DETERMINANTS OF URBAN POVERTY IN DEBRE MARKOS, ETHIOPIA: A HOUSEHOLD LEVEL ANALYSIS

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Abbreviations

CBO=Community Based Organizations

USD=United States Dollar

MoFED=Ministry of Finance and Economic Development

UNDP=United Nations Development Program

PPP=Purchasing Power Parity

GNP=Gross Domestic Product

HDI=Human Development Index

NGO=Non Governmental Organization

DAG=Development Assistance Group

DFID=Department for International Development

GTZ=German Technical Cooperation

CBN=Cost of Basic Needs

FEI=Food Energy Intake

Cal=Calorie

EEA=Ethiopian Economic Association

EEPRI=Ethiopian Economic Policy Research Institute

CSA=Central Statistics Authority

ETB=Ethiopian Birr

HICE=Household Income and Consumption Expenditure

TGA=Transitional Government of Ethiopia

DAG=Development Assistance Group

SPSS=Statistical Package for Social Scientists

HH= Household

WB=World Bank

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Abstract

The study assessed determinants of urban poverty in six Kebeles: Kebele 01, 03, 04, 05, 08, and 12 of Debre Markos town. The source used in the study comes from primary data. A total of 260 household heads were selected to undertake the research and a systematic random sampling was employed to select households.

A Logistic regression model was employed and estimated based on the primary data, with the probability of a household being poor as a dependent variable and a set of demographic and socioeconomic variables as the explanatory parameters. By making use of Food Energy Intake (FEI) approach the surveyed households are identified as the poor and non-poor. Based on this, out of the 260 surveyed household heads, 172(66%) of them were found poor, the head count, poverty gap, and severity index of the survey obtained as 0.66,0.21 and 0.09 respectively.

*The variables that are positively correlated with the probability of being poor are: sex, household size, and disease incidence of the household. Variables negatively correlated with probability of being poor are: income, educational level, marital status, employment, age, housing tenure, and water source. Variables, which affected significantly the incidence of poverty in the town, are: average monthly income, family size, educational level, and disease incidence of the household*s. *Religion, ethnic group, dependency, productive family members, main source of water and status of electric connection were found statistically insignificant indicators of poverty.*

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Chapter One

Introduction

1.1. Background

By any standard, Ethiopia is one of the poorest countries in the world. Poverty in Ethiopia is a longstanding problem. It affects a significant portion of its rural and urban population. Based on estimates of international poverty lines, the incidence of USD 1 per day in the country is 26.3 percent (World Bank, 2005). The percentage increases to 80.7 if the poverty line is raised to USD 2 per day per person in the year 2007 (World Bank, 2005). Based on the national poverty line of the year 1999, 44 percent of the population is absolutely poor (MoFED, 2002). World Bank (2000) and UNDP (2003) quoted in Yared (2005) reported that the country has the lowest GNP Per-capita in the world with its Purchasing Power Parity (PPP) adjusted GNP ranking 200th out of 206 countries. The Human Development Index (HDI) and Human Poverty Index (HPI) ranked Ethiopia the 6th out of 175, and 91st, out of 94 developing countries respectively (UNDP, 2003).

Poverty in Ethiopia manifests in a number of ways and this, in fact, is attributed to a multitude of interrelated factors. Getahun (2002), for example, has identified these factors as insufficient source of income, lack of asset/skill, poor health status, poor educational level and backward attitude of people towards work. These factors in one or another way have direct or indirect effect on the life standard of the people. For example, lack of income results in reduction of expenditure pattern, poor health leads to being unproductive, absence from work, less energetic, lack of education results in lack of skill, helplessness and so on. Although these factors are believed to be universal, there are obviously some differences between the causes, processes, and consequences of poverty among the urban and rural societies. This could be while urban life is complex and is predominantly monetized economy that of rural is basically determined by assets on land, number of oxen, cows, sheep, goats, extra available to the farmer.

Poverty has remained to be a worldwide problem and consequently it has been studied many times at global level. Some countries, like in East Asia are about to escape from the category of

least developed countries, partly for their continuous fight against poverty. Ethiopia, however, did not join this track because of the inability to reduce persistence poverty. All of us consciously or unconsciously know to some extent what Ethiopia's poverty look like. The fundamental question that comes in the fore front is not are we really poor, just because we are, but what makes we still poor and what factors determine we to be poor.

1.2. The Study Area- Debre Markos

Foundation

Before one and half centuries ago, Tedla Gualu governed Gojjam. During this time, or to be more precise, in 1853 Dejazmach Tedla found *Menkorer*, presently known by Debre Markos. He ruled *Menkorer* for nearly three decades (1853-1881). In 1881 the first Church-Saint Markos was introduced in *Menkorer*. Just a year after and onwards, the town became simply known as Debre Markos after the church of St Markos (Debre Markos City Service, 2005).

The former *Menkorer*, and the present Debre Markos, albeit old, historical, center of administration, and commerce of Gojjam for long period of time, it has not by no means shown any significant development. There is a saying like "you can go and get the place of King Teklehaimanot without any confusion" witnessing the saying that Debre Markos has been keeping its statuesque. Host of reasons could be ascribed, but this could be clear in the analysis part.

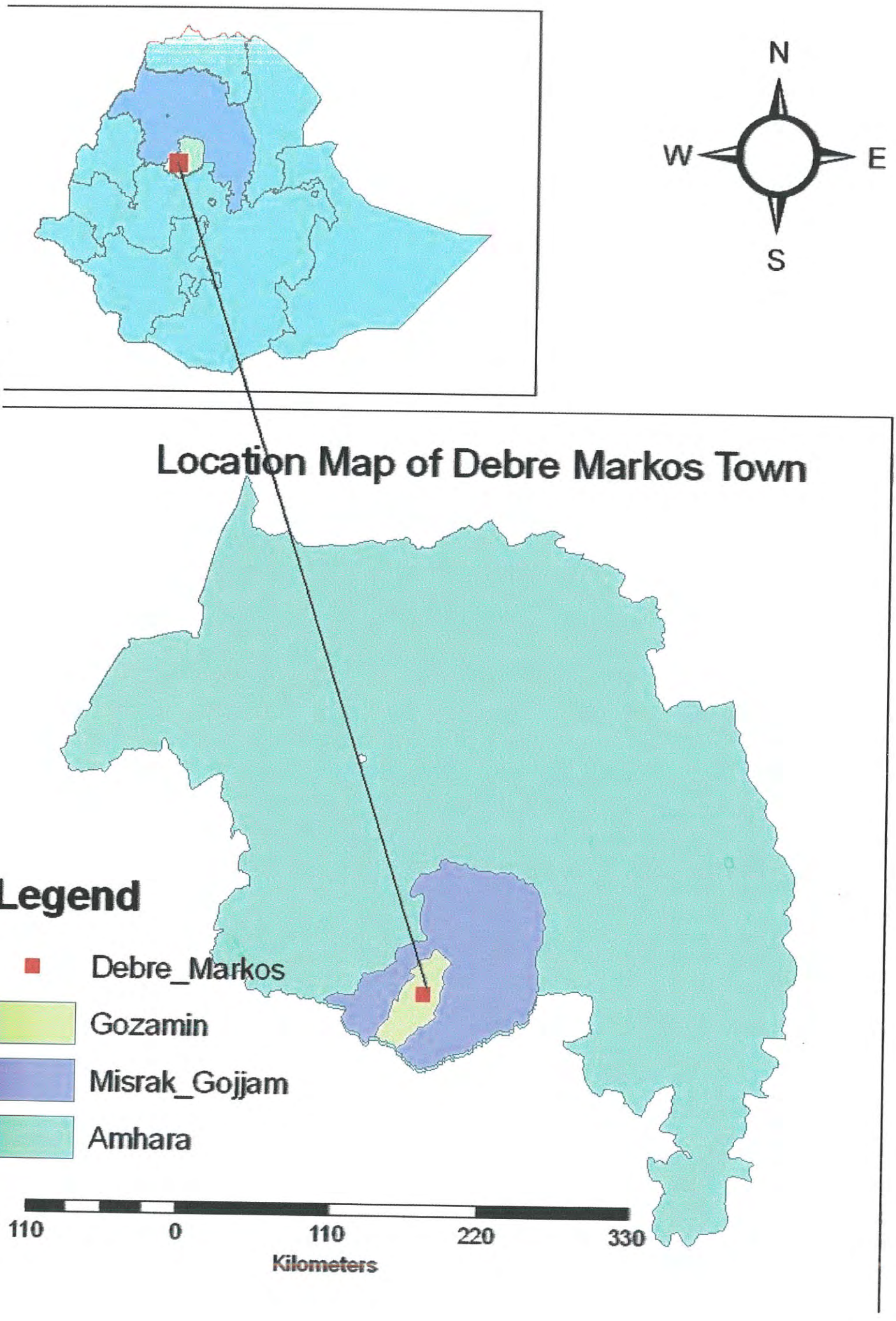
Location

Debre Markos with twelve *kebeles* and one *woreda* is one of the oldest historical medium towns of Ethiopia. It is found 300 kilometers Northwest of Addis Ababa and 265 kilometers Southeast of the *Amhara* National Regional State capital city-Bahir Dar. The geographical coordinates of the town are $10^{o}\ 21^{1}$ latitude north and $37^{o}43^{1}$ longitude east. Its total municipal area is about 60 kilometers square. Situated at 2420 meters above sea level, the weather condition, in most of the time is, '*Woinadega*'. The town enjoys a tropical climate with a mean annual rainfall of 1308 mm, temperature 16^{o}c, while the maximum and minimum recorded temperature being 24^{o}c and 4^{o}c respectively (Planning and Economic Development of East Gojjam, 2004).

Population

The 1994 Population and Housing Census of Ethiopia enumerated the population of Debre Markos 49, 297. Disaggregated by sex, 22,652 were males and the rest, 26,645 were females. The sex ratio was 85 males for 100 females. The age structure of the town is similar to most developing countries. Young citizens, particularly, with less than fifteen years of age dominate the town. A population projection for Debre Markos, the median variant, puts total population of the town about 117,816 in this academic year (2006). The total population includes the recently included rural area such as Wonka, Wutrin and Wuseta areas. Of this number 87,949 are urban dwellers and the rest 29,867 are peripheral urban residents. From 87,949 urban dwellers, 40,580 are males and 47, 369 are females. Of the peripheral 29,867 urban residents, 15,171 and 14, 696 respectively constitute males and females respectively. The sex ratio is very high in the peripheral than the inner urban areas of the town.

Debre Markos is predominantly settled by the *Amhara* people with ethnic composition of 97.12% *Amhara*, 1.29% *Tigre*, 0.67% *Oromo*, 0.56% *Agew* and 0.36% others. Religiously, 97.25% constitute Orthodox Christian, 1.88% Muslim, 0.81% Protestant and 0.6% others (Debre Markos City Service, 2005).


N
W
E
S
Location Map of Debre Markos Town
Legend
Debre_Markos
Gozamin
Misrak_Gojjam
Amhara
110
0
110
220
330
Kilometers

1.3. Research Problem

In Ethiopia poverty is the general feature for the nation and causing many sufferings and anguish to the largest proportion of the population. It is high agenda of the government, donor agencies, NGOs and other actors that have the inspiration to reduce the level and mitigate the effect and its associated impacts on the well being of the people. The Ethiopian government has been formulating and implementing various policy interventions and programs that are in one-way or another related with poverty reduction. Yet most efforts are biased towards rural areas.

Most poverty literatures in Ethiopia dominate in rural areas. They concentrate on food entitlement failures of farmers (Webb et al, 1992; Webb and Ban Braun, 1994). Dercon and Krishnan (1996), for example, study the status of poverty in rural Ethiopia by taking the income portfolios and food entitlements of households. Bevon and Joiermen (1997) in Ayalneh(2004) adopt a sociological approach to analyze rural poverty. They explored the importance of social class and family relationships including the extended family in the fight against poverty. They concluded that in rural Ethiopia social capital are very important in the way out of poverty.

Though in absolute terms poverty is still a rural phenomenon, there is currently a diffusion and growth of urban poverty. The number of urban poor is increasing at unprecedented level that might be fueled by the highest rural-urban exodus and alarming internal population growth. In the mean time, the urban economy has limited capacity to accommodate the unprecedented population explosion. More specifically, being employed in the formal sector is really cumbersome

Albeit the effects of urban poverty in Ethiopia are getting severe the factors that account for the results are not studied very well. Most studies have been conducted in rural areas and attempts on urban centers are still scanty. Even the studied ones are confined to the primate city-Addis Ababa or secondary towns like *Nazreth, Bahir Dar, Mekelle* and *Awassa*. (EEA, 2002). Studies of urban poverty in medium and old towns in Ethiopia of which Debre Markos is one are nearly bypassed agendas. The challenge in the fight against poverty of the medium towns in the country in general and in Debre Markos in particular is immense.

One of the challenges in the fight against poverty is clear identification of the prevailing impediments. Examination of some impeding variables which aggravate poverty is vital. Among the many impediments of poverty are the, social services, economic and demographic variables such as marital status, age, and sex. Identifying their potential effects to poverty is critical in the study of urban poverty since these variables take the visible repercussions on the commendable life of urban dwellers. Debre Markos is one of the oldest and medium towns of Ethiopia currently facing with daunting challenges of socioeconomic and demographic variables. In the town the problem of poverty is increasing tremendously because of the socioeconomic and demographic constraints the town is facing with.

The economic activity and social infrastructure of the town is low and the overall life standard of the inhabitants is not in good condition (Planning and Economic Development East Gojjam, 2004). This is due to lack of diversified opportunities such as, absence of commercial crops in the nearby areas, homogenous culture, same language, religion, lack of commerce, and of entrepreneurship. Dwellers are engaged in occupations, which have limited returns. These include small trade and industry, government employee, and urban agriculture etc. Most females are predominantly engaged in the business of preparing and selling the traditional 'popular' drink-*Tella*.

A small number of the residents are employed in the civil services, trading, small-scale industries (woodwork, metalwork and so forth), handicrafts (like weaving, and sewing) and a number of other petty businesses .A large number of households also earn their livelihood by brewing and selling local beverages like *Tella*, *Arekie*, and *Tej* (Gojjam Vision, 2004)

Despite paucity of data problems of maladjustments are increasingly felt. There is lack of occupation, affordable education, health, and other psychosocial problems. There rate of unemployment is increasing and the number of job seekers is growing fast (East Gojjam Administrative Zone, 2001). This further will aggravate the existing social problems. The absence of affordable recreational centers in the town is another problem faced by the people. Assaults, thefts, cases of law negligence, burglaries are some of the common features.

Owing to inadequate business activities and/ or economic dynamisms there are limited numbers of financial institutions. These are three government banks (Commercial, Development and Construction and Business), one private bank (Bank of Abyssinia), three insurances (Ethiopian Insurance Corporation, Africa Insurance and Nile Insurance), and three Micro Credit and Saving Institutions (*Amhara* Credit and Saving Institution, FC and Harbu). Besides their limited number they serve the people poorly. The private and government banks serve customers for saving and loan to investment and business while the micro-finance and credit institutions play vital roles in the disbursement of loans among the poor sections of the society with the aim of creating self-employment, skill development, and overall increase in income level (Debre Markos City Service, 2005).

The quality and distribution of education service in the town is still not remarkable (Debre Markos City Service, 2005). Regarding the number, there are nine elementary schools, two secondary schools-first cycles, one preparatory school, eight kindergartens, two basic alternative schools, thirteen basic adult educations, one technical and vocational training school, one college-Debre Markos College of Education, and one National University undergoing construction in the northeast outskirts of the town (Debre Markos City Service, 2005). As to the quality it is poor for the education accessories like students to class ratio, students to teacher ratio, books and availability of qualified professionals are in poor conditions.

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 variable when available at sufficient level in urban centers has a positive multiplier effect, for it, surely, brings comparative advantage, economies of scale, and in the overall requisite performance of institutions. In Debre Markos, the basic infrastructures, such as, water, electricity, telephone and transport are available but not to the commendable level.

In the town, the supply of water usually falls short of demand. The quality is also by no means atrocious. There are eight deep wells, most of which are old, except the one developed this year. These wells together produce twenty-five litters per second, daily on average 2070 cubic meter or 25 liters per second. Surprisingly enough, 45 percent of the total produced water is wasted, only 20.25 liters consumed in a second, due to different reasons, and one of the most frequently cited

is found to be leakage (Debre Markos Town Water service, 2004). Only 13,200(76%) households are with own tap water and the rest-4200 do not have their own pipe water. This shows that there is no adequate water consumption in the town. Households, government and public institutions, and NGOs together consume 55 percent of the produced water, 45 percent being the leakage (Debre Markos Town Water Service, 2004).

The town gets a 24-hour electricity from the plant of *Fincha* hydroelectric power with 132-kilo volt line of producing capacity (Deber Markos District Electric Power, 2003). During the study period, there were 8259 (47.5%) households, 139 government organizations, 125 private sectors, and 4 small industries, in total 8527 electricity subscribed customers. The rest-52.5 of the households do not have their own electricity. This implies for every household who has own electricity there are about 1.12 households without electricity witnessing the fact that its distribution is the least.

Telephone services play crucial roles in exchanging information among individuals, wholesalers, and retailers and inform traders with up-to-date information. According to Debre Markos Telecommunication Customer Service Office (2004), there are only 4,000 subscribers out of 17,400 households, though the establishment dates back to 1955. This tells us that for each household with own telephone there are 43.5 who are without. Matching up the town's telephone density with the household size, it is the lowest by any standard. The services rendered include, among others, fixed telephone, fax, and internet dial-ups. It also has supplementary services such as call waiting, call transfer, teleconference, malicious call and internet services.

With regard to transport, excluding the main road (Addis Ababa to Bahir Dar), in the town, only 5 kilometers of the main road is asphalted, 42 kilometers inner roads being graveled, 8.2 kilometers infantry stone road and 95 kilometers are dusty/mud roads inside the town. Presently, there are only 22 private taxies (Minibuses and *Ladas*) serving the customers (East Gojjam Zone transport office, unknown year). When one contrast the number and increasing demand of the inhabitants to the existing poor road quality and quantity coupled with the small number of taxies makes one aware to see the problem further.

Although the presence of adequate social services are fundamental to the economic growth and development of urban centers, the number and distribution of social institutions in the town are not in commendable rates. In general, the social services of the town cover only 11.8% of the total allocated area. This shows that about ninety percent of the area is to be covered in the years ahead. Not only is the coverage minimal but also the quality of the distribution. The social services of the town generally fall under the following (Debre Markos City Service, 2005).

- ***Educational Institutions***: University, Colleges, Technical and Vocational Schools. Preparatory School, Secondary Schools, First and Second Cycle Primary Schools. Kindergartens, Basic Alternative and Adult Educations.
- ***Health Institutions***: Referral Hospital, Health Centers, Clinics, and Pharmacies.
- ***Religious Institutions***: Different Christian and Islamic Religions, Praying Houses and Grave Places.
- ***Municipal Service Institutions***: Garbage collecting and damping areas, abaiotors
- ***Civil and Cultural Institutions***: Public Libraries and Conference Halls, Theatre and Cinema houses, *Iddir* and *kebele* centers.

