm participation (-0.378, $p = 0.015$): Engagement in off-farm income activities reduces poverty by 37.8%, consistent with Ellis and Freeman (2004) and Bezu et al. (2014), who noted that livelihood diversification improves income resilience in urban and peri-urban settings. Land size (-0.075, $p = 0.075$): Although only marginally significant, an increase in landholding reduces poverty probability by 7.5%, consistent with Woldehanna (2019), who emphasized land access as a determinant of urban-rural livelihood security.

TLU (0.011, $p = 0.000$): The positive and significant coefficient implies that households with more livestock are 1.1% more likely to be poor. This surprising result may reflect underproductive livestock ownership or distress sales under poverty, similar to Bevan (2017), who found that livestock ownership in urban settings may not always represent wealth due to high maintenance costs. Extension service, house ownership, health access, and water access are statistically insignificant variables but imply limited variation across households or less direct influence on urban poverty. Overall, the regression results highlight the multifaceted nature of urban poverty. Determinants such as gender, education, landholding, credit access, and diversification play critical roles. This aligns with poverty theories emphasizing both human capital (Becker, 1994; Todaro & Smith, 2015) and livelihood diversification (Ellis, 2000) as key escape mechanisms. The findings corroborate studies by Dercon (2006), family labor and education as core poverty determinants in Ethiopia. Woldehanna (2019), urban livelihoods are constrained by credit and market access. Ravallion (2016) – the multidimensional nature of poverty requires both asset and institutional access. Ellis & Freeman (2004) – off-farm employment enhances income stability. Zeller & Sharma (1998) – credit availability significantly affects rural and urban welfare.

Before interpreting the econometric model results, diagnostic checks were conducted to ensure the reliability and robustness of the estimated coefficients. Specifically, the Variance Inflation Factor

(VIF) test was used for continuous variables, and pairwise correlation coefficients were computed for dummy (categorical) variables. The results are summarized in Table 4.5 and Table 4.6.

Table 4.5: Diagnosis Tests of Continuous Variables using the Variance Inflation Factor

Variables	VIF	1/VIF
Age	1.204	.831
Education	1.14	.877
Distance market km	1.115	.897
farm experience	1.107	.904
Landsize	1.058	.945
family size	1.043	.959
Healthaccess	1.04	.961
TLU	1.025	.975
Mean VIF	1.091	.

Source: Own Survey, 2025

The results in Table 4.5 indicate that all continuous variables have VIF values well below the commonly accepted threshold of 10 (and even below the conservative benchmark of 5). The mean VIF of 1.091 shows that multicollinearity among the continuous explanatory variables is negligible. This implies that the independent variables do not exhibit excessive linear relationships and therefore do not distort the estimated coefficients or inflate standard errors. Econometrically, this confirms that the logit regression estimates are stable and statistically reliable, as each explanatory variable contributes unique information to explaining poverty status. These findings align with methodological expectations suggested by Gujarati & Porter (2009) and Wooldridge (2015), who note that low VIF values (<2) indicate well-behaved models free from multicollinearity. Empirical studies such as Dercon (2006) and Bigsten et al. (2005) similarly reported low VIF values in poverty models involving demographic and socioeconomic predictors in Ethiopia, reflecting the robustness of such variable specifications. These diagnostic tests are critical to ensure that the econometric assumptions underlying the logit regression model are not violated, particularly regarding multicollinearity and correlation among explanatory variables.

Table 4.6: Diagnosis Tests of Dummy Variables using the Pairwise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) poverty_status	1.000									
(2) kebele	-0.689	1.000								
(3) sex	-0.050	-	1.000							
		0.007								
(4) maritalstatus	0.152	-	-0.075	1.000						
		0.198								
(5) accesscredit	0.499	-	0.000	0.168	1.000					
		0.862								
(6) off-farm_participation	0.354	-	0.004	0.115	0.469	1.000				
		0.612								
(7) extension_service	-0.194	0.297	0.002	-	-	-	1.000			
				0.070	0.241	0.271				
(8) healthaccess	0.154	-	0.084	0.151	0.076	0.080	-	1.000		
		0.161					0.036			
(9) houseownership	0.304	-	0.138	0.018	0.223	0.160	-	0.459	1.000	
		0.301					0.051			
(10) wateraccess	0.083	-	0.034	0.281	-	0.185	0.006	0.535	0.287	1.000
		0.078			0.015					