In sum, though 153 years passed since its foundation, the growth and development of the town has remained slow and sometimes started even declining and the incidence of poverty is increasing due to various reasons (Debre Markos City Service, 2005). Some of them include:

- Lack of adequate social services, infrastructures and investments
- Governments' little attention to urban areas
- Lack of good governance
- Lack of adequate financial sources
- Inefficient municipal administration,
- Lack of responsibility and accountability,
- Inefficient expertise/qualified human power.

All the above problems in one or another way have implications of urban poverty in the town. In general, one could feel the deterioration of the living conditions. The aim of this paper is, therefore, to assess determinants or correlates of urban poverty in the town.

1.4. Research Objective

The objective of any research is to add value to the previous work or bring new ones. Based on the research problem the following research objective(s) are formulated.

General Objective

- To assess urban poverty in Debre Markos.

Specific Objectives

A To identify households who live below the poverty line.

B To examine determinants of urban poverty in Debre Markos.

- To analyze some determinants: demographic characteristics of the household head (age, sex, and marital status), family size, household head educational level, and employment.
- To assess households social services (water, housing tenure, telephone, and electricity) in relation to poverty
- To assess the relationships (positive or negative) of these variables on urban poverty in the study area.
- To identify determinants which dominantly affect urban poverty in the study area.

C. To draw possible research and policy implications.

1.5. Research Relevance

In light of the problem statement and profile of the study area, assessing determinants of urban poverty in Debre Markos will have some paramount importance on account of the following reasons:

- No similar study has been conducted in this area before. This research, therefore, will serve as a springboard for future study.
- Very little was done on urban poverties in medium towns of Ethiopia. It is with the belief that this town is representative of other old medium towns of Ethiopia .The study will, therefore, serve as a starting point or exemplary for studying urban poverties in other medium towns of Ethiopia.
- It can give an input for CBOs, NGOs, or any interested stakeholders/actors who in one or another way are engaged in the development of the town.

1.6. Research Scope

The study assessed the situation of poverty in Debre Markos. In so doing six *kebeles* were studied. Although many variables could play roles in the study of urban poverty, in this study few variables, which were believed to play dominant roles, were analyzed. These include: household demographic characteristics (such as sex, age, family size, and marital status), educational level, employment/occupations, and social services (like health, water, housing tenure, telephone. & electricity etc). The study examined these variables at a household level.

1.7. Research Limitation

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

1. Some sensitive variables such as income and properties (assets) may not be correctly obtained and valued since few respondents were not willing to tell the exact amount. The responses therefore are not 100 percent perfect.
2. The base of the surveyed households is the Kebele registry-sampling frame which includes only those households that have house number, thus some information that could have been collected from households without house number is missing in this study area.
3. Urban poverty is a function of multitude factors. In this study, only some variables, which were assumed to affect the incidence dominantly, are included .The researcher is of the opinion that the study could have been much comprehensive had a number of parameters been included.
4. The budget provided to undertake the research is small. The study would be more comprehensive had it been adequate.

1.8. Research Methodology

1.8.1. Data Type and Source

Primary and secondary data from different sources were employed for this study.

- **Primary Source.** To obtain information on poverty in the town empirical data were collected through structured questionnaires. The structured questionnaires were posed 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, telephone, house tenure, and electricity. Besides, author's experience whenever needed is incorporated. The writer was a resident of the study area for nearly two decades and this made the author to draw conclusion by supplementing the data with observations and life experience.
- **Secondary Source.** Pertinent documents to the study: books, previous working literatures, statistics, and checklists of facts and figures were utilized. Unpublished materials were also used.

1.8.2. Sample Size

Any research method chosen may have inherent problems. In order to minimize the problems, scholars support the use of multiple strategies so as to complement one method by another (Mehari, 2003).

In line with the above argument this study employed a cross-sectional survey to assess the determinants of urban poverty in Debre Markos. The research covered six *kebeles* of the town. A total of 260 respondents were surveyed. This, 260, sample is determined using the minimum sample size formulae of Fowler (2001) as shown below.

$$n = \frac{[Z\alpha/2]^2 \, P \, [1-P]}{D^2}$$

Where n= number of surveyed population = sample size

$Z\alpha/2$ = the two-tailed critical value at 95 percent confidence interval (1.96)

P = assumed incidence of urban poverty in Debre Markos (0.22) by taking the 1994 case study of Bahir Dar.

D = Marginal error between the sample and population size (0.05)

The result gives:

$$n = \frac{(1.96)^2\ 0.22\ (1-0.22)}{(0.05)^2}$$

n = 260 households

Therefore, the sample size is 260.

1.8.3. Sampling Technique

The study conducted in six kebeles of the town. They were kebele 01, 03, 04, 05, 08, and 12. The total numbers of households in the surveyed kebeles add up 9270. Although thorough efforts were made the research couldn't trace official or unpublished document(s) of the town which can tell us how the socioeconomic status of the selected kebeles differentiate and resemble each other. In light of this, selection criteria were made based on two premises: poverty categorization and spatial distribution. In lieu of this Kebele 01, 04, and 05 are taken as areas of the poor dwellers whereas Kebele 03,08 and 12 are for those of the relatively well-off residents. Spatially, Kebele 03,04, and 05 are center whereas Kebele 01,08 and 12 taken as center-periphery. Based on these criteria brief description of each of the surveyed Kebeles is given below.

Kebele one (01) is assumed to hold the poorest sections of the town, particularly, weavers, who lead their subsistence life by making use of handicrafts like embroidery and pottery. Location wise it is found in the north outskirts of the town.

Kebele 03 is composed of the relatively well-off dwellers-traders, weavers and at the same time the poorest households who run their daily meager life by preparing the local drink *Tella*, Areki and *Tej*. It is a place where all sorts of the society in the town (the relatively rich, poor and absolutely poor) reside. Spatially it is found in the center of the town.

Kebele four is on the other hand situated at the heart of the town. It is a place of commercial centers and/or markets. Unlike kebele 03, there are only few residents with their own houses.

Most dwellers are house renters. Although their proxy to business activities they are not benefited from being around the center and most residents in these kebeles are recognized as poor. In short, kebele four is selected for two reasons for being center of the town and proxy to the opportunity of business activities and where many sections of the society are likely to be poor.

Kebele 5 located at the center of the town and known by *"Motta Sefer"* is an area of prostitutes. It is categorized as kebele of destitute life and of females. Male-headed households are assumed to be low in this kebele for it is a place of prostitutes and the associated bad connotation. Because the residents are mostly of females without own house and engaged in prostitution, it is given as number one in terms of poverty status. Therefore, this place is chosen to test whether the prevailing assumptions are true or not when comparing to other kebeles.

Kebele 08 is by far different from the previous kebeles at least by two respects. One, it is the biggest in terms of household size, which accounts nearly three thousand. Second, most rich people (relatively speaking) who own hotels, cars, and traders live in this area. Because it is big in area, it stretches in both the center and peripheral part of the town. Therefore, Kebele 08 reflects two things: center-periphery and place of well to do family.

The last survey area chosen for this study was kebele 12. It is a new kebele and is called Bole area. This is the place where the most peripheral part but suitable places of the town found. It stretches to kebeles 03 and 08 in which more than half of it is around the main parts of the town. Government professionals (civil servants) particularly of teachers dominate this kebele. Relatively speaking, these residents are well-off dwellers.

Households were randomly selected from each of 6 *keblels* based on sampling frames prepared from the housing registry available at the *kebele* administrative offices. To be more precise systematic sampling was employed and (every 25^{th} household) were selected. In each of the surveyed kebeles selection of the first household was made by simple random sampling.

In the survey, the question was posed to the head of the household and the responses, therefore, represent an individuals evaluation about the poverty of the entire household. Since most household heads were busy in week days the survey was conducted in weekends. A possible

reservation against the response of the heads of the household is that other members of the household may have different evaluations. This is not likely to be a serious problem in the research since the head is usually the sole or the main breadwinner and his/her evaluation tends to be more authentic. As the following table show numbers of households selected in each kebele were determined proportion to *Kebele* population size and the survey was conducted in March 2006.

Table 1 Household Size of Surveyed Kebeles

Surveyed Kebele	01	03	04	05	08	12
Total Household	820	1711	1284	1141	2995	1319
Sampled Households	23	48	36	32	84	37
Total Sampled Households	260					
Total Households	9270					

Source: Respective Kebele Roaster and own computation

1.8.4. Data Collection Instrument

Structured questionnaire was employed as instrument to gather information at a household level. The questionnaire were first prepared in English and then translated into *Amharic*. The *Amharic* version questionnaire was pre-tested on respondents in similar communities. This was done purposely for clarity, acceptability, flow and reduction of repetition. Based on this, minor modifications were made and survey was undertaken.

Twelve enumerators were recruited from the study area. They were recruited based on two criteria-education and experience. All interviewers and /or enumerators were trained for two days

by the principal researcher on the administration of the questionnaire and two supervisors recruited from the town made field supervision.

1.8.5. Method of Data Analysis

Basically the analysis and presentation of the study is quantitative. In the first part, the research used descriptive statistics (percentages, ratios, means, standard deviations, Chi-squares, significance intervals, and t-test). These are analyzed and described quantitatively by making use of SPSS-12 version, and tables.

In the second part econometric issues, more specifically, *Logit* model is adopted. Variables, which play significant roles for the incidence of poverty in Debre Markos, were analyzed through this model by making use of econometric issues.

In this part LIMDEP software was employed to determine the coefficients of the determinants-odds, odds ratio, and marginal effects and test the statistical significance relationships between the determinants and the dependent variable (urban poverty). A significance level of 0.05 (confidence interval of 95 percent) was adopted to accept or reject the hypothesized assumption.

1.8.6. Model Specification (Econometric Issue)

Although no economic model is precise in assessing the relationship between the regressed and explanatory variables and predicts its significance, the policy implication of any study very much depends upon how close accurate is the specified model. This brings us to the issue of econometric modeling.

In order to explore the correlates of urban poverty with the variables though to be important in explaining in urban poverty a Logistic regression model was employed, with the dependant variable being the dichotomous variable of whether the household is poor (1) or not poor (0). The explanatory variables considered in the analysis are demographic (sex, age, household head, family size) educational level, occupation, household health, water, and house tenure. To undertake this survey, Logit model was adopted and the response variable $\hat{Y}_{it}$ defined by the regression relationship is depicted as follows.

$\hat{Y}_i = \alpha_i + \beta X_i + U_i$

Where;

i stands for households run from 1 to n

$\hat{Y}_i$ is the status of household i

α_i is the intercept term

β is set of coefficients

X_i is set of explanatory variables (determinants)

U_i is cross-section error term

$\hat{Y}_i$ is unobservable. What we observe is a dummy variable Y_i defined by $\hat{Y}_i = 1$ if $\hat{Y}_i > 0$, $Y_i = 0$, otherwise. So, the response of the variable is binary, taking two values, 1 if the household is poor, 0 if not .The probability of being poor depends on a set of variables X so that

Prob (Y=1) = F (β'X)

Prob (Y=0) = 1- F (β'X)

1.8.7. Model Variables and Hypothesis

In this study two main variables were explored: the dependent (regressed) and independent (explanatory). The regressed variable is urban poverty and that of the regressors/explanatory are the determinants of urban poverty-variables, which are thought to have significant role in determining urban poverty in Debre Markos. It is to be noted that a number of explanatory variables could influence the incidence of urban poverty directly or indirectly, as a result, only few variables, which are believed to play dominant roles, were analyzed. One should also make sure that the regressed or regressor variable(s) could be the cause and effect of the other. In this study, it is assumed that regressors (determinants) come first and the regressed (urban poverty) comes next. The following section gives highlights to the selected determinants of urban poverty and casts some hypothesis.

1. Household Head Education (HHED): It stands for the highest education level attained by the head of the household. There will be two dummies in this category. If the highest attainment is primary education level, it takes the value of 1, 0 otherwise. It is hypothesized that the probability of the household being poor decreases with increase in the educational attainment level of the

household head. Generally, if the heads highest educational level is less than or equal to primary school complete it takes the value of 1,0 otherwise

2. Household Head Income (HHI): The amount of income at any one time in a household shows the extent of poverty and its amount in time shows what is happening to the poverty in time. Economic theory tells that a household with a relatively better income will lead a decent life and hence reduces incidence of poverty. In this study a household with monthly income of less than or equal to 800 Birr (closer to 1 USD pre day per adult as an international poverty line) is assumed to be poor and takes 1, 0 otherwise. It is expected that household income affect urban poverty negatively

3. Household Head Occupation (HHOC): This refers to the type of occupation that the household head is engaged in. In this category five dummies were identified. If the household head is own account it take the value of 0, 1 otherwise. If the head is wage employed it take the value of 1, 0 otherwise. If the head is casual worker it takes the value of 1, 0 otherwise. If the head is a pensioner it takes the value of 1, 0 otherwise. If the head is disabled it takes the value of 1, 0 otherwise.

4. Household Head Marital Status (HHMS): This refers to the marital status of the head of the household. If the head of the household is married, it takes the value of 1, 0 otherwise. In this study it is hypothesized that households with their head married are less likely to escape poverty. The assumption is that households headed by married individuals are supposed to be larger in family size. Large families in developed countries mean large labor force which in turn reduces the incidence of poverty. But in developing countries the reverse in most cases holds true in that larger households are associated with high incidence of poverty because many of the labor force are unemployed.

5. Household Head Age (HHA). People of productive age groups are believed to earn more income than the unproductive ones. However, this may not be true in developing countries where there is rampant unemployment among the productive sections of the society. In this study it is hypothesized that household heads in the age ranges of 31-60 are the productive ones whereby the probability of getting income is higher. The rest of the household heads, which are found in the age ranges of 18-30 and above 60, are assumed to experience poverty more than the other

sections of the society. The hypothesis in this study is that household heads with age ranges of 18-31 and more than 60 take the value 1. 0 otherwise (31-60 age ranges).

6. Household Family Size (HHFS): This one stands for the number of family members in the household. In this study it is hypothesized that households with larger size (greater than or equal to five) have more probability of being falling into the poor category than those with lesser family size.

7. Household Head Sex (HHS): This refers to the sex of the head of the household and it takes binary value. If the head of the household is female, it takes the value of 1, 0 otherwise. In this study it is hypothesized that the probability for the household to be poor is high if female heads it.

8. Household Health (HHH): Since health, without debate, is the decisive factor for life, one with poor health condition will have a poor living standard. When a breadwinner of the household gets sick, it is a known experience that the family faces acute problems and one of which is obviously poverty. Lack of proper health will make people to become weak and unproductive. Health is, therefore, expected to play a negative role in urban poverty. Households with frequent patient members take value of 1,0 otherwise.

9. Household Water (HHW): This refers to the type of water service the household has. There will be two dummies in this variable. Those who don't have private tap water in their compound takes the value of 1, 0 otherwise. It is hypothesized in this study that the probability for a household to be poor is low if they have private tap water in their compound.

10. Household House Tenure: Nowadays the issue of house ownership has become a critical parameter of urban dwellers and is assumed to play significant roles in the incidence of poverty. In this study it is assumed that the probability of households to fall into poverty decreases as they have their own houses and increases if they don't have. It is hypothesized that households without their own house take the value 1,0 otherwise.

1.9. Organization of the Paper

The research has the following four chapters. Chapter one consists of the introduction, description of the study area, research problem, research objective, research relevance, research scope, research limitation and methodology. The methodology part introduces data type and source, sample size, sampling techniques, data collection instrument, method of data analysis, model specifications (econometric issues) and working hypotheses.

Chapter two deals with literature survey. This includes conceptual frameworks, definitions and empirical findings of poverty and/or urban poverty. The conceptual framework highlights some theoretical aspects as seen by different scholars, disciplines and countries. The definition of poverty casts some points as to how absolute/objective, relative and subjective poverty-line are interpreted. Construction of poverty line, measures of poverty and indices are also highlighted. The empirical literature surveys the results of different studies conducted on poverty, nationally and across the world.

Chapter three, the main body of the study, assessed determinants of urban poverty in Debre Markos. In this part, main variables: demographic characteristics (age, sex, marital status, family size), educational level, employment/occupation, household health, house tenure, water source, energy utilization, and telephone consumption were dealt. The correlates and significance of the main independent variables on urban poverty were critically examined. It identifies the poor from the non-poor, analyzed the empirical results first with the help of descriptive statistics then by econometric analysis by a Logit model.

Chapter four brings summary, conclusion, and policy implications based on the empirical findings. It summarizes and concludes the main findings of the study and casts policy implications that could be of help to reduce urban poverty in the study area. Tables and maps that might be of relevant for reference are attached at the end of the thesis

Chapter Two

Conceptual Frameworks and Review of Related Literature

2.1. Conceptual Frameworks of Poverty

The concept of poverty seems simple which doesn't worth to discuss it in detail. Nevertheless, it is not as simple as we think of it if you go deep into it. This is due to its multifaceted nature and dimension. A lot of scholars have been busy finding the tangible concept of poverty and agreed that it has various angles in different professionals. It has also various interpretations in economic, social, political, institutional, environmental and cultural contexts. Because of its variation in different scholars, disciplines and interpretation various approaches have been employed to understand the concept of poverty.

The biological approach, for instance, conceptualizes poverty as the lack of entities for survival. It postulates that poverty exists when the necessary minimum requirements for physical efficiency are not fulfilled. These, as most literatures, agree include lack of sufficient food, clothing and housing (Sen, 1981 cited in Tizita 2001). This approach gives more attention to the starvation issue and does not care so much about the additional requirements, which an individual should get.

The normative approach, on the other hand, conceptualizes poverty based on value judgments about the minimum adequate level of welfare below which one is said to be poor. The problem which might arise at this juncture is what constitutes value judgments and how can one define the minimum adequate level of welfare. This is, perhaps, owing to subjectivity and individual differences among the different citizen's understandings. Value judgments can differ in many respects among which the norms and values are the two as stated by Sen (1987).

Todaro and Smith (2003), renewed development economists, draw the inequality approach to conceptualize poverty based on observable phenomena. They differentiate the economic gap between the rich and poor as to how poverty operates in a given society and how one can conceptualize it. Based on this, they attempted to look at the nature and the size of the differences between the bottom 20 or 10% and the rest of the society. To remedy the problem, distribution from the rich to the poor can make substantial development on poverty in most society. It is.

however, important to note that poverty and inequality are distinct concepts and neither subsumes the other though they share close meanings.

The sociological approach takes the concept of poverty as a reflection of social inequality. In a social context Trufat (1994) explained poverty as absence of access to enjoy fundamental human rights (cited in Tizita, 2001). This could include lack of access in social participations such as social class and social group and so forth.

In the eye of environmentalists, poverty is conceived as a situation in which one has access to environmentally fragile natural resources that reduce income and increase one's own ability while the economist identifies it as a situation in which the individual's command on resources falls below a certain level. A political scientist conceptualizes poverty as lack of participation/representativeness in politics or vote in presidential election. An anthropologist, likewise, understands poverty when an individual or a society is deprived of practicing the norms, values and cultures within (endorsed to) the society.