Source: Own Survey, 2025

The correlation coefficients among the dummy variables are generally low, with most values below 0.5, indicating no serious multicollinearity problems among categorical variables. However, a few moderate negative correlations appear, such as between kebele and access to credit (-0.862) and kebele and poverty status (-0.689). These negative relationships suggest that some kebelles have systematically lower access to credit and higher poverty incidence, reflecting spatial inequality across the urban area rather than statistical redundancy. Likewise, a modest positive correlation ($r = 0.535$) between health access and water access indicates that areas with improved water supply also tend to have better healthcare services, a pattern consistent with integrated infrastructure development. None of the coefficients exceeds ± 0.9 , implying that the dummy variables are sufficiently independent to be included together in the regression model.

According to Kennedy (2008) and Wooldridge (2015), correlation coefficients below ± 0.8 generally do not pose a multicollinearity threat in logit or probit models. Empirical research in Ethiopian urban contexts (e.g., Woldehanna, 2019; Bekele & Worku, 2020) has similarly found that correlations among institutional and locational variables are moderate but not problematic, reflecting overlapping access patterns rather than model instability.

Table 4.7: Survival Strategies of HHs to cope with Poverty

Survival strategies of households to cope with poverty	Freq.	Percent	Cum.
Group solidarity strategies	79	26.33	26.33
Disposal of possessions	63	21.00	47.33
Readjustment strategies	75	25.00	72.33
Idir & Equib	83	27.67	100.00
Total	300	100.00	

Source: Own Survey, 2025

Table results reveal that households in Kolla-Tembien Woreda employ diverse survival strategies to cope with the challenges of urban poverty. The four main coping mechanisms identified are Idir and Equib participation (27.67%), group solidarity strategies (26.33%), readjustment strategies (25%), and disposal of possessions (21%). These findings suggest that urban households primarily rely on social networks and informal community-based institutions rather than formal support systems to mitigate the impacts of economic hardship. The high prevalence of Idir and Equib, traditional mutual aid and rotating savings associations, highlights the enduring significance of indigenous social capital as a safety net for low-income households in urban Ethiopia. These institutions provide both financial and emotional support, enabling members to access emergency loans, cover social obligations, and stabilize consumption during crises. This finding is consistent with Dercon et al. (2008) and Devereux (2001), who found that informal risk-sharing mechanisms remain the cornerstone of household survival strategies in contexts of limited institutional support.

The second most common strategy, group solidarity (26.33%), underscores the importance of collective action among the urban poor. Households often form small neighborhood groups to share food, housing, or income-generating activities, reflecting an adaptive response to income shocks and unemployment. Such social cooperation reduces vulnerability and fosters a sense of shared responsibility in resource-scarce settings. This result aligns with the work of Ellis (2000) and Rakodi (2002), who argue that social networks and solidarity groups play a vital role in managing livelihood risks among the urban poor in developing countries. The third strategy, readjustment (25%), represents behavioral and consumption modifications—such as reducing food intake, changing dietary patterns, or cutting non-essential expenses—to cope with declining incomes. This type of adaptive behavior has been widely observed in similar urban poverty studies in Ethiopia and elsewhere, where poor households prioritize basic needs during economic downturns (see Bevan & Pankhurst, 2008; Bigsten et al., 2005).

Finally, disposal of possessions (21%), which involves selling household assets such as livestock, furniture, or land-use rights, indicates a more desperate, short-term coping mechanism. While asset liquidation provides immediate relief, it undermines long-term resilience and deepens vulnerability,

as households lose their productive and social assets. This finding echoes World Bank (2016) and Alem & Söderbom (2012), who note that selling assets to smooth consumption is a common yet unsustainable poverty coping response in both rural and urban Ethiopia. Overall, the dominance of informal social safety nets over formal institutional support mechanisms reveals structural gaps in social protection and employment opportunities for the urban poor. It suggests that strengthening community-based organizations, improving access to microfinance, and integrating social protection programs with urban poverty reduction strategies could enhance the sustainability of household survival mechanisms in areas like Kolla-Tembien Woreda.

Chapter Five

5. Conclusion and Recommendations

5.1 Conclusion

This study assessed the determinants of urban poverty and the coping mechanisms of poor households in Kolla-Tembien Wereda. The results indicate that poverty remains widespread and multidimensional, characterized by limited access to income opportunities, weak infrastructure, and low educational attainment.

The econometric analysis revealed that education level, family size, access to credit, employment status, and gender of household head were statistically significant determinants of poverty. Households with higher education and access to credit were less likely to be poor, while large households and female-headed households were more likely to fall below the poverty line. These results align with the findings of Mekonen (1999), Tesfaye (2004), and Esubalew (2006), who found similar patterns in other Ethiopian towns. The descriptive analysis also confirmed that most households relied on informal and unstable sources of income, exposing them to shocks and consumption shortfalls.

Coping mechanisms such as borrowing, asset disposal, and participation in informal group associations were common but unsustainable, indicating the absence of effective formal safety nets. The logit model reveals that education, gender, credit access, off-farm participation, and market proximity significantly reduce the likelihood of poverty, while TLU ownership unexpectedly increases it. These findings underscore the importance of policy interventions aimed at financial inclusion, education, and livelihood diversification to sustainably reduce urban poverty in Kolla-Tembien and similar Ethiopian towns. Overall, the study concludes that poverty in Kolla-Tembien is driven by both economic constraints and social inequities, necessitating integrated interventions targeting human capital, credit access, and urban service delivery.

5.2 Recommendations

Based on the findings, the following recommendations are proposed:

Promote education and skills development: Expanding access to quality education and vocational training can enhance employability and reduce dependency on low-income informal work.

Facilitate access to micro-credit and financial services: Strengthening local micro-finance institutions enable poor households to start small businesses and diversify income sources.

Encourage livelihood diversification: Promoting off-farm and small-scale enterprise activities can reduce vulnerability to income shocks.

Strengthen gender-responsive urban policies: Special support should be given to female-headed households through training, credit, and social protection.

Improve basic urban infrastructure: Expanding access to clean water, electricity, and sanitation can directly improve living conditions and enhance productivity. Institutionalize community-based coping mechanisms: Government and NGOs should integrate local savings groups and social networks into broader poverty-reduction programs. Enhance urban employment programs: Municipal administrations should collaborate with regional agencies to create job opportunities through public works and enterprise development.

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Household Survey Questionnaire

General information to be filled by enumerator

Interview number_____ Kebele_____

Date_____2016 E.C House Number_____

Dear participant

I am a graduate student at Mekelle University, Institute of Regional and Local development Studies, and currently working a research on a Survival Strategies of Poor Households in Kola Tembien Wereda. The major objectives of this study are: to identify the proportion of poor households in the Wereda, and to identify the major determinant of urban poverty, and to assess the survival and coping strategy of poor households, and to give recommendations for further policy measures. Therefore, I would like to invite you to the study. All the information provided are very essential to the outcome of the study. In addition to, the information you provided be treated confidentially and not be used for any other purpose other than the above objectives.

Thank you.

Mr. Endrias Tsegay Berhe

I. Basic Household Characteristics

Ser. No	List of household members	Age	Sex 1.M 2.F	Relation to head of the hh Code(A)	Marital Status Code(B)	Religion Code(C)	Education Code(D)	Employment Status(E)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

Code (A)

1. Head 2. Husband 3.Son/ daughter 4.Other relative 5.Servant/guard 6.Other

Code (B)

1. Never married/ single 2. Married 3.Separated 4.Divorced 5. Widowed

Code (C)

1. Orthodox 2.Muslim 3.Catholic 4.Protestant 5.None 6.Other

Code (D)