Not only the concept of poverty varies across different disciplines or to professions, it moreover, varies from country to country and time to time. Chronic and mass poverty, are too often, used to characterize poverties of developing countries. Chronic poverty is a term used to denote the state of being poor and failure to move out of it (Lipton and Ravallion, 1995) for a long period of time. In fact, a family without basic needs of survival, low quality of land, productivity asset (rural area) and low access to education, health, sanitation, recreation (in urban areas) is identified with chronic poverty.

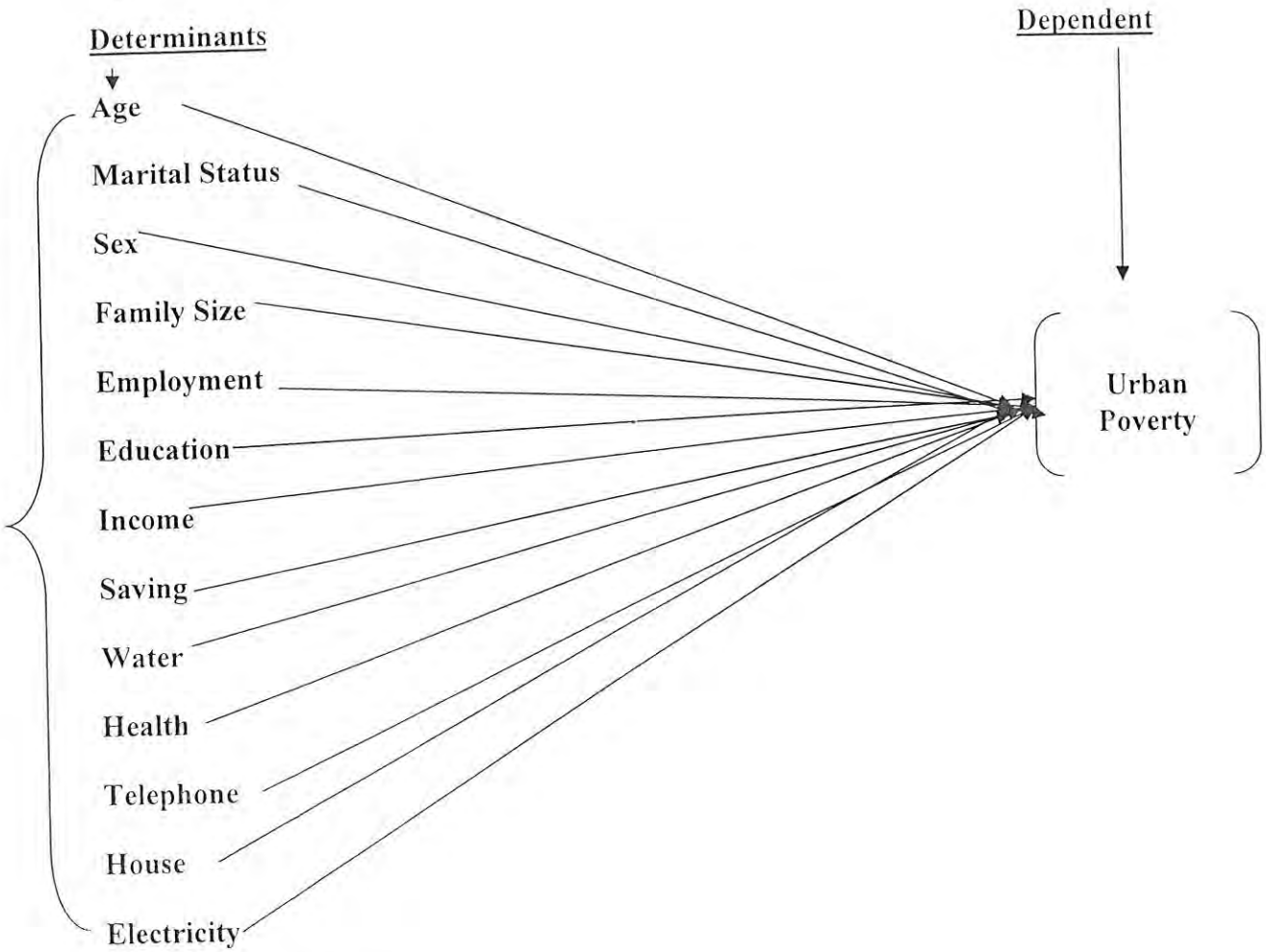
Poverty in developing countries, like Ethiopia, is too often conceptualized as mass poverty implying a situation where more than half of the total population of the country lives in poverty. Its concept in rural and urban areas, though have some common sharing, surly, have different meanings.

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

transportation. political representation and justice. Meron (2002) conceptualizes poverty using the livelihood approach. This approach to urban poverty refers to the ensemble of activities that a household or an individual regularly undertakes and entitlements it makes claims in order to sustain a given standard of living. This captures not only the measurable income, which most literatures suggest, but also about types of capital or assets up on which livelihoods are built and households and individuals strive to acquire in order to achieve requisite outcomes. The assets encompass physical capital, the basic infrastructure and producer goods needed to support livelihoods. This approach takes financial capital, the availability of cash or equivalent, human capital, the skills, knowledge, good health, natural resource stocks, social capital/ networks/connectedness, institutions and values as necessary ingredients in identifying the presence of urban poverty.

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

Figure 2: Conceptualizing Determinants of Urban Poverty



Source: *Own Creation*

2.2. Review of Related Literature: Theoretical Framework

2.2.1. Definitions of Poverty

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

The World Bank (1990) quoted in Garza (2001) defines poverty as "the inability to attain a minimum standard of living." Lipton and Ravallion (1995) in Garza define that "poverty exists when one or more persons fall short of a level of economic welfare deemed to constitute a reasonable minimum, either in absolute sense or by the standards of a specific society." This

makes us aware that definition of poverty includes a given level of welfare. Then, it is important to study how to assess welfare as an indicator of poverty.

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

Mekonnen (2002) defines poverty in absolute terms, which he explains as the inability to obtain basic needs consumption level irrespective of the general standard of living. In relative terms the definition of poverty, on the other hand, related poverty to the general welfare in a society and often identifies the poor as those falling below a certain fraction of average income or specific percentile of distributions. But, the questions that comes uppermost at this juncture is what constitutes basic needs and how can one derive a poverty line only with the help of monetary value.

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

The Welfares School

The welfares school relates definition of poverty to the economic well-being of the society. It assumes that when, societies are not able to attain a level of economic well-being deemed to constitute a minimum by the standard of that society, then a person/society faces poverty. It sees income as a determining factor for the presence of poverty (Yared, 2005).

It bases composition of well being solely on individual utilities, which are based on social preferences (Ravallion 1993 cited in Garza, 2001). Problems related to this school are the need to make inter-personal utility comparisons to obtain welfare functions, the degree of validity of full-information and unbounded rationality on the part of consumers.

The Basic Needs School

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

The Capability School

What is emphasized in this school is neither the economic well-being nor the basic needs deemed to satisfy the minimum standard by the society, it is nevertheless, human abilities or capabilities to achieve a set of functioning. This is an alternative criterion for the definition and measurement of well-being which tells the extent to which people have capabilities to be and to do things of intrinsic worth. Sen (1987) wrote that the "value of the living standard lies in the living, and not in the possessing of commodities". Such an approach to the definition and /or measurement of poverty suggests a broader set of criteria for assessing poverty than just income and/or consumption. The measure is said to include publicly provided but non-marketed services; like, sanitation, health care, education & life expectancy (Sallila and Hilamo, 2004).

Sen (1983) introduced the notion of capabilities in poverty definition and assessments. He defined poverty not only as a matter of low level of well-being, but also as lack of ability to pursue well-being precisely because of lack of economic means. He favored the capability to function as criteria for assessing standard of living, and by implication poverty rather than the utility that might be derived from using that capability. However, the difficulties of this method lie in the application of the concept of capabilities in practical poverty assessments. This school assumes that if one is devoid of the right to participate and does not perform the functioning's, s/he is considered to be poor .It is said that it neither offered a practical criteria for evaluating the various capabilities to function nor sought any aggregation of social values of separate capabilities (Kingdon and Knight, 2004). Thus the availability of different definition of poverty,

which is in turn a result of the multifaceted concept, had lead to the availability of different poverty line definitions.

2.2.2. Poverty Line Definitions

Objective Poverty Line

Also known as absolute poverty, objective poverty lines should not be defined as stringent ("survival") poverty line. Rather, it should be the one which is fixed in terms of the living standards indicator being used, and over the entire domain of the poverty comparison with two persons at the same real consumption. Thus, an absolute poverty comparison level to both be either "poor" or "non-poor" irrespective of the time or places being considered and with or without policy changes within the relevant domain (Ravallion, 1992).

One of the common weaknesses of an absolute poverty line is it does not change with the living standards of the society in question. Thus, people are labeled "poor" when some absolute needs are not sufficiently satisfied, that is, needs that are not related to the consumption pattern of other people in a given society. In other words, poverty is viewed as acute deprivation, hunger, premature death and suffering. Hence, the assumption implicit in this notion of poverty is welfare depends on the extent to which some basic needs are met (Hagenaars, 1986). However, it may be difficult, in practice, to define the absolute minimum, in a constant way. Though, the dividing line between acceptable and unacceptable deprivation is said to be biological, it changes in line with age, sex, season, climate, physical built up, types of activities a person is engaged with and extra. The consensual understanding, however, is that absolute poverty is an intolerable situation that requires prompt corrective action.

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 for their society (Garza 2001). The word itself is self-intuitive in that this poverty is defined by the position of an individual compared to other members of a given society. Poverty is discussed here as the share of people whose equalized income falls below a poverty line. In practice, the most popular choice to set poverty line in this

method is done by taking certain percentage of mean or median incomes of the population. Many studies in the developed countries have used a poverty-line which is set at 50 percent of the national mean income. Other studies use 60 percent of the median incomes as a measure of the risk of poverty. However, the scientific justification for the use of certain percentages of the median or mean equivalent threshold is not well-grounded (Ravallion, 1992, Bradshow, 2001 as cited in Sallila and Hiilamo, 2004).

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). Having this concept in mind, a poverty line in this procedure is set with a formula here-in-below.

$$Y = \beta X$$

Where, Y stands for the poverty line, β is some constant as 0.5 or 0.6 and X refers to the mean or median of the distribution on which poverty is measured. The measure of poverty which is solely dependent on the parameters of Lorenz curve is stated as P (K,L). However, this measure is a good measure of relative poverty to the extent that one is trying to capture the amount of inequality in that distribution (Ravallion, 1992).

While a median income threshold lacks warranted objectivity, it conveys a meaningful interpretation of deprivation according to the standards of necessities in a particular society. Also the threshold based on median is claimed to be more solid as it is not affected by an increase in high incomes (Sen, 1979, Jantti and Danziger, 2000 as cited in Sallila and Hiilamo, 2004).

In fact, using a median threshold is also subject to well-grounded criticism. Thus, a median threshold used, as a standard comes closer to the definitions of absolute poverty which does not take into account the changes in economic and social context of the upper half of the income distribution. It may also be well criticized for obscuring the difference between inequality and poverty measures (Yishaki, 2002 as cited in Sallila and Hiilamo, 2004).

In general, poverty in this sense is defined as a relative deprivation with respect to various commodities. Hence, households or individuals are deemed "poor" when they lack certain

commodities that are common in the society they are living. However, the relative importance of studying poverty as comparative phenomena is justified as modern societies confront economic liberalization, ageing population, marital dissolution and increased labor force participation by women. Relative poverty is concern of developed countries where as measuring absolute poverty is the main aim of developing countries (Ravallion, 1991).

Subjective Poverty-Line

The method of defining subjective poverty line depends on the subjects themselves. The procedure lets people to define poverty through their lived experience. Hence, the identification of the "poor" and the "non-poor" is left to self-perception of the individual concerned (Saith, 2005).

As poverty in this sense refers to subjective well-being of individuals, the perceptions of people towards their own situations is of vital importance in setting poverty threshold. Hence, the method sets poverty line based on the relationship between survey responses on questions of minimum income, considered by an individual to be adequate enough to get along with a representative family size, and the actual income. The resulting definition is called the Leyden poverty -line definition named after its place of origination. The point of interaction between the minimal income stated to be adequate and the actual income in the graph is taken as the poverty threshold. The basic assumption that people associate roughly the same welfare feeling to certain verbal qualifications like for instance "enough to get along" is what the subjective method of defining poverty line depends on. On the basis of this assumption, income levels, which provide a welfare level to households of different size and type, can be derived (Hagenaars, 1986).

Recognizing poverty lines as essentially subjective judgments people make on the basis of socially acceptable standards of living in their own society is the rational behind the notion of subjective poverty-line. In most cases, it holds true for the response, on survey questions of the income level people consider absolutely minimal to make ends meet, to be an increasing function of the actual income. Hence, it might not be surprising if this method yields higher poverty lines than the basic needs approach (Ravallion, 1992). For detail about the subjective definitions and/or perception of poverty (refer "Voices of the Poor from Many Lands", 2002 edited by

Deepe Naryan and Patti Petesch).All these definitions lead to the setting of poverty lines and measurement of poverty.

2.2.3. Poverty Lines

Given the complexities of poverty concept and its definition, the fundamental question that comes uppermost in the analysis of poverty is the derivation of poverty line. In the derivation of poverty line scholars use different methods. Poverty line in simple term is a line that delineates the poor from the non-poor. To do so construction of poverty line is an important issue.

2.2.4. Setting Poverty Lines

The first step that needs to be clear in the analysis of poverty is to identify whether an individual is poor or not to distinguish the poor from the non-poor. For this purpose, poverty line plays a crucial role in quantifying the various indicators of well-being into a single index. Although the choice of poverty line is always arbitrary (World Bank, 2000), the common argument is that there is a minimum level of consumption of goods and services below which it is difficult to sustain our life. Hence, in order to get the poverty line, it demands thorough work in that the level and type of goods and services must be accurately identified. Although hot the debate is on how to exactly arrive at different levels of goods and services due to the presence of regional price difference, various commodities and individuals preferences, it is tolerable that a carefully examined work can give good estimation.

In the construction of poverty lines two methods can be employed: the first is to directly use current consumption of goods and services as an indicator of well-being. This requires identification of the minimum bundles of goods and services, which an individual has to consume. In this case, the bundle serves as a boarder line between the poor and non-poor. The second method uses income as a parameter to identify an individual as poor or non-poor. This necessitates specifying minimum income that enables an individual to achieve consumption of minimum bundle of goods and services defined by the minimum socially acceptable level. Various methods have been employed in constructing poverty lines. The most popular methods, however, are the Cost of Basic Needs (CBN) and Food Energy Intake (FEI) as cited in Mekonnen (2002).

Cost of Basic Needs Approach (CBN)

To implement this method Ravallion and Bidani (1994) employ two stages: first determining the food consumption bundle just adequate to meet the required food energy requirements and second 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 anchored on the consumption pattern of the poor. Two problems may arise. One is variation in estimating food components (minimum required nutrition level) across regions and ethnic group. The second is estimating the non-food components of the poverty line since there are no objective criteria on which to base the satisfaction. In any case, the basic needs approach is the most widely used approach to setting poverty line in developed countries.

Food Energy Intake Approach (FEI)

This approach locates the poverty line as the income or consumption expenditure level just adequate to meet a predetermined food energy intake to an individual. The level of FEI, very much, depends upon, preference, activity, age and sex of an individual. After taking these differences into account and the costs of attaining predetermined FEI, the poverty line can be constructed. This could be obtained by finding the consumption expenditure or income level at which the person attains the food energy level (Ravallion and Bidani, 1994). Most analysts argue that consumption will be a better indicator of well-being for the following reasons. First, consumption is a better indicator of well-being due to the question of access, and availability of goods and services apart from the issue of income needed to get those goods and services. Second, consumption may be measured better than income. This is especially true in cases of poor agrarian economies, as there occurs frequent income fluctuation according to harvest cycle and the erratic flows of income as a result of large informal sectors in urban economies of the developing countries. Consumption or expenditure may also better reflect households actual standard of living and ability to meet basic needs. Thus, consumption expenditures indicate not only command of goods and services but also access to credit markets and savings in times of lower or even negative income level (Couldouel, et al, 2004). This does not, however, to mean that this approach is free from flaws.

However, the relative merits of using one methods of the poverty-lines over the others and the vice versa is still debatable. Each has its own strengths and weaknesses. Some argue that the poverty of the third world cannot be studied through poverty lines like in subjective criteria. Those who support this argument cite the very low level of income and the subsistence nature of economies in these countries as a major reason for the likely inaccurate results of such a measurement. On the other hand, others argue that poverty cannot be meaningfully quantified in excessively narrow and lean objective criteria (Mekonnen, 2002). The fact that the concept, definition and setting of poverty lines are controversial invites one to look deep into how one can measure poverty. After setting the poverty line the next step is the measurement of poverty

2.2.5. Measures of Poverty

There is no single measure of poverty and all choices have their own pros and cons. The debate of measuring poverty still waxes and wanes. The presence of a lot of instruments, though, each with some drawbacks, nevertheless, helps us to see the type and extent of poverty in a given society.

Generally, the measurement of poverty is said to consist of three phases; in the first phase, choice of appropriate well-being indicator is made, in the second phase, the poor are identified from the population and the third phase is concerned with the derivation of poverty indices using the available information. The concepts of poverty thresholds and lines have a long history extending back into & beyond the poor Laws in England. Despite their long history of operationalization, the methodology is still deeply flawed for analysis and the design of anti-poverty policy interventions (Saith, 2005). Three indices can be utilized in the measurement of poverty.

2.2.6. Poverty Indices

There are, of course, various types of poverty indices but the most commonly known ones are head count index (P_0), poverty gap/depth index (P_1) and the severity index (P_2).

Head Count Index (P_0)

This index tells us the proportion of population, whose consumption expenditure falls below the predetermined poverty line. Put simply,

$$P_O = q/N$$

Where q is the number of people earning income below the poverty line and N the total number of people in the population. While P_0 has an advantage of simple calculation it suffers from two problems: a reduction in the incomes of the poor doesn't reveal how worse the poor will be poorer and it doesn't in any case depict distribution of income among the poor.

Poverty Gap/Depth Index (P_1)

This measures how far an individual's income falls short from the poverty line. Since this index is based on the aggregate poverty deficit of the poor relative to the poverty line, it is by far better than P_0. Mathematically, P_1 can be depicted as follows,

$$P_1 = \frac{1}{N}\sum_{i=1}^{Q} [Z - Yi]/Z$$

Where:

Y_i = Consumption expenditure or income of the poor

Z = Poverty line

Although this model measures the depth of poverty better than P_0, it is insensitive to the number of individuals below the poverty line and to the transfer of income among the poor.

Severity Index (P_2)

The severity index also called, the Foster-Greer-Thorbecke Index, measures severity of poverty by squaring and averaging the gap between the income of the poor and poverty line. It is given by the formulae,

$$P_\alpha = \frac{1}{n}\sum^{q} \left(\frac{Z - Xi}{z}\right)^{\alpha} \quad \alpha = 0,1,2$$

Where;

X_i is income or consumption expenditure of household, Z is the poverty line, n size of the population, and q is the number of the poor. P_0, P_1, and P_2 tell respectively the incidence, depth

and severity of poverty among individuals. P_2 changes in accordance with α and P_2 measures the mean of squared proportional poverty gaps. It gives more weight to the poverty of the poorest by squaring and averaging the gap.