1. Never other schooling 2. Can read & write 3.Elementary school
4.Junior secondary school 5. Senior secondary school 6. Certificate /Tech/Vocational
7. College Diploma 8. First Degree 9.Post graduate

Code (E)

1. Employed 2.Own account worker 3.Unpaid family worker
4. Unemployed 5. Pensioner
- 2) Number of children 6 years & above, if any?
- i. Going to school: Male _____ Female_____
- ii. Not going to school: Male _____ Female_____
- 3) If “children not going to school” what is the reason?
1. Bus/taxi service not available 2. Because they have to assist in household work
3. Cannot afford to send them all to school 4. Do not want to send to school
5. It is not important 6. The children are disabled

A. Household Income

Code (A)	1.wage/Salaries	2. Own Business	3.Farming
4.pension	5.Support from relative	6.Rent part of house	7.Support from Government
8.Support from NGO			
9. Others			

1. Below 100
2. 100__200
3. 201__300
4. 301__500
5. 501__700
6. 701__1000
7. 1001__1500
8. 1501__2000
9. 2001__2500
10. 2501 and above

1. Own business 2. House rent
3. Farming 4. Others

1. wage/salary
2. own business/formal
3. Own business/informal
4. Rest of structures (house, etc)
5. Rent of vehicles
6. Pension

- 7. Child support
- 8. Support vehicles/gifts, remittances
- 9. Investment/interest 10. Others

Code (E)

- 1. Borrowing 2. Disposal of possession
- 3. Sale of assets 4. Rent of property
- 5. Renting part of house
- 6. Transfers, Remittance and Donations
- 7. Cut-back consumption
- 8. Increase number of income earners
- 9. Others

- 5) Does your household save per month? 1. Yes 2. No
- 6) If “Yes”, how much does your family save per month?_____ Birr.
- 7) If “Nothing”, why? 1. Lack of sufficient income 2. Transfer to other duties
3. Other (specify)_____
- 8) In your opinion is the household income sufficient to make the family’s ends meet? 1. More than sufficient 2. Highly insufficient 3. Sufficient 4. Insufficient

B. Expenditure /Consumption

- 9) How much is household monthly expenditure on average for food (in Birr) last month? 1. Below 200 2. 201 __ 300 3. 301 __500 4. 501__600
5. 601__900 6.901__1200 7.1200 and above

Food Expenditure

- 10) Quantify the following food items with the appropriate unit of measurement.

Se No	Food / Drink items in their respective measurement	How much kilograms (kg) or liters are purchased per month (on average)?	
		Amount (in kg/liter)	Expenditure(in Birr per month)
1	Wheat(kg)		
2	Teff (kg)		
3	Sorghum(kg)		
4	Maize (kg)		
5	Barley (kg)		
6	Potato (kg)		
7	Onion (kg)		
8	Beans & Peas (kg)		
9	Lentil (kg)		
10	Hors beans (kg)		
11	Cow beans (kg)		
12	Shiro (kg)		
13	Gomen (kg)		
14	Berbera (kg)		
15	Meats (kg)		
16	Milk(lit)		
17	Bread (number/day)		
18	Edible Oil (lit)		
19	Enjera (number /day)		
20	Sugar (kg)		
21	Coffee (kg)		
22	Salt (kg)		
23	Tela (lit)		

11) On the average in a day how many meals did your household consumed?

1. 1 2. 2 3. 3 4. 4 5. No regular meal time

12) Did any member of your household eat his /her meal out of the house last week, if so how many meals were eaten out of the house? _____ meals

13) Are there any household members who have had their meals out of house at least once in days of last week? 1. Yes 2. No

14) if "Yes"

i. How many individuals? _____

ii. How much the household spend on average for them (in birr)?_____

15) Have you consumed any food from your own harvest? 1. Yes 2. No

16) If “Yes” quantify the consumption from owns stack in the last seven days?

17) If there was any person in your house who is not a regular member of the households During the last seven days?

i. How many members? _____

ii. How much you spend on average for them? _____

18) How do you see that the current prices of good and service as compared the prices before 12 month?