2.2.7. Poverty in the Urban Setup

Researches in the past indicated variations in the forms and dimensions of poverty in categories such as rural-urban settings. While rural poverty is often marked by its connection with agriculture and land, urban poverty is said to be associated with heterogeneous economic and social factors. Nevertheless, the genesis of poverty is often found to be rural poverty (Yassin, 1997).

All too often, the poverty of the rural populace does have an impact on urban poverty. In most cases, rural poverty is one of the many other factors that stimulate massive exodus among the productive segments of the rural population to cities. In such cases, the poor economic performance of the rural areas is said to be a major contributing factor to the persistence of urban poverty (Tizeta, 2001).

The heterogeneity of poverty in urban settings could be attributed to the high monetization of economies in such localities. Unlike in rural areas, urban poverty is defined at an individual level rather than communal level. Thus, poverty in such context is usually described in terms of occupation, income, and consumption level and employment status. The above-mentioned aspects, therefore, can serve as bases of urban poverty analysis (Department for International Development, 1997).

As cited in Shewaye (2002), the World Bank sees urban poverty as a multi-dimensional phenomena characterized by cumulative deprivation where one form of deprivation leads to another. The various dimensions of urban poverty include: income, health, education, tenure insecurity, personal insecurity and disempowerment among others. The multi-faceted nature of urban poverty is also noted in Tizita (2001). Accordingly, the various features of poverty that characterize most of the urban poor are: unemployment, lack of wage employment, failure to send children to school, lack of access to health facilities, sanitation, potable water, electric services and good housing. Above all, lack of employment is one of the greatest economic challenges that incapacitate poor people to meet their basic needs.

A study by Christensen (2004) examined the evolution of urban poverty. On the causes of urban poverty. Christensen's findings point to such factors as high urban population growth. rural-urban migration and also migration from small to big towns. Rural-urban migration is a coping mechanism devised by the rural poor, but migration adds to the existing burden of urban poverty. Unlike findings elsewhere in sub-Saharan Africa, the results of this study indicate that the rate of urban poverty is strikingly similar to that of rural poverty in Ethiopia. Although the service sector has shown some growth in Ethiopia, this study did not show that the increased potential for employment has translated into a decline in urban poverty. By contrast, other research (Dessalegn and Aklilu, 2003) has shown a small increase in employment in the service sector between 1994 and 1999 (from 37.6 percent to 43.7 percent). Much of the increase came from the trade, hotel and restaurant Sub-sector (Kedir, 2005).

All in all, the crucial determinants of poverty among the majority of mega-cities, and big urban areas and nowadays even to medium towns of the third world can be summarized as: low levels of physical and human capital. unequal distribution of productive assets, inadequate access to social services, high fertility especially amongst the urban poor, and urban development strategies which are biased against labor absorption (Oberia, 1993).

2.3. Review of Related Literature: Empirical Evidence

It is true that urban areas are hopes of life for they are centers of wealth, income, commerce. trade and above all sources of luxury. On the contrary, urban areas are also challenges to many. One of the many challenges it brought is urban poverty. In the Ethiopian case, though the challenge is daunting, it is unfortunate that the subject of urban poverty has not been given the due attention it deserves. While a number of studies have been conducted in rural areas there is hardly any concern and debate on urban poverty. This is so because the majority of the people reside in rural areas and various causes of poverty such as drought, production failure or rain are directly associated with the life of the rural poor. The present government, itself, has intentionally launched policies/ programs biased towards the rural areas and have paid little attention to urban areas. This part discusses some practical studies of poverty in different times across different periods.

Urbanization and Poverty: Nowadays, the rapidly growing urban population of developing nations poses unprecedented challenges for the national and municipal policymakers. 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 (Dessalegn and Aklilu, 2002).

The exodus rural-urban migration either by pull or push, economic or social factors play pivotal roles in the escalation of urban poverty in Ethiopia. This migration coupled with the natural increase in population within the urban area has started to impose a pervasive challenge to the commendable development of the urban centers. The urban population in Ethiopia is growing at a rate of around 6 percent per year (EEA/EEPRI, 2004/05). In 1994, for instance, the proportion of the urban population was 13.7 percent, which increased to 15.5 percent in 2003 and more than 16 percent presently. This figure could go up to17.5 and 29.7 percent in 2015 and 2030 respectively (CSA, 2003).

Table 2 Urbanization Trends in Ethiopia

Year	1980	1985	1990	1995	2000	2003	2005
Population in millions	10.5	11.6	12.7	13.9	14.9	15.6	16.2

Source: *EEA/EEPRI 2004/05*

Increasing Urbanization pauses a major issue of concern not only in the primate city- Addis Ababa but is leading to daunting challenges among the secondary cities such as Bahir Dar, Dire Dawa, Awassa, Mekelle, Jimma and presently even to the medium and small towns of the country. Given the high rural - urban migration and fertility rate and natural increase within the urban area, the structure of the population is largely dominated by higher proportions of the lower

age group. Out of the total population, 44 percent were under 15 and 3 percent more than 64 years (CSA, 2003).

This implies that the burden of the dependency ratio for the 53 percent active labor force (aged 15- 64) would be 88 percent. The young population, therefore, dominates the main feature of the Ethiopian urban population with the children (0-14 years) and youth (15-24 years) together accounting for almost 65 present of the total by 2000 (CSA, 2003).

The visible poverty signs are everywhere-malnourished citizens with dirty and torn clothes, beggars, shanty homes, scattered garbage, small items exchange sites, idle persons and the like. Those poverty symptoms are likely to aggravate with increased urbanization that the country is undergoing (EEA/EEPRI, 2004/05).

Economic Dynamism and Poverty: Most literature attest that major urban areas in developed countries have their origin in coal mining, mineral exploration, manufacturing activities and recreation and /or tourism sites. They serve as center of dynamic economic activity and are believed to play great roles in the socio-economic development process of the nation. On the contrary they are also sources of modern socioeconomic problems, which include unemployment, homelessness, crime, destitution and exclusion.

In Ethiopia, history tells that the origins of urban areas in most of the time are administrative, military and/ or political purposes. Presently, secondary cities or medium towns of the country are developed mainly as a result of being chosen as regional or zonal administration seat without taking care of their socio-economic dynamism. Whenever there is a change in administrative set up, these urban centers either die quickly or replaced by new ones. The problem for the sporadic or continuous aggravation of urban poverty in Ethiopia, could therefore, be explained partly by lack of socio- economic dynamism. This is not, however, to disregard city functions .Each city or town in Ethiopia though with different degrees of functions have their own contributions and challenges to the residents.

Because of the lack of adequate economic dynamism within the urban areas, industrious entrepreneurship is not sufficiently developed in Ethiopia. In a typical urban center, those in the relatively high- income group are few in number and comprise successful businesspersons and

/or those with substantial physical asset such as land and house (EEA/EEPRI. 2004/05). Nowadays, in Ethiopia, urban poverty is manifested in a number of ways ranging from stark destitution observable at every corner of urban centers to somewhat hidden deprivations that are not easily discernable to causal and frontline observers.

Chronic Poverty: Abbi and Andrew (2003) analyzed the status of chronic poverty in urban Ethiopia. They conducted their study in three waves of panel data set on 1500 households collected through the Ethiopian Urban Household Surveys from 1994 to 1997. By making use of both descriptive and econometric evidence, their study showed the extent of chronic and transitory poverty in urban Ethiopia identified the characteristics of the poor and determinants that explain chronic and transitory poverty. They examined the robustness of the pattern and trends of poverty suggested by the quantitative evidence by linking the subjective evaluation of welfare changes by households between two time periods. They conducted the study in the primate city -Addis Ababa and other secondary cities- Bahir Dar, Nazereth, Dire Dawa, Mekelle, Awassa, Jimma, and Dessie.

They analyzed poverty trends between 1994 and 1997 in the average welfare of 1045(whereby 555 are the rejected cases) household in the panel as measured by real total expenditure per adult equivalent. They used total household consumption expenditure as a best proxy for analysis because they found out that, in their survey, income has been reported by a much smaller number of households.

Using this, they found out that during 1994-1997, median consumption expenditure per adult declined for the total sample from 100.46 Ethiopian Birr (ETB) to 73.4 Birr. This decline, according to their study, is evident in all regions, is monotonic over the period, and is particularly apparent between 1994 and 1995. Overall, their result suggested that household welfare deteriorated in urban Ethiopia between the years considered.

In the second and third waves of their study (1995 &1997) Abbi and Andrew asked households questions related to changes in household income, expenditure, and living standards since 1994 interview. The three questions asked to households were (a) how has the households income

changed since 1994 interview? (b) how has households expenditure on basic needs changed since 1994 interview? and (c) to what extent did the living standard of the households change since 1994 interview? The responses to these questions, though individual perceptions, match to that of the quantitative evidence on poverty transitions between any two periods.

In general, their study confirm that 40 percent of the case indicated that there is a significant match between the change depicted by the quantitative 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 evaluations responses based on income and standard of living opposed to expenditure. Over all, the finding showed an increase in the incidence of urban poverty.

Bigsten et al (2003) reported poverty trends using consumption poverty lines on urban Ethiopia between 1994 and 1997 and found that the consumption level of decreases in the years considered. For all in the considered urban areas the study showed an increase in poverty from 1995 to 1997. Likewise, in the case of Tadesse (1998), the trends vary by city. Between 1994 and 1995, poverty declined in Addis Ababa, Awassa, Bahir Dar, and Jimma while it increased in Dessie, Dire Dawa, and Mekelle.

Consumption and Poverty: A study by the government of Ethiopia suggested that in the period 1995/96 to 1999/2000, poverty, based on consumption measure, increased in urban areas by above 11 percent. This study is consistent with the findings of another study (Abbi and Andrew, 2003), which has household survey information covering the period from 1994 to 1997 as stated above. Trends, which show poverty head count indices and food poverty count indices are shown below.

Table 3 a Trends in Poverty Head Count Indices (P_0)

	Years		
Location	1995/96	1999/00	Percentage Change
Urban	33.3	37.0	11.1
Rural	47	45	-4.2
Total	45.5	42	-6.7

Table 3 b Trends in Food Poverty Head Count Indices (P_0)

Urban	32	47	43.7
Rural	47	41	-12.6
Total	45	42	-6.7

Source: *MOFED (2002) Poverty Profile of Ethiopia in EEA/EEPRI 2004/05*

Tesfaye (2004) also found that there was a 6 percent decline in mean consumption per adult equivalent between 1994 and 2000 for urban Ethiopia.

Table 4 Mean Consumption per Adult Equivalent (in Birr)

Year	1994	2000	Change (%)
Urban Ethiopia	150.78	141.99	-0.058
Addis Ababa	148.90	144.88	-0.027
Awassa	162.30	187.77	0.157
Bahir Dar	169.10	134.22	-0.206
Dessie	151.04	113.63	-0.248
Dire Dawa	191.00	141.69	-0.258
Jimma	131.09	106.27	-0.189
Mekelle	109.31	154.19	0.411

Source: *Tesfaye (2004)*

Tesfaye's (2004) analysis, using panel data collected by the Economics Department of Addis Ababa University, has generated different results from the analysis made by MoFED based on the 1999/2000 household income, consumption & expenditures data. While both analyses confirm that poverty has generally increased in urban areas the level of changes in poverty incidence across different towns made by the two studies is not consistent. The type of methodology adopted and the data analyzed could partly explain this divergence.

Using micro level panel data from villages in rural Ethiopia, Dercon (2001) analyzed the determinants of growth changes in poverty during the initial phases of economic reform (1989-1995) making use of a standard decomposition of income and poverty changes. The study revealed the raise and fall of consumption and poverty level respectively during the period under

consideration. A study by Ministry of Finance and Economic Development (MoFED. 2002) based on 1999/2000 Household Income and Consumption Expenditure (HICE) and welfare monitoring survey indicated that incidence of poverty is higher in rural than urban areas with poverty head count ratio of 45.4 and 36.9 percent respectively. The point here is although rural poverty is higher than urban, urban poverty by itself is significant.

A good understanding of the correlates of urban poverty is useful since it helps us to design appropriate polices for urban poverty reduction. There are, of course, different correlates of urban poverty that fall within the domains of economic, social, political and nature spheres.

Access to Food and Poverty: Access to adequate food and nutrition is one of the basic correlates of urban poverty in any country. In Ethiopia, many households in urban areas suffer from perpetual food insecurity as shown by high prevalence of malnutrition, which is especially devastating for children and pregnants. The poverty profile of Ethiopia prepared by the government indicates how food poverty situation in urban areas is deteriorating. Table five clarifies the situation more.

Table 5 Trends in Real Consumption Expenditure and Calorie Intake

Year	1995/96			1999/00			Percentage change over 1995/96		
Items	Rural	Urban	National	Rural	Urban	National	Rural	Urban	National
Real Food Expenditure	577	790	607	609	631	612	5.55	-20	0.82
Real food expenditure per adult	697	947	732	774	767	773	11.05	-19	5.60
Kcal per Day per Adult	1938	2050	1954	2723	1861	2606	40.51	-9.22	33.37
Share of food in total expenditure	0.6	0.56	0.60	0.67	0.53	0.65	11.67	-5.36	8.33

Source: MoFED (2002)

Access to food has as shown above deteriorated in urban areas as measured by real food expenditure per capital and/or adult, which also resulted into decline in calorie consumption per day per adult. A closer examination of the above table reveals that the percentage change of food consumption in the urban areas is negative in all the cases whereas that of the rural areas is positive .This tells that the consumption expenditure of the urban dwellers are in bad scenario.

Education and Poverty: Most empirical studies undertaken on poverty concluded that education has a negative impact though the magnitude is different depending on the socioeconomic condition in which the study is undertaken. A remarkable correlation between poverty and level of education, is for example, observed in urban Ethiopia (Mekonnen, Bereket & Abebe, 2002). The study found out that the percentage of poor people significantly declines as the level of education of the household head increase. Their study illustrated the incidence of poverty among people who have never attended school which is 42 percent compared to people with college level and above education who have had one member to the poor population.

Existing educational services within urban areas are less equipped to meet the pressing demands for increased coverage and better quality. The impact of education on the development of an individual and of a country and the role it has with urban poverty is ascribed to the speed with which the student is able to absorb new ideas and to adopt himself to changing and often-unforeseen conditions (TGE, 1994) cited in Kebede (2004). The Development Assistance Group (DAG) noted that where as significant improvement has been achieved in terms of participation rates in some developing countries, the potential for human resource development in Ethiopia still remains questionable owing to the minimal progress associated with educational quality and retention. Although the coverage of education seems promising in urban Ethiopia today, the quality is still far from reality to make learners competitive for employment.

A study made by Clox (2003) finds out that in Ghana education of the head and spouses all had strong positive influences on the likelihood that a household was never poor. The spouses having been educated to primary level or the head to secondary level both had strong negative influences on the likelihood that the household was chronically poor. Djavad (2002) in Yared (2005) found

the effect of education for long-term poverty but for short-term poverty its effect was only significant with high school and above.

Age and Poverty: Mekonnen (2002) studied the determinates and dynamics of urban poverty in Ethiopia by using data on a panel of households drawn from the Ethiopian urban socio-economic survey conducted by the Economics Department of Addis Ababa University. The study used multivariate regression model to capture factors that determine changes in the standard of living and mobility of households in and out of poverty from the panel data. He employed total household expenditure per adult equivalent as the dependent variable in the model with the exogenously predetermined household characteristics as the explanatory variables. Grootaert (1997) in Garza (2001) studied determinants of poverty in Cote d'Ivore by using Probit model. He used the data from Cote d'Ivore living standards survey, which was conducted annually from 1985 to 1988 for analysis. He estimated the Probit model for both urban and rural areas separately. Both researchers (Mekonnen and Grootaert) found out that the probability to be poor decreases as the age of the household head increases.

Unemployment and Poverty: The 1994 population census, though late the time, estimated the rate of the overall unemployment in urban Ethiopia to be 22 percent in the age brackets 15-39 for which concentration of labor force is believed to be the highest. This accounts for the highest share testifying to the serious problems of consequences among which juvenile delinquency, increasing crime and violence, and higher number of street children and homeless people have become common features in many intermediate and bigger urban areas of Ethiopia. A study made by Dessalegn and Aklilu (2002) in urban Ethiopia witnessed the problem of unemployment to increase in the near foreseeable future. It is sad to mention that their study revealed the depressing vision in that the prospects for economic growth and improvements in the labor market are very poor. Further, the issue of job insecurity is high in urban Ethiopia. The same study obtained that most workers were dissatisfied with their jobs, income, their benefits and their employers. The little presence or absence of wage laws, unions and fair employment laws, based on their study, confirms the aggravation of unemployment in urban Ethiopia as well.

Unemployment is a major reason for low-income situation of the majority of the population of Ethiopia. The March (CSA, 1999) national labor survey unemployment levels show 8.02 percent

at the national level while it is 26.4 percent in urban and 5.14 percent in rural areas. Various factors can explain why unemployment level is generally high in urban areas. The primary reason is the fact that urban centers in Ethiopia have little economic dynamism and their economic base is largely services and trade. In the absence of industries EEA/EEPRI (2004/05) argued that the capacity of these areas are limited. The unemployment rate in urban Ethiopia includes a large section of well-educated persons. This is, perhaps, most young adults who complete 10 or 12 years of schooling but fail to pursue their studies further become automatically unemployed. In any given year, there is around 190,000 of them a figure rising over time (Abbi and Andrew, 2003).

With regard to the correlates of employment to urban poverty (Abbi and Andrew, 2003, Eyob and Mark, 2004, Mekonnen 2002) found that there is a negative and significant relationship between employment level of the household head and incidence of poverty.

Household Size and Poverty: Empirical literatures suggest that there is a negative correlation between households size and poverty. For instance, Djavad Salehi-Isfahanicite in Yared 2005 for Iran concludes that households with larger number of members tend to be poor. Likewise, Grootart for Cote d' Ivor, IFPRI for Malawi, Herrer for Peru, Garza for Mexico, Eyob and Harris for Eritrea, Nigatu, Mekonnen and Ethiopian Economic Association for Ethiopia also reached at similar conclusions.

Lawson et al (2003) analyzed poverty transitions and persistence in Uganda. The study used the Uganda National Household Survey conducted in 1999/2000.In the study, household movements relative to the poverty line were considered by means of a multivariate nominal Logit model. The study obtained that increase in household size had significant positive influence on the likelihood that household was chronically poor or fell into poverty.

Sex and Poverty: Garza examined the determinants of poverty in Mexico. The data used in the study came from the 1996 national survey of income and expenditure of households. A Logistic regression was estimated based on the data with the probability of a household being extremely poor as the dependent variable and a set of economic and demographic variables as the explanatory variables. Looking at the results of the Logistic regression the study obtained that

there is no evidence that female-headed households are more likely to be poor than male-headed households. Using a Logistic regression and the 1992 National Survey of Income and Expenditure, Cortes (1997) finds that the probability of being poor decreases by six percent if the household is headed by a woman. These studies are not in conformity with the Ethiopian case. A case in point will suffice to take the works of (Shewaye, 2002, Mekonnen, 2002) in which female-headed households are those who are the most affected and vulnerable groups in experiencing hard core urban poverty.