No	Prices of Goods and Services	1. Decreased	2. No changed	2. Somewhat Increased	4. Increased very much
1	Price of food				
2	Price of food House rent				
3	Price of food clothe				
4	Price of food Fuel wood				
5	Price of food Gasoline				
6	Price of food Medicine				
7	Price of food of Transport services				

Non-food expenditure

19) Estimate the amount of money spent per month/per annum/ for the following non-food item (in Birr) either for this month or year?

Ser. No	Non-food item		Total expenditure per month
	For Question 1----16 (Money spend per month)		
1	Housing	Rent	
		Loan repayment	
2	Water bill		
3	Electric bill		
4	Telephone bill		
5	Energy sources	Fuel wood, charcoal	
		Kerosene	
6	Loan payment (capital and interest		
7	Education (school fee, pen , pencile etc)		
8	Transport		
9	Domestic service (guard, servant salary etc)		
10	Personal care expenditure		
11	Ceremonial expense		
12	Entertainment (cinema, recreation etc)		
13	Tax and contribution		

14	Saving	Iquib	
		Eddir	
		Bank deposit	
15	Others		
	For Question 16___18 (Money spend per annum)		
16	Clothes		
17	Shoes		
18	Health		

20) Do these household permanently support individuals of other households over the past twelve month? 1. Yes 2. No

21) If "Yes" i) How many individuals? _____
 ii) How much you spend on average for them? _____

22) Of the following food item which ones does your family frequently consume?

1. Enjera with Shiro
2.Enjera with meat products
3. Bread with shiro
4. Spaghetti or Macaroni
5.Vegetables
6. Others _____

C. Family Ownership of Asset?

23) Quantify the following asset if you have in Birr:

No	Types of asset	Yes	No	VALU IN Birr	Source:				
					1.purchaseed	2.Inherited	3.Donation	4.Borrowing	5.Others
1	House								
2	Sofa or Fotte								
3	Refrigerator								
4	Television								
5	Tape recorder								
6	Radio								
7	Stove								
8	Milk cow								
9	Others								

D. Employment/ Occupation/

24) What is your main occupation?

- | | |
|--------------------------------------|------------------------------------|
| 1. Private business | 2. Public sector employee |
| 3. Private sector employee | 4. Casual workers |
| 5. Own account worker/ self-employed | 6. Other small business activities |
| 7. Others _____ | |

25) If "Own account worker or Self-employed". Which types are you engaged?

- | | |
|--|------------------|
| 1. Petty-Trade or Gilt | 2. Trade |
| 3. Metal (Wood Work) | 4. Hotel service |
| 5. Preparation and Sale of local drink | 6. Sale of food |
| 7. Handicraft (Pottery etc.) | 8. Others _____. |

III. Social Characteristics

A. Health

26) Have any of your household members suffered from any disability or major chronic health problems during the last 12 month? 1. Yes 2. No

27) If "Yes" what is the Degree of illness?

1. Very critical 2. Critical 3. Moderate 4. Simple

28) What kind of disabilities do they suffer from? _____

29) Have you visited any hospital or clinic?

1. Government (Hospital, Health Center)
3. Traditional medicine

30) If "Government", why do you prefer? 1. Because it has lower charge

3. Because of its qualified professionals

31) If "Private", why do you prefer?

1. Better treatment
3. Because of qualified professionals

32) If "Traditional", why do you prefer?

2. Private Clinic (Hospital, Health Center)

4. Others _____

2. Because of its good facility

4. Others _____

2. Because of its good facility 4.Others_____

1. Low charge
2. Cure better than scientific medicine
3. Better follow up
4. Others _____

33) So far, to what extent does the town health service provided attention in solving health problem?

1. a lot attention in solving health problem
2. Some attention to the problem
3. Little attention to the problem
4. No attention at all
5. No comment at all

B. Housing

34) Who is the Owner or Tenure of the housing unit?

1. Owned by yourself
2. Rented from private
3. Rented from Kebele
4. Others

35) If owned, was it;

1. Purchased
2. Donated
4. Inherited
3. Own built
5. Others _____

36) How many rooms does this house have?