Income and Poverty: Urban poverty could also be determined by the income of individual. In Ethiopia, historical evidence tells that in most cases the family depends on a single breadwinner. This single breadwinner, 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 a yawing 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 (Mekonnen, 2002).

Health and Poverty: Health, without doubt, is a fundamental element in assessing the extent to which urban poverty prevails, simply because in the absence of proper health, the working force whether professional, skilled or trained can not have the capability and opportunity to do jobs effectively and efficiently. Efficiency of workers considerably depends on their health. Workers whose health is not good and who fall sick quite often can not do their job efficiently and thus their efficiency is bound to remain low (Somashakar, 2003). World Development Report 1993 cited in Somashaker (2003) explained that health plays immense contributions. According to him improved health contributes to economic growth in four ways: it reduces production losses caused by worker illness, it permits the use of natural resources that had been totally or nearly inaccessible because of disease, it increases the enrollment of children in schools and makes them better able to learn, and it frees for alternative uses resources that would otherwise have to be spent on treating illness. The economic gains are relatively greater for poor people, who are typical most handicapped by ill death and who stand to gain the most from the development of underutilized natural resources.

The above paragraph recalls the interpretation of two things: balanced nutrition and medical care. Improvements in the health of masses increase their productive capacity and leads to qualitative improvement in human capital. This, indeed, will have a visible effect on reducing poverty. Therefore, expenditures on health are important in building and maintaining a productive labor force as well as improving the lives of the people, the quality of society and welfare of the economy. In principle, expenditure on health takes the form of investment in medical knowledge in disease prevention, treatment and rehabilitation. But, the Ethiopian health policy cited in (Michael, 2004) irrespective of urban or rural areas focuses on elements such as preventive health care system, mass education on prevailing health problems, prevention of locally endemic diseases, and provision of essential diseases. It presupposes substantial resource inflows to the sector as well as trained manpower.

Michael adopted average odds of participation to analyze how households in different socioeconomic levels shared the benefits from public sectors expenditures on health. The study assumed that access to health service would increase a household welfare thereby reducing poverty. His findings indicated that households in the bottom quintile have managed to utilize health services relatively more than those in the upper expenditure intervals, which is, contrary to the commonly held assumptions.

Excepting the metropolitan-Addis Ababa, urban areas in Ethiopia are highly constrained by health services. Some of which include: lack of better organized health facilities, laboratories, medical schools, general hospitals, nursing schools, highly trained specialists and nursing aids, improved finance of medical services, private hospitals and clinics, free medical aid to the poor and so forth. In the little presence/ absence of these variables and coupled with poor sanitation in urban areas it is highly unlikely that productive forces residing in these areas lead healthy life and challenge the burden of urban poverty to a commendable manner.

Water and Poverty: Urban areas of Ethiopia are still constrained by sufficient quantity and quality of water, and adequate energy services. It becomes common that water related diseases like Giardia and Amoeba are affecting most people due in part to lack of pure water. The numbers of households who have tap water inside their home or compound are believed to be too small (AAWSA, 2000). In most cases, households either share pipes far from their homes or buy

drinking water from their neighbors at a much higher cost than the recommended rate. Worse still, in times of winter, specifically, in the months of April and May it is common to happen that households 'enjoy' lives without water for two to three days a week simply because of the absence of adequate supply of water (Debre Markos Water Service, 2002). Thus, although water is the second mandatory component for life next to air, households of urban Ethiopia face acute problems.

Energy and Poverty: With regard to energy provision, not the majority of urban dwellers obtain the required amount. Specially, the escalation of the present tariff made households a shift from using energy for cooking to buying of charcoal (Shewaye, 2002). This has, at least, brought two visible consequences. One is the price of wood gets high in which the poor could not afford to buy. Two, it leads to the indiscriminate cutting-off trees to sale for the purpose of fuel wood. This has again a bad consequence to the sustenance of nature and will have a direct/indirect effect to the well-being of the country as a whole.

The issue of housing tenure has become a crosscutting agenda of urban dwellers and is assumed to get as one of the indicators of urban poverty. The numbers of house owners are believed to be small. This is particularly true in the mega city of Addis Ababa and other secondary cities of the country. It is also getting attention in other medium towns of Ethiopia (Shewaye, 2002).

In general, urban poverty is increasing fast either in Ethiopia or other developing countries. This is simply because of the inability to identify the factors that account for the aggravation, design appropriate policy and fight against it squarely or is due in part to implementation failure.

Like most developing countries of the world, urban centers in Ethiopia, are generally, characterized, therefore, by a host of problems including high unemployment, inadequate housing stock, poor health services, insufficient education, inadequate water /sanitation facilities, poor solid waste collection & disposal, poor transportation, violence, crime, congestion, personal insecurity and overall insecure urban livelihood.

Chapter Three
Results and Discussion

3.1. Identifying the Poor

The food energy intake (FEI) approach is used in the identification of the poor from the non-poor. This is done based on a predetermined value expressed in terms of calorie intake equivalents.

In the identification of the poor from the non-poor the research used the food energy intake approach (FEI) and is preferred to the CBN based on the following premises. First, during the survey period (March 2006) the prices of all commodities in the country and the study area as well have increased drastically. This is not consistent with the prices of the previous years and hence could not clearly show the reality in the consumption expenditure behavior of the residents. For example, in the study area the price of a quintal of *teff* with first brand has been not more than 240 Birr for the last decade or so has become 340 Birr during which the survey was made. If only the surveyed time prices of all the commodities and other materials were taken and the poor were to be analyzed based on this, surely, the figure would be inflated and the result might be far-fetched from the prevailing reality. Second, a large number of residents, particularly, those who reside in the peripheries of the town have their own lands (who are urban farmers) do not buy cereals and have little expenditure for cereals for they consume from what they grow. This could mask the result if the study used the CBN method which values all costs in monetary terms. Third, the FEI is preferred to the CBN for the latter needs enumeration and quantification of basics and non-basics of different items in monetary terms.

The problem arises particularly in estimating the costs of non-basics. No doubt, Debre Markos is not an exception to this pitfall. It is not, however, to mean that all residents in the study area were not able to quantify their assets or commodities in monetary terms nor does they are always smart enough in telling commodities such as cereals in Kilograms.

Economists and development practitioners agree on the perplexities of getting error free method of setting poverty lines. For instance, the minimum calorie intake requirements for households (specifically for individuals) in a specified period, though popular, are still flawed with debates.

This is because households are composed of family members with different age and sex leading to differences in needs, consumption habits, and preferences. It is also true that the same level of income cannot serve equally the needs of households that are different in composition.

To minimize such problems scholars including development specialists have been busy probing for a number of alternatives among which the adult equivalent scale, which establishes on equivalence in the consumption of an adult, a child, and extra, is found to be the popular one. This requires estimation of household consumption expenditure in monetary value. I argue; however, that in Debre Markos where households consume both marketable and non-marketable goods, it is difficult to use equivalent scales generated from preferences revealed only from marketable goods. Therefore, instead of estimating the costs of consumption expenditure, the study used the quantities of bundles of items households consumed. To identify the poor households in Debre Markos the following six steps are used.

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

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

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

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

$$\frac{\sum_{i=1}^{260} x_i}{\sum_{i=1}^{260} y_i} = \mathbf{L} =$$ Amount in Kilograms or Litters of food items an individual consumed in a month

Where **Xi** is total baskets of different food items in kilograms or litters a household consumed in a month and **Y** is the family size of the surveyed household.

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

Step Five: The amount of kilograms an individual consumed in a day is again converted into calorie intake and is calibrated to the predetermined 2200 calorie per day per adult equivalent. The conversion factor for the mentioned food items is indicated in the table below.

Table 6 Calorie Contents of Different Food Items

Consumption Per 100 grams	Energy in Calorie	Consumption Per 100 grams	Energy in Calorie
Teff	355	Lentil	325
Wheat	340	Vegetable (Cabbage. Carrot)	75
Maize	344	Dry Pepper	73
Barely	370	Edible Oil	900
Potato	75	Cow Milk	79
Onion	38	Butter	700
Beans,Peas	310	Meat	626
		Sugar	375

Source: Food Consumption ECSA and Ethiopian Health and Nutrition Research Institute

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

Step Six: This is the last step the research used to get the number of poor and non-poor households in the study area. If **X** is total calorie intakes of a household in a day and **Y** is the family size of the surveyed household in the town, then calibrating the poverty line using the FEI international agreed figure -2200 calorie per day for an adult person as recommended by nutritionists, yields: -

1. $$\frac{\sum_{i=1}^{260} x_i}{\sum_{i=1}^{260} y_i} > 2200 \text{ Calorie} = 88 \text{ Households (above the poverty line)}$$

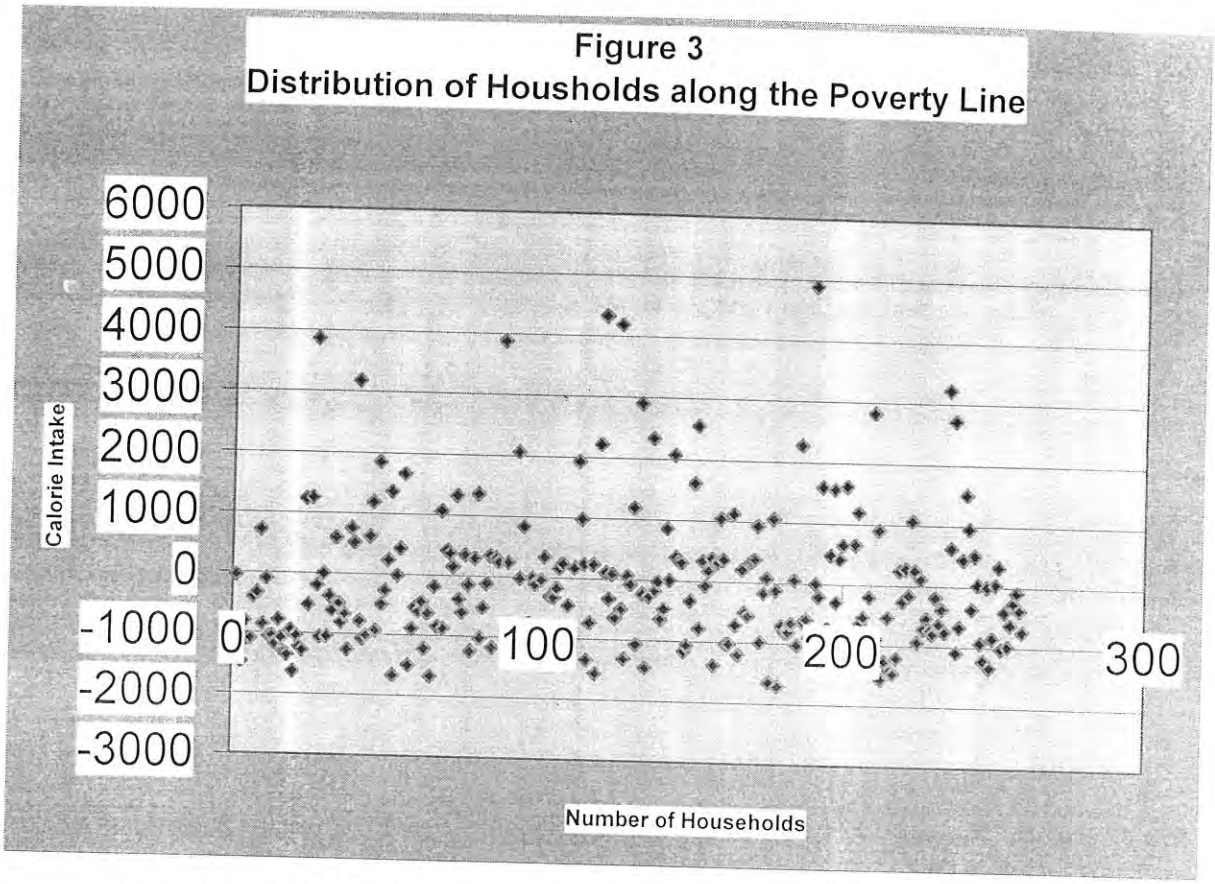
2. $$\frac{\sum_{i=1}^{260} x_i}{\sum_{i=1}^{260} y_i} < 2200 \text{ Calorie} = 172 \text{ Households (below the poverty line)}$$

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

1. Head Count: $P_0 = q/N = 172/260 = 0.66$
2. Poverty Gap: $P_1 = \frac{1}{N}\sum_{i=1}^{q} [Z - Yi] / Z = 1/260(54.225) = 0.21$
3. Severity Gap: $P_2 = \frac{1}{n}\sum_{i=1}^{q} \left(\frac{Z - Xi}{z}\right)^2 = 1/260(24.94) = 0.09$

The number of non-poor (~~in the~~ above poverty line) and poor (below the poverty line) households, according to the above poverty line is, therefore, 88 and 172 respectively. The following figure shows distribution of households along the poverty line. Zero value of the figure represents the poverty line-2200 calorie per day per adult equivalent. Households above and below zero value respectively tell the number of households who did and did not secure a

predetermined minimum energy requirement of 2200 calories per day per equivalent. In the figure it is clear to observe that a large number of the households are concentrated below the zero value signifying that most of them are food insecure. Extreme values are observed around 5000 and 1800 calorie in the above and below poverty lines in order.



Source: Graphed based on own survey result

3.2. Descriptive Analysis

In this section we discuss descriptive analysis of the data. Based on the above highlights this part analysis the data obtained from the surveyed kebeles by making use of descriptive statistics, such as percentages, ratios, mean, standard deviation, Chi-square tests, significance levels, t and F-tests.

A total of 260 household heads were surveyed in six kebeles (kebele 01, 03, 04, 05, 08 and 12) of the town and the results of the study revealed the following.

Table 7 Surveyed Kebeles

Name of the Kebele							
Poverty Level of Household	Kebele 01	Kebele 03	Kebele 04	Kebele 05	Kebele 08	Kebele 12	Total
Above PL	1	15	15	15	31	11	88
Percent	1.1%	17.0%	17.0%	17.0%	35.0%	12.5%	100%
Below PL	22	33	21	17	53	26	172
Percent	12.8%	19.2%	12.2%	9.9%	30.8%	15.1%	100%
Total	23	48	36	32	84	37	260
Percent	8.8%	18.5%	13.8%	12.3%	32.3%	14.10%	100%

***Source**: Own Survey and Computation*

**[1]

Proportional to population size 23, 48,36,32,84 and 37 households were drawn in order from kebele 01,03,04,05,08 and 12 of the town, which in total add up 260. Based the employed poverty line, the study founds out that only 88 households of the total population are above the poverty line and the rest 172 (around 66%) are below the poverty line. Looking the incidence of poverty status in each respective kebele, there are 22 (12.8), 33(19.2%), 21(12.2%), 17 (9.9%), 53(30.8%) and 26(15.1%) of households in kebele 01, 03, 04, 05, 08 and 12 respectively who live below the poverty line. It is surprising to find equal footings of poverty in three kebeles: kebele 03, 04, and 05, each with absolute value of 15(17.0%) for which they are above the poverty lines. However, a clear examination of the poverty status (in terms of below the poverty line) the figures in each of the respective kebeles are quite different. Even kebeles that have identical incidences of poverty in the above poverty line category (kebele 03,04 and 05) have been observed giving different results, which is 33 (19.2%), 21(12.2%) and 17 (9.9%). In aggregate terms a closer glance at the prevalence of poverty at each kebele attested that the number of households who live below the poverty line is nearly twice to that of those who live above. Extreme exception, to this is of course, that of kebele 01 in which the number of the poor people (households) are twenty two times to that of the number of the non-poor one. Kebele 03 has

* Significant at 99% confidence interval
** Significant at 95% confidence interval
*** Significant at 90% confidence interval

almost a fifty-fifty proportion of poor and non-poor, which implies that there are about 1.1 poor households in every one non-poor household member.

From the surveyed kebeles, Kebele 12 has relatively more non-poor households which accounts that there is one household below the poverty line for every 2 non-poor households. Cross-tabulating the data and looking at Pearson Chi-square revealed that prevalence of poverty is statistically significant at 95 confidence interval in the surveyed *kebeles*. In general, from the surveyed households one can clearly see that the highest and lowest level of poverty is experienced in kebele 01 and 12 of the town, respectively. A number of things could be suggested for the prevalence of differences in the status of poverty among the chosen kebeles and below is description of some variables that might reinforce the discussion.

3.2.1. Household Characteristics and Poverty

Age and Poverty

Some scholars argue that poverty increases at old age. This is because productivity of the individual decreases and the individual has few savings to compensate for the decrease of productivity and income. This is, of course, more likely to be the case in developing countries where savings are low because of low income and at the old age being mostly dependent.

Others contend that age is correlated with higher productivity and hence impacts welfare positively. A third view that could be worthy of note to see is that neither of the two approaches be correct. This is because the relationship between age and poverty might not be linear, as we would expect that incomes would be low at relatively young age, increases at middle age and then decreases again. Therefore, according to life theories we would expect to find that poverty is relatively high at young ages, decreases during middle age and then increases again at old age (Szekely, 1998) in Mekonnen(2002).

In Debre Markos, age of household was not found to be significant in linear terms. There have been similar findings by other authors though using different techniques (Arndeberg and Pederson, 2001 for Eritrea, Charlette Guenard, and Mesple for Cote Divior and Goiled and Ghazouni, 2001 for Tunisia).The research classified the age of the household into 18-30,31-40,41-60 ,above 60 and the results of the survey is indicated below.

Table 8 Age and Poverty

Age of Household Head	Poverty Level of the Household				Total
	Above PL		Below PL		
18-30	Count	6	Count	20	26
		23.1%		77%	100%
31-40	Count	15	Count	26	41
		36.6%		63%	100%
41-60	Count	48	Count	79	127
		37.8%		62.2%	100%
Above 60	Count	19	Count	47	66
		28.8%		71.2%	100%
Total	Count	88	Count	172	260
		33.8%		66.2%	100%

Source: *Own Survey and Computation*

Sex and poverty

Quite several studies have discussed the phenomena of feminizing poverty which assumed that the prevalence of poverty is higher to female-headed households than male-headed ones. Different scholars support this assumption by providing various justifications. This could be due to the presence of discrimination against women in the labor market, or it might be because women tend to have lower education than men do and therefore they are paid less salaries. Or else, they are in general deprived the opportunities of exercising when compared to men in many respects.

About thirty eight percent of female-headed households were included in the survey out of which 25 (28.4%) and 75 (43.6%) live above and below the poverty line respectively. The proportions of male-headed households who live above and below the poverty line are in order 63(71.6%) and 97(56.4%). A crude observation of the figure makes one aware that the number of male-

headed households who live below and above the poverty line is much higher in absolute terms than those of female-headed ones. This is not; however, a strong justification to say they face the hard core poverty or are leading decent life for the number of male –headed households covered in the survey are much higher than those of females by exactly 1.6 times. A better comparison would be to see the ratio of poverty sharing between the two sexes. In the above poverty like category there are 2.52 male-headed households for each female-headed ones. On the other hand in the below poverty line group there is one female-headed household in every 1.3 male-headed ones. This shows that the gap between female and male-headed households is only a matter of 0.3, which means that the incidence of poverty is relatively comparable in the below poverty line category if not identical.