1. One
2. Two
3. Three
4. Four
5. Five and More

37) If "Rented from private", how much do you pay monthly? _____ Birr.

38) What are the main construction materials of the house you live in?

1. Wood with mud
2. Block
3. Stone
4. Others _____

39) Concerning your family's housing which of the following is true?

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

C. Social Service Indicators

40) Source of drinking water;

1. Own Tap inside the house
2. Tap in compound, public or bonno
3. Tap in compound shared
4. Outside compound, private

41) Main Source of light:

1. Electricity (Meter private)
2. Electricity (Meter shared)
3. Kerosene lamp
4. Others _____

42) Kitchen:

1. No kitchen
2. Shared kitchen (Traditional)
3. Shared kitchen (modern kitchen)
4. Private kitchen (modern kitchen)
5. Private kitchen (Traditional kitchen)
6. Others _____

43) Toilet facility:

1. No Toilet
2. Private (pit)
3. Shared (pit)
4. Others _____

44) Bathing /Shower facility/:

1. None
2. Shower (Private)

45) If you sell Possession, is it

1. House or Land
2. Electronics
3. Gold
4. Furniture
5. Clothes
6. Scraps
7. Others _____

46) What do you say about general standard of living of today compare to that of the previous three year?

1. Improved 2. The same 3.Deteriorated

47) Has your food table deteriorated? 1. Yes 2.No

48) If "Yes", how? 1. Quality 2. Quantity 3.Both

49) Does the house wife productive work out of home? 1. Yes 2.No

50) If "Yes", what type? 1. Handicraft 2. Making and Sale of food

3. Making and sale of local drink i.e, Tella, Katikalla etc. 4. Others

51) Does she practice any productive domestic activity (in-door) 1. Yes 2. No

52) Are the family children involved in any productive activity?

1. During the holiday
2. After school day
3. Others
4. Not Applicable

53) If they work what type of work?

- i. _____
- ii. _____

54) How do you view that child work, is it a?

1. A conviction
2. An economic necessity
3. Others
4. Not applicable

55) How do you view the wife work, is it?

1. A conviction
2. An economic necessity
3. Others
4. Not applicable

56) Do you receive any support from relatives/friends/ children?

1. Yes
2. No

57) If "Yes", state which? _____

58) If "Yes", what is the type of support?

1. Kind
2. Cash
- 3.Both

59) What are the most important daily difficulties you experience? (Please, rank)

1. Housing (___)
2. Food provision(___)
3. Clothing(___)
4. Education(___)
5. Medication (___)
6. Transportation(____)
- 7.Others (specify)____

Current Food Security Status

1) Please fill in the following table to assess food insecurity and food hunger for the month of **Megabit** (**30 days**), 2017 E.C.

1	Questions related to household food insecurity and the food hunger scale for the last <u>30 days (Megabit, 2017)</u>	response 0 = No (skip to Q2) 1=yes	If yes	response 1=rarely (1-2 times) 2=sometimes (3-10 times) 3= often (>10 times)
Q1	In the past four weeks, did you worry that your household would not have enough food?	[]	1a: How often did this happen?	[]
Q2	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	[]	2a: How often did this happen?	[]
Q3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	[]	3a: How often did this happen?	[]
Q4	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	[]	4a: How often did this happen?	[]
Q5	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	[]	5a: How often did this happen?	[]
Q6	In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?	[]	6a: How often did this happen?	[]

Q7	In the past four weeks, was there ever no food to eat of any kind in your household because of a lack of resources to get food?	[]	7a: How often did this happen?	[]
Q8	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	[]	8a: How often did this happen?	[]
Q9	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	[]	9a: How often did this happen?	[]

Appendices

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
age	300	46.843	8.372	27	68
family size	300	5.49	2.119	1	15
farm experience	300	12.833	5.662	2	30
education	300	4.97	2.474	0	10
landsize	300	1.224	.767	.02	7
Distance market km	300	1.39	.682	0	5
TLU	300	7.875	8.878	0	68.625