Nevertheless, the gap between male and female-headed households in the above poverty line is relatively significant in that most of the male-headed households have escaped from the status of being in the below poverty line while the females are experiencing more poverty. This result is inconformity with most literatures, which assume that the probability of falling into poverty is more as females head a household. The probability that a household will be poor when headed by females is significant at 95 confidences interval. The study found out that being in a household of female-headed one is more vulnerable to the prevalence of poverty in Debre Markos than those of male headed ones.

Table 9 below shows the probability of being poor for male and female-headed households. We can see from the table that the probability for male and female headed households are different in that the figure for the latter is higher which attests that the probability of being poor is higher as females become heads of the family.

Table 9 Sex and Poverty

Poverty Level of the Household		Sex of the Household head		Total
		Male	Female	
Above PL	Count	63	25	88
		71.6%	28.4%	100%
Below PL	Count	97	75	172
		56.4%	43.6%	100.0 %
Total	Count	160	100	260
		61.5%	38.5%	100%

Source: Own Survey and Computation

**

Marital Status and Poverty

In poverty correlates analysis, marital status of the household head is an important constituent of the demographic variables. Economic theory and most empirical literatures support the notion that the chance of falling into poverty increases as one is married. This is due to when people get married household size will increase as new children are born and expenditures increase which in turn leads to searching for mechanisms of fulfilling additional needs and necessities for the family. On the other hand as one is married the probability of falling into poverty decreases, as there would be more labor forces in the household. Table ten elaborates the situation more.

Table 10 Marital Status and Poverty

Poverty level		Marital status of household head				
		Never married	Married	Divorced	Widowed	Total
Above PL	Count	13	59	4	12	88
		14.8%	67%	4.5%	13.6%	100%
Below PL	Count	21	94	16	41	172
		12.2%	54.7%	7.7%	20.4%	100%
Total	Count	34	153	20	53	260
		13.1%	58.8%	7.7%	20.4%	100%

Source: Own Survey and Computation

***

The above table demonstrates that 59 (67%) who are in the married category are found in the above poverty line. The never married heads in the above poverty line constitute 13(14.8%). The least number of household heads 4(4.5%) are the divorced ones. In the below poverty line status quite a big number of the poor, 94 (54.7%), constitutes the married group. Married households are many both in the above and below poverty line, which shows that there are no much significant differences in the way out or in of poverty as one is married. On the contrary, there is a big difference between the standards of living when one is widowed as the chance of falling into poverty is high. The table demonstrates that 41(20.4%) of the selected households live below the poverty line in which most of them were found to be females.

Cross tabulating the data results in the marital status of the household head significant impact on poverty at 90 percent confidence interval. Marital status is therefore an important determinant of poverty in Debre Markos.

Religion and Poverty

In Debre Markos the effect of religion denomination on poverty is found to be insignificant in any of the confidence intervals. This shows that the impact of religion on the well-being of the society neither favors nor discourages people to follow suit their faith. Orthodox Christian (98.1%) takes the lion's share of the religion, second Islamic (1.2%) and third Protestant (0.8%). Ninety six (96.6%) and 98.8% of the above and below poverty line group constitute Orthodox Christian followers which signifies that both the poor and non-poor groups are the Orthodox followers as there are no any other significant religion followers. Only 1 (1.1%), 1(0.6) and 2(2.3%) and 1(0.6) are found to be Protestant and Islamic believers in the above and below poverty line groups. Though small/insignificant the number is, it is surprising to encounter, the same number of Islamic and Protestant followers in the below poverty line groups each with 1 (0.6%).

Table 11 Religion Denominations and Poverty

Poverty Level of Household		Religion Denomination			Total
		Orthodox	Protestant	Islamic	
Above PL	Count	85	1	2	88
		96.6%	1. %	2.3%	100%
Below PL	Count	170	1	1	172
		98.8%	0.6%	0.6%	100%
Total	Count	255	2	3	260
		98.1%	0.8%	1.2%	100%

***Source**: Own Survey and Computation*

Ethnicity and Poverty

Ethnic group was found to be insignificant variable at any of 1%, 5% or 10% confidence levels. About 98% of the *Amhara* households are reported to be above the poverty line. But the problem is that there are no other dominant ethnic groups which can compete this figure and the 98% of the households being above the poverty line is not just because they are almost all non-poor but justified that there are no other ethnic groups. Similarity, the below poverty line data confirms that 96.5% of the surveyed population fall in the poverty line. This shows that there is a one to one correspondence between the poor and non-poor households in Debre Markos. A household from *Amhara* has more and at the same times less probability of being in poverty than non-*Amhara* households, keeping all other things constant.

Table twelve reports the probabilities for the two ethnic categories -*Amhara* and non-*Amhara* households. It is clear from the table that being from the *Amhara* ethnic group decreases and at same time increases the probability of being in poor or non-poor. None of the confidence intervals (1%, 5%, and 10%) were significant in explaining the prevalence of poverty in the study area. It is thus important to note that ethnic group plays no role in affecting the status of poverty. This may be due to the town is dominated by an *Amhara* society.

However, economic theory, different historical findings, and empirical literatures believe and found that diversified ethnics with multifaceted culture in a given area do have paramount contributions to the reduction or increment of poverty. Optimistically speaking, it paves the opportunity for competition, ensuring efficiency and overall development of the given area. The fact that this study rejects the significance of ethnicity upon poverty may not be taken for granted.

Instead, it could be because of the presence of a monolingual society that hampers the development of the town for long period time holding all other things constant.

Table 12 Ethnic Group and Poverty

Poverty Level of Household		Ethnic Group				Total
		Amhara	*Tigrie*	*Oromo*	Other	
Above PL	Count	86	2	0	0	88
		97.7%	2.3%	0%	0%	100%
Below PL	Count	166	2	3	1	172
		96.5%	1.2%	1.7%	0.6 %	100%
Total	Count	252	4	3	1	260
		96.9%	1.5%	1.2%	0.4 %	100%

***Source**: Own Survey and Computation*

Household Size and Poverty

Large households tend to associate with poverty (World Bank 1991 a, b), Lanjaw, and Ravallion (1994). The effect of household size on household well- being very much depends up on the degree of rivalry in consumption among household members. All consumption in the family is public so that every marginal increase in consumption benefits all household members. An example to this will suffice to introduce/ provide drinking water.

In the case of Debre Markos the study found that household size is significant in explaining poverty which is to mean that there is significant relationship between household size and poverty. Except household size of 1-2, the percentage of poverty experience in household size of 3-4, 5-6 and more than six were found to be almost similar. They account for 27.5%, 29.2%, and 29.8% in order. It is worth mentioning that as the household size increases, although slight the difference, the status of poverty increase in the same fashion as well. A case in point will suffice to see family sizes of 5-6 and more than six. On the contrary, households with small family sizes experience less poverty. Cross checking the results from the survey gives that household sizes of 1-2 experience the least (13.5%).

Table 13 Household Size and Poverty

Poverty Level of Households		Household Size				
		1-2	3-4	5-6	More than 6	Total
Above PL	Count	13	30	15	30	88
		14.8%	34.1%	17%	34.1%	100%
Below PL	Count	23	47	50	51	171
		13,5%	27.5%	29.2%	29.8%	100%
Total	Count	36	77	65	81	259
		13.9%	29.7%	25.1%	31.3%	100%

Source: Own Survey and Computation

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Productive People and Poverty

In developing countries, often times, not all household members of a given family are under normal circumstance productive. There are some who are dependent either because they are too young to be employed, retired, or are unable to participate because of disability .It is, therefore, imperative that knowing the number of productive citizens within a family and the way out of poverty is very much contingent upon these household members. A priori knowledge tells us that the more economically active household members in a family, ceterus paribus, the less likely the family falls into poverty.

In this particular study the number of productive family members is divided into five groups: 0, 1-2, 3-4, 5-6, and more than six. Based on the classifications the research tried to see number of productive individuals in a household and their explaining powers upon poverty.

Table 14 Productive Family Members and Poverty

Poverty Level of the Household		No of productive family members					Total
		0	1-2	3-4	5-6	More than 6	
Above PL	Count	19	26	27	10	6	88
		21.6%	29.5%	30.7%	11,.%	6.8%	100%
Below PL	Count	32	73	50	9	7	171
		187%.	42.7%	29.2%	5.3%	4.1%	100%
Total	Count	51	99	77	19	13	259
		19.7%	38.2%	29.7%	7.3%	5%	100%

Source: Own Survey and Computation

The highest and lowest percentage share of productive labor force in the above poverty line account for 27 (30.7%) and, 6 (6.8%)which are found in the number of productive ranges of 3-4 and more than six that of the below poverty line are 73(42.7%)and 7(4.1%) in the ranges of 1-2 and more than six. In general, from a total of 259 households (1 missed) none of the significant levels (1%, 5% or10%) have the power of explaining the presence of the productive citizens upon poverty within a family. Thus, number of productive population in a given household was found to be weak in explaining the incidences of poverty, keeping all other variables the same.

Dependency and Poverty

In developing countries the issue of dependency is increasingly getting critical problem. This is because the number of dependents is becoming high in number. In Ethiopia, the youth (below 14 years of age) on average constitute fifty percent of the total population. The old, though not as many as the youth are not small. Thus, the dependents, which constitute the youth and old, are the real burdens in a given household in particular and the country in general. Recently, the dependency ratio of the country is around 88.6 which in effect has a big implication for the country (EEA, 2004/05).

Like the number of productive household members discussed above, numbers of dependents in the household were found to affect the prevalence of poverty insignificantly. Analyzing further the age ranges of dependents within a family proves that whether a dependent is in the category of infant, children, teenager, or old age doesn't matter for the prevalence of poverty in the town. They are found to be weak variables in explaining poverty incidence in the town. Of course care should be taken into account not to dismiss some restriction upon the explaining power of ages of the dependents in the household.

Table 15 Dependency and Poverty

Poverty Level		No of dependents in the household					Total
		0	1	2	3	More than 3	
Above PL	Count	26	17	19	9	17	88
		29.5%	19.3%	21.6%	10.2%	19.3%	100%
Below PL	Below PL	42	29	42	32	27	172
		24.4%	17%	24.4%	18.6%	15.7%	100%
Total	Count	68	46	61	41	44	260
		26.2%	17%	23.5%	15.8%	16.9%	100%

Source: Own Survey and Computation

Interestingly; however, the number of dependents outsides the household (who live away from household head homes) was found significantly affecting the incidence of poverty at 95 % confidence interval. Disaggregating the data into above and below poverty line gives the highest and lowest share of dependents outside the household to be 66% (58), 2.3 % (2) and 75.3% (128) and 1.8% (3) in order. This shows that as the number of outside dependent family members decreases, say as far as zero, the incidence of poverty decreases. Similarly, as the numbers of outside household members are large, the probability of the household to fall below the poverty line or be away from the well-off groups increases by a large number. This is in line with many literatures, which assure, that those households who have many dependants outside their home experience more poverty than those who have not. A good point to mention, here is households who educate their daughters/sons out of their surroundings (most likely universities) experience more poverty.

Table 16 Dependents outside the Household and Poverty

Poverty Level of the Household		Number of dependents outside the household					Total
		0	2	4	6	8 and more	
Above PL	Cot	58	10	10	8	2	88
		66%	11.4%	11.4%	9.1%	2.3%	100%
Below PL	Cot	128	16	15	3	8	170
		75.3%	9.4%	8.8%	1.8%	4.7%	100%
Total	Cot	186	26	25	11	10	258
		72.1%	10.1%	9.7%	4.3%	3.9%	100%

*Source: Own Survey and Computation***

3.2.2. Education and Poverty

Education increases the stock of human capital which in turn increases labor productivity and wages. Since labor is by far the most important asset of the poor, increasing education of the poor will tend to reduce poverty. There is thus a generalized consensus that education is negatively and significantly correlated with poverty. We might think of low education as causes of poverty. In fact there seems to be a vicious circle of poverty in that low education leads to poverty and poverty leads to low education .Our interest is not to discuss the vicious circle of poverty but to see the effect of education on poverty.

Szekely (1998) and Cortes (1997) found that education is negatively correlated with poverty in Mexico. In fact for Szekely education is found to be the single most important factor in explaining poverty in the country.

The cross tabulation of the survey result showed that households head highest educational level has a significant effect on the probability of being poor or non- poor at 99% confidence interval. The highest educational level of the household head is divided into eight groups: illiterate, read and write only, primary (1-8), secondary (9-12), diploma holder, first degree holder, and above first degree holder. From this category the number and percentage share of diploma holders rank first, 21 (24%) followed by primary school completes in the above poverty line group. In the below poverty line; however, 49 (28.7%) and 3 (1.8%) which are the highest and lowest percentage share goes to the illiterate and above first-degree holders. No one in the above first-degree holder is available in the data testifying the fact that most of the residents are either illiterates, primary school completes or so. With the exception of secondary school (9-12) completes, the incidence of poverty was found increasing continuously as one moves away from first degree holder to illiterate ones. Similarly, the level of not being poor increases as one moves in the continuum line from illiterate to graduates. Thus, the explaining power of highest educational level of the household head is highly significant (99%) in Debere Markos (refer annex A, table 1).

Educational level of the household head often times determines income level of family. The study further inquired whether education has impact for life in the study area or not. The question forwarded to them was "does education have impact on your life standard?" Nearly ninety one

percent replayed yes and around nine say no. From the yes group of respondents 82(94.3%) have been living in the above poverty where as 153 (89%) are in the below poverty line group. This shows although most respondents were found to be illiterate, primary schools completes or so they are aware of the importance of education on the life standard of the people. While we know that education has a negative and significant effect on the welfare of the society the findings of this result proved correct and found it to be significant at 99% confidence interval in the town.

Table 17 Impact of Education

Poverty Level of Household		Does education have impact on your life standard?		Total
		Yes	No	
Above PL	Count	82	5	87
		94.3%	5.7%	100%
Below PL	Count	153	19	172
		89%	11%	100%
Total	Count	235	24	259
		90.7%	9.3%	100%

***Source**: Own Survey and Computation **

From economic history we are familiar with the impact of education, more specifically, of human capital as a multiplier effect on the life standard of households. Taking this into account six basic alternatives were provided for household heads on how they see the impact of education on living standards. The choices included were: getting secure jobs, obtain commendable salary, educate children properly, increase saving habits, and develop entrepreneurship and others. Of these alternatives develop entrepreneurship habits took 68 (64%) and get secure jobs 65(65.2%) as the second in aggregate terms.

Disaggregating the value produces 29 (33.4%) and 39(22.8%) and this is respondents' conviction that education does develop entrepreneurship in the above and below poverty line respectively. Likewise, 22(25.3%) in the above poverty line and 43(25%) in the below poverty line

respectively believe that education has a positive impact for getting secure jobs. The overall impact of education based on the criteria chosen is found significant explanatory variable of poverty.

3.2.3. Employment and Poverty

Employment has a high and negative correlation with poverty because employment which requires low amounts of capital, either human or physical can be related with low earnings and therefore with higher poverty rates. Out of the 260 surveyed households, it is good to get that 88.8 %(231) are employed while the rest being unemployed. Disappointingly enough, though most of them were employed they couldn't escape from the status of poor. For each unemployed individual above the poverty line there are 16.6 employed individuals which seem to invalidate the dominance of poverty in the town. This is because it appears that if almost all are employed, the probability of being poor will be null. A careful examination such as the type of occupation the household heads are engaged, their basic salaries, or monthly incomes among other things should be additional grounds upon which an individual should be treated. It is not only a matter of being employed or not that suffice one to be in the poor or non-poor category. The following table simplifies the result more.

Table 18 Employment Status and Poverty

Poverty Level/Line of the Household		Status of employment		
		Employed	Unemployed	Total
Above PL	Count	83	5	88
		94.3%	5.7%	100%
Below PL	Count	148	24	172
		86%	14%	100%
Total	Count	231	29	260
		88.8%	11.2%	100%

Source: Own Survey and Computation

**

It is also paradoxical to see from the result that 5.7 %(5) of unemployed households fall above the poverty line (in the non-poor group). This could be due to the fact that a household may have previous accumulated assets, savings or could be remitted by any body else so that fortunately the

household is categorized as non-poor where in fact it may not. One of the weaknesses of the poverty line in the classification of households as poor and non-poor is it does not question where the source of income of the household is; it only based its assumption on consumption expenditure (both basic and non-basics) regardless of the source.

In the below poverty line the status of employment shows that for each unemployed household head there are six employed people. The point here is, though the employed people are large in number they could not move away from the poverty trap (absolute poverty). The fundamental question that should be forwarded now is, therefore, why a large number of employed household heads could not escape from poverty. This perhaps will invite us to look deep into the main occupations of the household heads. Employed household heads were further interviewed to answer the question "What is your main occupation?" Based on this question a total of 255 respondents (5 missed) have provided their responses and the results are discussed below.

A large number of the household heads whether below or above the poverty line are engaged in self-employed /self-account works. They account for 72(43%) of the surveyed households. Theoretically, when an individual is employed, the probability that she /he would fall into poverty decreases. The result, however, is not in tandem with theory. A reconciliation idea for this would be to see further the income earning capacity of main activity. Because it could be the absence of sufficient rewarding (commonly in terms of income) that though household heads are engaged could not overcome the way out of poverty. In most cases, the self-employed people are the petty traders (*Guilt,* 14.8%), particularly, left to the women who in no way can get sufficient income to move out of poverty. Only government and nongovernmental organization (NGO) workers could have potentials to move away from poverty yet their number is insignificant in the town.

Whichever the type of main occupations the household heads engaged in, the Chi-square test showed that the main occupations of household heads currently engaged is significant at 95 % confidence interval. A remarkable amount of households would join the above poverty line group provided that the self-employed /account earning capacity of individuals is increased tremendously since a large number of the household heads are found in this category. Because the self-account household heads are big it is wise to look further into as to which types of self-

employed business are they engaged in. The study divided own-account businesses into: petty trade (*Guilt*), trade, wood/metal work, hotel service, sale of local drinks, sale of foods and handcrafts such as embroidery and pottery.

Table 19 Main Occupations and Poverty

Poverty Line of the Household		What is your main occupation?						
		Self-account	Govt	Private	NGO	Pensio-ner	Unemployed	Total
Above PL	Count	30	26	10	6	11	5	88
		34.1%	29.5%	11.4%	6.8%	12.5%	5.7%	100%
Total	Count	72	27	11	5	32	20	167
		43.1%	16.2%	6.6%	3%	19.2%	12%	100%
	Count	102	53	21	11	43	25	255
		40%	20.8%	8.2%	4.3%	16.9%	9.8%	100%

Source: *Own Survey and Computation*

*

Out of 88 respondents who are above the poverty line, 30(34%) are engaged in self- accounts (petty-trade, trade, metal/wood works, hotel service, preparing and sale of local drinks, sale of food, handicraft- embroidery and pottery). The petty-trade, and trade activities stood first and second from these categories (14.8%) and 13.6%), in order. It is encouraging to note that the number of households who are engaged in trade activities is by far a big number when contrasted with other businesses. However, it is true from economic theory that unless trade is complemented with adequate services or manufacturing activities, it is unlikely that those economies of scales for the town be in good position. Besides, since the linkage of trade is too loose or not at all with production activities in the town, it has not produced any commendable result.

In both cases, the petty-traders take the lion share of the status of poverty (13.4% and 13.6 for the below and above poverty line). In the above poverty category a comparison of the number of petty-traders and normal traders yields 1.08 which means that for every 1.08 household heads

engaged in petty trades there is 1 trader thus, one can conclude that the petty trade and normal traders are nearly uniformly distributed across the town. Coming into the below poverty line; however, yields that for each household head engaged in normal trade (licensed) there are 1.9 who are working in petty trades which signifies that petty traders are the most vulnerable groups of households to poverty in Debre Markos.

The other classification of main occupations is that of the not self-employed group which comprises of 51(58.0%) and 73 (44.5%) in the above and below poverty line. This category, the non self-employed one is, a pool of government, private, &NGOs. In principle, in Ethiopian case, a government or self-employed individuals are supposed to lead decent life. This principle; nonetheless, doesn't go in harmony with the case of Debre Markos town. This is so because although most of them, 51 (58%) are above poverty line, the figure as regards to the below poverty line is 73(44.5%). The Chi-square test analyses whether the type of self-account work is important in the area and it is found out that self-account work is significant at 95% confidence interval (refer annex B table 2).

3.2.4. Unemployment and Poverty

Nowadays the issue of unemployment has become crosscutting agenda. It has a direct and multiplier effect on the well-being and poverty status of an individual or a household. It has also psychological repercussions. The number of unemployed individuals in a household, ceterus paribus, will affect the welfare of the family. It is argued many times that the well-off family groups usually have few or no unemployed members in their households.

The number of unemployed individuals in a household were divided in this research into five groups as: zero, one to two, three to four, five to six and more than six. A total of 258 households were interviewed (2 responses missed) out of which more than 50%, specifically (53.8%), of the household heads reported to have no unemployed member in their family. This is a good implication by itself in that as the number of unemployed members of households in household decreases, even goes as far as zero, the probability that a household faces poverty will decrease, keeping all other things constant. Looking the results of the survey shows that albeit there are 86 members in the category of zero, they are still below the poverty lines .In theoretical terms, if

there are no unemployed members in a household which is by implication that all are employed the probability that a household will face poverty could be least if not none at all. The results of the survey, nevertheless, reinforces this argument except zero number of unemployed persons who couldn't escape from being poor or join the category of the non-poor group. The effects of number of unemployed individuals in a household on poverty was tested using a Pearson Chi-squire and found out that it has no significant outcome in any of the significant levels (99%, 95% or 90%).

Table 20 Unemployed Family Members and Poverty

Poverty Level of Household		No of unemployed family members					Total
		0	1-2	3-4	5-6	More than 6	
Above PL	Count	52	22	12	1	1	88
		59.1%	25%	13.6%	1.1%	1.1%	100%
Below PL	Count	86	68	11	3	1	170
		50.6%	40%	6.5%	1.8%	0.6%	100%
Total	Count	138	90	23	4	2	258
		53.5%	34.9%	8.9%	1.6%	0.8%	100%

Source: Own Survey and Computation

3.2.5. Income and Poverty

Holding other variables constant, there is no need to debate that income directly or indirectly dictates the well /bad being of an individual .It has, indeed, a multiplier effect on the living standard of people and as a result, many countries still use income as a single most important proxy of poverty.

Considering this, the study took average incomes of a household per month in Birr to see whether it has correlates with poverty or not. The monthly income of households was divided as follows: below 100, 100-299, 300-399, 400-599, 600-799, 800-999, 1000-1299, 130-1499, 1500-1699,1700-1999,and 2000 and above. The number of the highest and lowest average monthly income of the households, according to the survey result, is respectively as 20(7.7%) and 22(8.5%) with more concentration found in the ranges of 100-199 Birr (16.5%). From this we can

deduce that 22 (25%) out of 88(100%) who were identified as non-poor are found in the monthly earning category of 1000-1299 Birr (refer annex C table 3).

The most vulnerable groups of households who are below the poverty line are found in the income category of 100-199 and 200-299 for which their number is found to be 37 (21.5%) and 33 (19.2%) testifying the assumption that as the income of households gets large the probability that the household faces poverty is low. The chi-squire tests of this variable obtained that the explaining power of households monthly income upon poverty is found to be significant at 99% confidence interval. This significance shows that the monthly income of household, perhaps, may be the most important variable in affecting the prevalence of poverty in the town (refer annex C, table 3).

If income of households is highly significant in explaining the status of poverty in Debre Markos town, it goes without saying that categorization of their income is vital for further analysis. Based on a priori knowledge and many surveys conducted in Ethiopia, the monthly average incomes of households are divided in this research as upper income (more than 1500 birr), middle income (800-1500), lower income (400-799), and extremely lower income (below 399). Based on this classification the number of households in the survey was found to be 17 (19.3%), 36(41%), 16(18.2%), and 19(21.6%) as upper, middle, lower and extremely low income earners in the non-poor group in order. In a stark contrast, in the below poverty line, as one goes from upper income earners to extremely lower income earners, the probability of falling into poverty increases consistently. We can noticeably see that the number of households who are in the upper income group 13(7.6%) has reached to 98(57%) in the extremely lower group.

The monthly income categorization of households is tested whether it has an impact on the well being of households, particularly, of poverty in Debre Markos. The classification strongly supports that such type of income grouping really has an impact, significant at 99 confidence interval.

Table 21 Monthly Income Category of Household

Poverty Level of Household		Income category of the household				Total
		Upper (more than 1500)	Middle (800_1500)	Lower (400-799)	Extremely lower (below 399)	
Above PL	Count	17	36	16	19	88
		19.3%	40.9%	18.2%	21.6%	100%
Below PL	Count	13	15	46	98	172
		7.6%	8.7%	26.7%	57%	100%
Total	Count	30	51	62	117	260
		11.5%	19.6%	23.8%	45%	100%

***Source**: Own Survey and Computation*

*

In most developing countries, no exception for Ethiopia, households monthly income does not go in harmony with their expenditure, instead, expenditures outweigh incomes. This usually happens to create gaps between revenues and expenditures. Respondents were asked to tell whether their monthly income can cover their expenditure and the alternative responses provided to them were binary: yes or no.

Based on this, 124(47.7%) out of 260(100%) household heads responded yes in that their monthly income covered expenditures and the rest 136(52.3%), of course, bigger than the first figure say no, that their monthly income couldn't cover their expenditure which in effect results in huge gap between expenditure and income.

Disaggregating the total value into the above and below poverty line reveals that 62(70.5%) and 26 (29.5%) responded yes and no in the case of the above poverty line. Whereas 62 (36%) and 110 (64%) replied no in the below poverty group. A paradox that needs further analysis is the situation of the 62 households (36%) who replied yes yet they are still in the below poverty line. Although in theory, it seems justifiable to assume that households who do not have expenditure gaps in their life do not experience poverty, it is futile to argue that they could not fall into poverty. This is because their monthly income may not originally be large enough to satisfy the

international poverty line which is set as a minimum requirement. Absence of income-expenditure gap in one's household, therefore, does not necessarily guarantee one to join /move out of poverty.

Table 22 Monthly Income –Expenditure gap

Poverty Level of Household		Does the monthly income cover your monthly expenditure?		Total
		Yes	No	
Above PL	Count	62	26	88
		70.5%	29.5%	100%
Below PL	Count	62	110	172
		36%	64%	100%
Total	Count	124	136	260
		47.7%	52.3%	100%

Source: Own Survey and Computation

*

Analysis of monthly income-expenditure gap reveals that it has significant at 99% confidence interval in the status of poverty. Economists and development specialists argue that the monthly income-expenditure gap of households not only gives insights into how the incidence of poverty look like but also provides clues as to how they fill expenditure gaps if there really exists. For those who experience monthly income-expenditure gaps the study introduced a question "how do you fill your monthly income and expenditure gap?" The responses were divided into six categories: by sale of assets, support from relatives, leading meager life with the existing income, others, and no expenditure gap. From this classification, no household was observed sealing assets in the above poverty line category and most of them 15 (17%) were found to lead meager life with the prevailing one. Small number of households, 9 (10.2%) get support from relatives, more specifically, remittances from abroad. Similarly, in the below poverty line, households who were found leading a meager life with the prevailing income account for 70(40.7%) out of 172 (100%). It is also contradictory to note that households who don't have any option except leading meager life and who got support from relatives are grouped under the stats of non-poor. Despite some contradictions, it is found from the data that the monthly income-expenditure filling ways

of households does have a significant effect at 99% in determining the prevalence of poverty (in the town refer annex C table 4).

It is true that people do not give the exact figures when they are asked to provide their income. This is particularly applicable in developing countries where Ethiopia is one. A number of justifications would be drawn as to why this happened so but two will suffice. It is because of its sensitive nature in that when they think of telling the real income they fear that huge amount of tax will be levied upon them (it is a reality faced while collecting the data). Second, they do not have proper recordings/documents, which can easily show their monthly income (this particularly applies for households engaged in trade or who are not salaried).

On the contrary, we are smart in telling our expenditures without hesitation when we are asked to. Thus, a question that requires households to forward their monthly expenditure was introduced as a crosschecking measure. The monthly expenditure of households were classified as: below 100, 101-200, 201-400, 401-600, 601-900, 901-1200 and 1201 and above in Ethiopian Birr. Overall, 70(27%), 65(25%) and 46(17.7%) of the households were found to consume in the categories of 201-400, 101-200 and 401-600 Birr respectively. If we sum up this figure we obtain 181 (70%) earning in the above three categories. Few households do consume greater or equal to 900 birr per month. While households with income categories of 201-400 and 601-900 share equal amounts, 18 (20.5%) each in the above poverty line as one goes down to the lower category of the above poverty line the number of households decreases, on the contrary as one goes down to the lower category in the below poverty line the number of households increases.

A sharp contrast to the above statement is the fact that we get a continuous increment in the number of households as one runs from a high expenditure category to a low one. The exception to this is, of course, the expenditures category below 100 Birr which includes 18 (10.5%) individuals in the below poverty group. The data depicts that individuals (households) with relatively higher groups of expenditure category have high probability of moving out of poverty while those who are in the lower group have falling into it. A case in point will be adequate to look at the income categories of 201-400 and 101-200, in the below 100 and 1201 and above poverty line. We should not; however, be mislead only with the data that expenditure is not a

good indicator of well-being at least in theoretical terms. But in reality in this area, we found. out that the more you spend the more you are grouped into a non-poor group.

In developed countries, consumption expenditure is not a good indictor of welfare, for the major part of their capital goes either to saving or to investment. In developing countries, including Ethiopia; nevertheless is to the reverse. We found out that households monthly consumption expenditure is significant at 99 confidences interval (refer annex C, table 5).

Debre Markos is known for its traditional drink *Tella*. Most people who knew the town well point their fingers this traditional drink as one of the possible determinants of poverty. Most people including the youngsters and old ages accustomed to drink *Tella* frequently, even early in the mornings and waste most of their working times while drinking. The study introduced this variable (traditional drink) to test as to whether it really has impact on the incidence of poverty or not. We found out that this traditional drink is statistically significant on the incidence of poverty (refer annex C table 6).

Nowadays, scholars including development specialists agree that poverty is not only measured by the tangible incomes we get and consumption expenditures of the basics we incur. The value of satisfaction, though not common, in developing countries is of getting paramount agenda by economists and different scholars. The study used the recreation value as one of the determinants of poverty in the town. The research inquired, " how often does your family go to recreation?" and provide alternative responses as: none, sometimes, most of the time and others.

A close examination of the data demonstrates that 145(56%) of the 259(1 missed) respondents replied none while 103(40%) entertained sometimes. Only 8(3.1) and 3(1.2%) said that they recreate most of the time and others respectively. A figure of 35 (39.8%) with the none. and 49(55.7%) sometimes entertainment value above the poverty line shows that there is almost no good recreation in the study area. This could be at least due to two reasons: households do not have income for entertainment or there might not be any place of recreation even if they wanted to.

Similarly, the number of households who fall below the poverty line is extreme in that 110 (64.3%) do not totally entertain while 54(31.6) do sometimes. In caveat, household's status of recreation is found to be significant at 99 confidence interval in Debre Markos.

Table 23 Household Recreations

Poverty Level of Households		How often does your family go to recreation?				Total
		None	Some times	Most of the time	Other	
Above PL	Count	35	49	2	2	88
		39.8%	55.7%	2.3%	2.3%	100%
Below PL	Count	110	54	6	1	171
		64.3%	31.6%	3.5%	0.6%	100%
Total	Count	145	103	8	3	259
		56%	39.8%	3.1%	1.2%	100%

Source: *Own Survey and Computation*

*

Watching cinemas/theaters were also found affecting the level of poverty significantly at 99% confidence interval. In aggregate terms who watch none theaters or cinemas were found to be 186(72%), sometime 67 (26% and others 5 (1.9%). Comparing the number of cinema/ theater watchers within the below and above poverty line category, the former one in absolute terms outweighs by 82 households. This shows that almost all non-cinema /theatre watchers experience poverty often times than those who watch sometimes or others.

Table 24 Household Status of Watching Theaters/Cinemas

Poverty Level of Household		How often does your household watch theaters /cinemas?			
		None	Some times	Others	Total
Above PL	Count	53	34	1	88
		60.2%	38.6%	1.1%	100%
Below PL	Count	133	33	4	170
		78.2%	19.4%	2.4%	100%
Total	Count	186	67	5	258
		72.1%	26%	1.9%	100%

Source: *Own Survey and Computation**

3.2.6. Saving and Poverty

Another way of looking at the life standard of the households is to assess their saving status. A question introduced to asses the status of saving among the households was "why not the family saves" if they were first identified as non-savers. Four alternatives were suggested as to why not the household saved as: lack of sufficient income, transfer to other duties, there is saving and others if any. From a total of 259 respondents (1 missed) 147 (56.8%) replied that they do not save on account of lack of sufficient income where as 20(7.7%) do not save for running of other businesses. Sixty eight percent of the households who do not save because of lack of income below the poverty line and 30 (34%) are the non-poor. It is not surprising to see that households who do not save but transfer their income to other business account 17(19.3%) in the above poverty line. A conclusion one can draw from this is that households of non-savers because of lack of income faced the incidence of poverty more than those who provided other reasons like transfer to other business.

The survey result obtained that saving status of the households has significant effects on the existence of poverty in Debre Markos.

Table 25 Household Saving and Poverty

Poverty Level of Household		Why not the Family Save?				Total
		Lack of sufficient income	Transfer to other duties	Other	There is saving	
Above PL	Count	30	17	2	39	88
		34.1%	19.3%	2.3%	44.3%	100%
Below PL	Count	117	3	4	47	171
		68.4%	1.8%	2.3%	27.5%	100%
Total	Count	147	20	6	86	259
		56.8%	7.7%	2.3%	33.2%	100%

***Source**: Own Survey and Computation*

*

3.2.7. Social Services and Poverty

Water and Poverty

The provision of purified and adequate water is becoming a critical issue for urban dwellers without which life will be difficult. In the previous sections the study hypothesized water to be an important correlates of urban poverty in Debre Markos. Following is discussion of water supply and its relation with poverty

Almost all the surveyed households (92%) used piped water as the main source for domestic purposes. Only 21 households (8%) used dug well as a source of water. Sources of piped water in the area consisted of private tap inside the compound, public taps and private vendors. Table 24 presents distribution of households by types of major sources of water. The table shows that whether one uses piped or non-piped water source does not have significant effect on the level of poverty as almost all households consume piped sources. A further and more reasonable way of looking at the effect of water source consumption would perhaps be to see the kind of piped water source a surveyed household is currently consuming.

Table 26 Main Source of Water

Poverty Level of Household		Main source of water		Total
		Piped water	Other water sources	
Above PL	Count	85	3	88
		96.6%	3.4%	100%
Below PL	Below PL	154	18	172
		89.5%	10.5%	100%
Total	Count	239	21	260
		91.9%	8.1%	100%

***Source**: Own Survey and Computation*

The table in the annex D table 7 indicates that 183 (72%) of households consume water from private taps in their compound, 40(15.7%) use public tap, 15(6%) use shared tap in the compound, 13(55) private vendors and 3(5.1%) accounted for households who have connection inside their house, while 6 households refrained from responding. From 88 households who live above poverty line, 72 (82%) have their own private piped water in their compound and are found

above the poverty line. Likewise, private pipe owners account 67% in the below poverty line which is almost a comparable number with those who live above the poverty line. It is also obtained that those households with tap water inside the house 3(1.8%) are found in the poor category while they are null in the non-poor ones. Although most households have their own piped water system in their compound, having piped water does not have significant effect on poverty.

The issue of connectivity should go hand in hand with the quality (purity) and amount of water if dwellers satisfaction is taken into account. The study assessed the adequacy of private-tape water connection by taking the responses of households. The evaluation criteria introduced for them were: poor, satisfactory, and good and above. Based on these criteria those households who replied good and above, satisfactory and poor account for 101(40%), 80(31.6%) and 2 (0.8%) respectively. There, are of course, households who do not have private pipes (taps). These comprised of 64(25.3%) that they do use other alternatives (public tap and private vendors and the rest 5(3%) who generally do not consume pipe water. Cross tabulating the data revealed that quality (purity), quantity and reliability of private water provision have significant effect on poverty at 90%, 90% and 95% confidence interval, in order (refer annex D, table 8,9,and 10).

Because some households do not have the capacity to have their own tap, they used other alternatives. Public tap is obviously, one of the alternatives. The study analyzed households who consume public tap water, whether they would like to continue or not with the service, their rates of satisfaction/dissatisfaction in its, charge, quantity, quality (purity) and others if any. As to the kind of public water they consume it significantly affects the prevalence of poverty at 99% level. With regard to the satisfaction rate no household in the non-poor group was found to be satisfied while there are 8 (47%) in the poor group satisfied by the public tap. The overall satisfaction rate of consuming public tap is expressed at 99% confidence interval and is found vital in affecting poverty.

Similarly, the dissatisfaction rate in using the public tap on: charges, quantity, unreliability, quality (purity) and others are found to be significant at 90%, 90%, 95%, 90% and 90% respectively. Thus, town administrators or any stakeholder concerned in the provision of public

tap water in the town should take care of these variables (charge, quantity, reliability, quality and others if any) since they have a significant link on the incidence of poverty in the town.

There are other groups of households who prefer to buy water from private vendors. They share, 7(2.8%) of the total population and consume from private venders because they could not afford to have their own tap. Although their number is too small (7) to weigh against to the surveyed households 248(12 being missed) we get that consumption of water from private vendor is significant at 95% confidence interval in affecting the prevalence of poverty (refer annex D, table 18).

Like households who consume public tap water, the research tested the satisfaction rate of those households who currently use private vendors. It first crudely classified the satisfaction response into two: as yes who are satisfied and no who are not. Five (1.9%) households did satisfy and 16(6.2) did not. At this moment it would not be economical to discuss the number of households in the category of non-poor and poor group, as their number is too small. Yet, we can safely say from the data that the overall satisfaction rate in buying water from private vendors is found to be significant at 95% confidence level.