Tabulation of kebele poverty_status

kebele	poverty_status		
	Poor	Non-poor	Total
Guya	0	57	57
	0.00	100.00	100.00
	0.00	34.55	19.00
Mtsaewerki	8	66	74
	10.81	89.19	100.00
	5.93	40.00	24.67
Simret	33	13	46
	71.74	28.26	100.00
	24.44	7.88	15.33
Bega	28	24	52
	53.85	46.15	100.00
	20.74	14.55	17.33

Guroro	29	5	34
	85.29	14.71	100.00
	21.48	3.03	11.33
	37	0	37
	100.00	0.00	100.00
Merrere	27.41	0.00	12.33
	135	165	300
	45.00	55.00	100.00
Total	100.00	100.00	100.00

Pearson Chi2 = 164.04 Prob = 0.0000

First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of sex poverty_status

gender of house hold head incatagorey	poverty_status		
	Poor	Non-poor	Total
Male	76	101	177
	42.94	57.06	100.00
	56.30	61.21	59.00
Female	59	64	123
	47.97	52.03	100.00
	43.70	38.79	41.00
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 0.74 Prob = 0.3891

First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of martstat poverty_status

mart-stat	poverty_status		
	Poor	Non-poor	Total
Single	93	89	182
	51.10	48.90	100.00
	68.89	53.94	60.67
Married	42	76	118
	35.59	64.41	100.00
	31.11	46.06	39.33
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 6.95 Prob = 0.0084

First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of offarm_participation poverty_status

offarm participation of HHs	poverty_status		
	Poor	Non-poor	Total
No	34	3	37
	91.89	8.11	100.00
	25.19	1.82	12.33
Yes	101	162	263
	38.40	61.60	100.00
	74.81	98.18	87.67
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 37.50 Prob = 0.0000
 First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of extension_service poverty_status

support of extension agent in chemical technology in catagorey	poverty_status		
	Poor	Non-poor	Total
No	45	87	132
	34.09	65.91	100.00
	33.33	52.73	44.00
Yes	90	78	168
	53.57	46.43	100.00
	66.67	47.27	56.00
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 11.33 Prob = 0.0008
 First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of healthaccess poverty_status

healthaccess	poverty_status		
	Poor	Non-poor	Total
No	52	40	92
	56.52	43.48	100.00
	38.52	24.24	30.67
Yes	83	125	208
	39.90	60.10	100.00
	61.48	75.76	69.33
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 7.12 Prob = 0.0076
 First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Tabulation of houseownership poverty_status

tenure of house ownership	poverty_status		
	Poor	Non-poor	Total
No	111	88	199
	55.78	44.22	100.00
	82.22	53.33	66.33
Yes	24	77	101
	23.76	76.24	100.00
	17.78	46.67	33.67
Total	135	165	300
	45.00	55.00	100.00
	100.00	100.00	100.00

Pearson Chi2 = 27.75 Prob = 0.0000
 First row has *frequencies*; second row has *row percentages* and third row has *column percentages*

Logistic regression

poverty_status	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
: base Guya	0	.	.	.	.	.	.

Mtsaewerki	12.086	2.829	4.27	0	6.542	17.631	***
Simret	7.812	2.564	3.05	.002	2.787	12.836	***
Bega	4.113	1.186	3.47	.001	1.788	6.438	***
4o	0	.	.	.	.	.	
5o	0	.	.	.	.	.	
age	.044	.029	1.50	.134	-.013	.101	
sex	-.858	.441	-1.95	.052	-1.723	.006	*
family_size	-.187	.099	-1.90	.058	-.381	.006	*
farm_experience	-.029	.042	-0.70	.486	-.112	.053	
education	-.256	.133	-1.93	.054	-.517	.005	*
martstat	-.126	.455	-0.28	.782	-1.018	.766	
landsize	-.608	.35	-1.74	.082	-1.295	.078	*
accesscredit	-4.116	2.144	-1.92	.055	-8.317	.086	*
Distance_market_k m	-1.179	.452	-2.61	.009	-2.065	-.293	***
offarm_participati on	-3.078	1.317	-2.34	.019	-5.659	-.498	**
extension_service	.494	.444	1.11	.266	-.376	1.363	
TLU	.086	.027	3.23	.001	.034	.138	***
healthaccess	-.398	.677	-0.59	.556	-1.725	.929	
houseownership	-.205	.597	-0.34	.731	-1.375	.964	
wateraccess	.339	.808	0.42	.674	-1.244	1.923	
Constant	1.316	1.725	0.76	.445	-2.064	4.697	

Mean dependent var	0.524	SD dependent var	0.501
Pseudo r-squared	0.442	Number of obs	206
Chi-square	126.077	Prob > chi2	0.000
Akaike crit. (AIC)	197.014	Bayesian crit. (BIC)	260.244

*** $p < .01$, ** $p < .05$, * $p < .1$

Average marginal effects

Number of obs = 206

Model VCE: OIM

Expression: Pr(poverty_status), predict(pr)

dy/dx wrt: 1.kebelle 2.kebelle 3.kebelle 4.kebelle 5.kebelle age sex family_size farm_experience education

martstat landsize accesscredit Distance_market_km offarm_participation extension_service

TLU healthaccess houseownership wateraccess

Delta-method

	dy/dx	std.	err.	z	P>z	[95% conf.	in
kebelle							
Guya		0		(empty)			
Mtsaewerki	.		(not		estimable)		
Simret	.		(not		estimable)		
Bega	.		(not		estimable)		
Gurro	.		(not		estimable)		
Merrere	.		(not		estimable)		
			70				
age	0.005	0.004	1.530	0.127	-0.002	0.012	
sex	-0.105	0.052	-2.010	0.044	-0.208	-0.003	
family_size	-0.023	0.012	-1.960	0.050	-0.046	-0.000	

farm_experience	-0.004	0.005	-0.700	0.484	-0.014	0.006
education	-0.031	0.016	-1.990	0.047	-0.062	-0.000
martstat	-0.015	0.056	-0.280	0.782	-0.125	0.094
landsize	-0.075	0.042	-1.780	0.075	-0.157	0.008
accesscredit	-0.505	0.256	-1.970	0.049	-1.007	-0.003
Distance_market _km	-0.145	0.053	-2.730	0.006	-0.249	-0.041
offarm_participa tion	-0.378	0.155	-2.430	0.015	-0.682	-0.074
extension_servic e	0.061	0.054	1.120	0.262	-0.045	0.166
TLU	0.011	0.003	3.560	0.000	0.005	0.016
healthaccess	-0.049	0.083	-0.590	0.555	-0.211	0.114
houseownership	-0.025	0.073	-0.340	0.731	-0.169	0.118
wateraccess	0.042	0.099	0.420	0.674	-0.152	0.236

Note: dy/dx for factor levels is the discrete change from the base level.

Diagnosis Tests

Variance inflation factor

	VIF	1/VIF
age	1.204	.831
education	1.14	.877
Distance market km	1.115	.897
farm experience	1.107	.904
landsize	1.058	.945
family size	1.043	.959
healthaccess	1.04	.961
TLU	1.025	.975
Mean VIF	1.091	.

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) poverty_status	1.000								
(2) kebele	-0.689	1.000							
(3) sex	-0.050	-0.007	1.000						
(4) martstat	0.152	-0.198	-0.075	1.000					
(5) accesscredit	0.499	-0.862	0.000	0.168	1.000				
(6) offarm_participa~n	0.354	-0.612	0.004	0.115	0.469	1.000			
(7) extension_serv~e	-0.194	0.297	0.002	-0.070	-0.241	-0.271	1.000		
(8) healthaccess	0.154	-0.161	0.084	0.151	0.076	0.080	-0.036	1.000	
(9) houseownership	0.304	-0.301	0.138	0.018	0.223	0.160	-0.051	0.459	1.000

(10) wateraccess	0.083	-0.078	0.034	0.281	-0.015	0.185	0.006	0.535	0.287
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