Table 27 Satisfaction Rate of Using Private Vendors

Poverty Level of the Household		Are you satisfied using Private Vendors?				
		Yes	No	I didn't buy water from private	No tap water use in general	Total
Above PL	Count	1	2	82	3	88
		1.1%	2.3%	93.2%	3.4%	100%
Below PL	Count	4	14	138	16	172
		2.3%	8.1%	80.2%	9.3%	100%
Total	Count	5	16	220	19	260
		1.9%	6.2%	84.6%	7.3%	100%

Source: Own Survey and Computation

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Because the numbers of dissatisfied households were found to exceed those who satisfied in using private vendors the study further analyzed the dissatisfaction rates. This dissatisfaction rate is classified based on the following criteria: high charge, low quantity, poor quality (purity), unreliability and others. A micro level examination of each of the variables on poverty revealed

that none of them are significant. In other words, there are no significant problems from using private vendors for households on the price they pay, quantity they get, quality the use, reliability and others (refer annex D, table 19-22).

Table 28 Dissatisfaction Rates of Using Private Vendors

Poverty Level of the Household		Dissatisfied in buying from private vendors-0thers						
		Yes	No	I didn't buy water from private	No tap water use in general	5	5	Total
Above PL	Count	4	7	4	70	0	3	88
		4.5%	8%	4.5%	79.5%	0%	3.4%	100%
Below PL	Count	8	13	7	125	1	18	172
		4.7%	7.6%	4.1%	72.7%	0.6%	10.5%	100%
Total	Count	12	20	11	195	1	21	260
		4.6%	7,7%	4.2%	75.	0.4%	8.1%	100%

***Source**: Own Survey and Computation*

Dug well is the other source of water for households in Debre Markos. Only 17 (16.5%) of households were identified as dug well users. Of these, 3(3.4%) are found in the non-poor category while 14 (8.1%) are in the poor group. The study employed questions such as "who usually fetch from the dug well, are you comfortable with well water and why are you dissatisfied in using it?" All of these variables were found poor indicators of poverty and are in general insignificant at any level of confidence intervals.

Table 29 Dug Well Water

Poverty Level of the Household		Do you use Dug well Water?		Total
		Yes	No	
Above PL	Count	3	85	88
		3.4%	96.6%	100%
Below PL	Count	14	158	172
		8.1%	91.9%	100%
Total	Count	17	243	260
		6.5%	93.5%	100%

***Source**: Own Survey and Computation*

Table 30 Dug Well Water Fetcher

Poverty Level of the Household		Who usually fetch from the dug well?				Total
		Girls	Mother	Others	No Dug well source used	
Above PL	Count	2	1	0	85	88
		2.3%	1.1%	0%	96.6%	100%
Below PL	Count	5	8	2	157	172
		2.9%	4.7%	1.2%	91.3%	100%
Total	Count	7	9	2	242	260
		2.7%	3.5%	0.8%	93.1%	100%

Source: Own Survey and Computation

In order to get respondent's opinion upon the provision of water services in the town the study introduced general evaluation criteria of piped water distribution. Criteria selected for this purpose were among other things; too serious, serious, moderately serious and less serious. By making use of these criteria the number of households who evaluated the current provision of piped water in the town in respective order are 150(57.7%), 85 32.7%), 14(5.4%) and 11(4.2%) in the too serious, serious, moderately serious and less serious. Quite a large number of households opinion were of too serious and the general evaluation of the households are significant

Table 31 General Evaluation of Piped Water Provision in Debre Markos

Poverty Level of the Household		General Evaluation of piped water in Debre Markos				Total
		Too serious	Serious	Moderately serious	Less serious	
Above PL	Count	48	33	3	4	88
		54.5%	37.5%	3.4%	4.5%	100%
Below PL	Count	102	52	11	7	172
		59.3%	30.2%	6.4%	4.1%	100%
Total	Count	150	85	14	11	260
		57.7%	32.7%	5.4%	4.2%	100%

Source: Own Survey and Computation

*

Since water is in general one of the critical components for decent life, the issue of who should be accountable for providing quality and sufficient amount is of high agenda for urban areas of developing countries. In the study area-Debre Markos, the research introduced a question " Who

is accountable for the provision of sufficient and quality water in the town?" and the options provided were the municipality, the community, the town water supply, private stakeholders and others. There are a total of 54(20.8%), 3(1.2%), 191 (73.5%), 2(8%) and 5(19%) who respond the municipality, the community, the town water supply, private stakeholders and others in order. A cross examination of the result disclosed that a major part of respondents, 191 (73.5%) point their fingers as the town water supply to be accountable for providing quality and sufficient water (refer annex D, table 23).

In most developing countries governments dictate service delivery system although the probability of interventions may vary from 0 to 1. Zero level of government intervention refers to sheer absence of the government while one is presence. In Debre Markos, the provision of water supply is entirely left to the government in general and the town water supply in particular. Bearing this in mind, the study assessed the town's water supply intervention status on the provision of water supply. It classified the intervention options as: to a greater extent, to a moderate extent, to a lesser extent and no intervention at all. A large number of the respondents (52%) replied to a moderate extent and 36% to a lesser extent up on the intervention rate of the town water service. This shows that the intervention status of the government is too minimal and that it could not give adequate source of water to the residents.

Table 32 Extent of town water supply Intervention

Poverty Level of the Household		Extent of town water supply/service intervention in Debre Markos				Total
		To a greater extent	To a moderate extent	To a lesser extent	No attention at all	
Above PL	Count	5	38	30	1	74
		6.8%	51.4%	40.5%	1.4%	100%
Below PL	Count	7	66	42	10	125
		5.6%	52.8%	33.6%	8%	100%
Total	Count	12	104	72	11	199
		6%	52.3%	36.2%	5.5%	100%

Source: Own Survey and Computation

Health and Poverty

More than anything else health is the first and single factor for the well/ bad being of individuals. Without proper health life is difficult. The first question posed in this research was whether any member of households suffered from disease or not and the alternatives provided to them were only two: yes or no.

Those who are in the non-poor category 42(47.7%) said yes and the rest 46(52.3%) no responses. It is surprising to get a coincidence that households in the poor category with responses of yes or no are equal in that each of them were 86(50%). Disease is one of the determinants for the aggravation or improvement of poverty as many literatures proved and from theoretical underpinnings. The findings of the study in the town of Debre Markos revealed that disease has significant impact on the prevalence of poverty.

The degree of illness was examined for those who respond yes that they suffered from diseases (as very critical, critical, moderate, simple). It also assessed the type of medical facility they utilize (government, non-government, private, traditional and others if any), their preference of medical facility- government (based on lower charge, good facility), private (based on better hospitality treatment, better medicine, efficient service, others) and traditional medicine (based on low charge, better curability, better follow up and others). Based on these it is found that most of them have a significant effect on the incidence of poverty in Debre Markos. We can, therefore, wrap up from the study that health is a good indicator of poverty and is a determinant of poverty in Debre Markos.

Table 33 Status of Household Disease

Poverty Level of the Household		Did household members suffer from diseases?		Total
		Yes	No	
Above PL	Count	42	46	88
		47.7%	52.3%	100%
Below PL	Count	86	86	172
		50%	50%	100%
Total	Count	128	132	260
		49.2%	50.8%	100%

Source: Own Survey and Computation

*

Households evaluation of medical services from government, NGO, private, traditional and why they did not use modern medical facility (if they got disease) were found significant in explaining the incidence of poverty in the town.

As regards to the responsibility of who is going to provide adequate health services for the town households were interviewed about their evaluations. Out of 260 respondents, 226 participated (44 missed) and reported that 137 (60.6%), 72(32%), 6 (2.7%), 2(0.9%), the town health service, regional government, private health centers, and others are accountable for the provision of sufficient and quality medical facility in order (refer annex E, table 24).

The extent of town health service intervention was found to be significant. Over all, respondents' evaluation as regards to who is accountable for providing adequate medical facility is also significant.

Table 34 Extent of Town Health Service Intervention

Poverty Level of the Household		Extent of Debre Markos town Health Service Intervention				Total
		A lot attention	Some attention	Little attention	No attention at all	
Above PL	Count	9	25	13	8	55
		16.4%	45.5%	23.6%	14.5%	100%
Below PL	Count	20	51	12	14	97
		20.6%	52.6%	12.4%	14.4%	100%
Total	Count	29	76	25	22	152
		19.1%	50%	16.4%	14.5%	100%

***Source**: Own Survey and Computation*

**

In caveat, incidence of disease in the town is found to be significant variable while studying poverty and hence is a good proxy of urban poverty in the study area.

Telephone and Poverty

In developed countries telephone is one of the basic needs and is considered as a determinant factor of poverty. However, this is not true when we come to third world nations, and of course, Ethiopia too. Quite recently, access to telephone, specifically cell phone, is drastically flourishing in Ethiopia. This is a commendable result at least when we think of the previous periods. This

part, yet, did not discuss cell phone (mobile) but is left to fixed phones (home or business). In the survey, a total of 260 (100%) households participated out of which 180 (69.2%) have a fixed telephone line (are fixed telephone line subscribers). The rest 80 (30.8%), do not have fixed telephones.

The data confirm that in the non-poor category there are 76(86.4%) and 12(1.6%) households who are currently telephone subscribers and those who are not in order. Matching up the result within the poor category yields for every one household with no fixed telephone there are about 2.24 households who have fixed lines. In the below poverty line category those who are fixed telephone subscribers and those without are respectively 104 (60.5%), 68 (39.5%). This means that in every non fixed-subscriber, there are 1.52 households who are subscribers.

Table 35 Status of Fixed Telephone Subscription

Poverty Level of the Household		Are you a subscriber of a fixed telephone line?		Total
		Yes	No	
Above PL	Count	76	12	88
		86.4%	13.6%	100%
Below PL	Count	104	68	172
		60.5%	39.5%	100%
Total	Count	180	80	260
		69.2%	30.8%	100%

Source: Own Survey and Computation

*

Table 36 Type of fixed Telephone Line

Poverty Level of the Household	Type of fixed telephone line				Total
	Residential line	Business line	Residential & business line	No fixed teleph one	
Above PL	63	4	9	12	88
	71.6%	4.5%	10.2%	13.6%	100%
Below PL	98	2	2	70	172
	57%	1.2%	1.2%	40.7%	100%
Total	161	6	11	82	260
	61.9%	2.3%	4.2%	31.5%	100%

*Source: Own Survey and Computation**

In the yes response category, a significant number of households are below the poverty line. At the same time, the number of individuals who have fixed phone and are within the above poverty line are not small (76). Generally, one can clearly see from the data that being or not being a subscriber of fixed telephone line has a significant level at 99% confidence interval. We can, therefore, say that the explaining power of telephone subscription on the presence of poverty is too high. Table 36 shows the type of fixed telephone line.From this table it is clear to observe that a large number of households have residential (62%) line while the rest (2.3%) constitute business lines and 11(4.2%) for both.

The above table depicts that although the numbers of fixed line subscribers are many in crude terms than those who are not, the non-subscribers are not at the same time few. They are non-subscribers because of a host of reasons. In order to asses why they are not subscribers the research provided the following justifications: inability to pay initial subscription line, inability to pay monthly rent and/or bill, little/no importance for them and other reasons if any. Based on these alternatives we got the number of households who are not fixed line subscribers on account of inability to pay initial subscription line, inability to pay monthly rent/bill, no relevance to them and other as 22(8.5%), 9 (3.5%), 24 (9.2%) and 24(9.2%)respectively. Disaggregating this value into the category of poor and non-poor one we found out that 2(2.3%) households in the non-poor group were not able to have fixed telephone because of the inability to pay the initial subscription, monthly bill, or little relevance to them. It is surprising to see that a household who provides these reasons is equal in number. Coming to the poor group a large number of households 22(12.85) followed by 20(11.6%) respond their justifications as no importance to them and inability to pay the subscription line.

The Chi-square distribution test obtained that household justifications of not being a fixed line subscriber is, indeed, significant at 99% confidence interval, strengthening the previous analysis that being a telephone subscriber or not is a good indicator of the presence of poverty in Debre Markos (refer annex F, table 25).

Electricity and Poverty

In the previous discussion, the study took as determinant of poverty in Debre Markos. However, the empirical finding verified that whether a household has own electricity or not does not matter the presence of poverty and hence is a poor parameter of poverty. It should, however, be noted that telephone subscription depends on the type of sampled households. It for instance can have difference on the consumption of electricity to those who are engaged in business and who are educated from those who are not businessmen and educated. In the study the purpose of electricity as: lightening only, lightening and cooking; lightening, cooking, ironing and for fridge were found insignificant for explaining the status of poverty in the town.

In general, electricity problem is not a worth discussing issue in the town as it is a poor indicator in explaining poverty.

Table 37 Status of Electricity Connection

Poverty Level of the Household		Do you have your own Electricity?		Total
		Yes	No	
Above PL	Count	79	9	88
		89.8%	10.2%	100%
Below PL	Count	146	26	172
		84.9%	15.1%	100%
Total	Count	225	35	260
		86.5%	13.5%	100%

Source: Own Survey and Computation

The survey analyzed actors in the provision of sufficient electricity in the town. The study chose to use the question "who is accountable for the provision of adequate electricity facility in the town?" It specified actors as the government, town Electric Corporation, the private sectors and others if any. In the survey both households of the poor (77.2%) and non-poor (78.8) category or in total 199(77.7) out of 256 (4 being the missed cases) reported that the town electric corporation in particular and the zonal electric corporation in general have the responsibility of providing adequate electricity for dwellers in the town. Households evaluation of the town's electricity

corporation contribution as high, some, little, or no at all scaled up to 78(37%), 66(31.4%), 54 (25.7%), and 11 (5.2%) in order.

Table 38 Accountability of Providing Adequate Electricity

Poverty Level of the Household		Who is Accountable in the Provision of electricity in the town?					
		The Govt	The town electric corporation	The Private Sector	Others	1 & 2	Total
Above PL	Count	15	67	1	0	2	85
		17.6%	78.8%	1.2%	0%	2.4%	100%
Below PL	Count	33	132	2	1	3	171
		19.3%	77.2%	1.2%	0.6%	1.8%	100%
Total	Count	48	199	3	1	5	256
		18.8%	77.7%	1.2%	0.4%	2%	100%

***Source**: Own Survey and Computation*

Keeping all other variables constant, the different actors accountability in the provision of adequate electricity and, specifically of the town electric corporation, has not made significant effects on poverty. Unlike telephone, electricity is not an issue of high agenda for intervention in the eyes of households (refer annex G, table 26).

Housing and Poverty

House ownership was found to be negative and significant at less than 1% level. This is in tandem with economic theory. Ownership of house in urban areas is really an important indicator of poverty in most developing countries. This indicator is of paramount importance because it is household wealth, which generates income flows. Table 39 shows the probability of being poor and non-poor in the context of housing tenure.

Table 39 House Tenure

Poverty Level of the Household		Do you Have your Own House?			
		Yes	Rent from Kebele	Rent from privates	Total
Above PL	Count	62	17	9	88
		70.5%	19.3%	10.2%	100%
Below PL	Count	117	52	3	172
		68%	30.2%	1.7%	100%
Total	Count	179	69	12	260
		68.8%	26.5%	4.6%	100%

*Source: Own Survey and Computation**

It is clear from the table that house ownership increases probability of being non-poor where as it decreases the probability of being non-poor as one lacks it keeping all other things constant. More specifically, it increases the probability of being non-poor by more than 0.7 percent and probability of being poor by 0.68, respectively. Construction material of the house (wood with mud and *blockets*), whether it is privately owned or rented from kebele or private individuals is found significant indicators of poverty.

Table 40 Construction Materials of House

Poverty Level of Households					
		Wood with mud	Blockets	1 & 2	Total
Above PL	Count	86	2	0	88
		97.7%	2.3%	0%	100%
Below PL	Count	163	2	1	167
		97.6%	1.2%	0.6%	100%
Total	Count	249	4	1	255
		97.6%	1.6%	0.4%	100%

***Source**: Own Survey and Computation*
**

The coefficient of toilet facility, which is employed as proxy for health condition of a household, is found to be significant at 10% level. Access to toilet facility is very vital for the well-being of the household. It is also equally important that access to bathing facility is crucial for the well being of a household. The result of the survey vindicates economic theories (refer annex H, table 27 and annex I, table 28).

3.3. Analysis of Continuous Variables

This part presents the results of some continuous variables by making use of two important normal distribution functions: the F and t-distribution. Employing t-test the values in Birr of the assets of households with measures of central tendency (mean, standard deviation, and standard normal distribution-Z-score) are analyzed. Analysis of the data showed that the number of households who own house are 181 where as those who own , car, refrigerator, and stove are. 20. 28, and 10 respectively. This shows that out of the sampled data, for every household who does not have house, there are nearly 2.30 households who do have. Similarly, for every household with a car there are thirteen households who do not have signifying that the numbers of car owners are negligible. It is not, however, surprising to get such a situation in a town where there are no more economic dynamisms. Households who own tape recorder, television, radio, and milk cow are in order 189, 121, 63, and 27. This implies that a large number of households (72.7%) have tape recorder while a small (only 10%) of them with own milk cow. Generally, the study found that the monthly mean income of the households is 412 and 724 Birr for the poor and non-poor in order

The mean, standard deviation, and Z-score (standard error mean) of the values of house, car, refrigerator, television, tape recorder, radio, stove, milk cow, other assets, and total average income of households are indicated below.

Table 41 Group Statistics

	PL of the HH	N	Mean	Std. Deviation	Std. Error Mean
Value of House in Birr	Above PL	67	53059.70	31309.250	3825.034
	Below PL	114	41622.81	29577.37	2770.175
Value of Car in Birr	Above PL	13	181538.46	139193.28	38605.270
	Below PL	7	11285	44986.771	17003.401
Value of Refrigerator in Birr	Above PL	19	5426.32	9751.40	2237.125
	Below PL	9	5700	8411.89	2803.965
Value of Television in Birr	Above PL	64	3768.44	5158.72	644.809
	Below PL	57	2514.82	897.57	118.886
Value of Tape Recorder in Birr	Above PL	79	868.27	1052.43	118.408
	Below PL	110	495.73	813.92	77.605
Value of Radio in Birr	Above PL	28	193.21	166.97	31.555
	Below PL	35	140.71	98.47	16.645
Value of Stove in Birr	Above PL	7	427.14	324.53	122.663
	Below PL	3	900	964.36	556.776
Value of Milk Cow in Birr	Above PL	14	3614.29	4110.93	1098.693
	Below PL	13	2861.54	3260.76	904.372
Value Other Assets in Birr	Above PL	9	20405.56	22878.6	7626.200
	Below PL	19	374.21	304.	69.763
Total average income of the household per day in Birr	Above PL	88	7.4	2.99	.320
	Below PL	172	4.12	2.68	.11

Source: *Own Survey and Computation*

The study tested the significance of the expected values of assets: house, car, refrigerator, television, tape recorder, radio, stove, milk cow, other assets, and average income of the household in Birr using independent sample test (the non-poor and poor households being the independent sample tests). Assuming equal variances within the poor and non-poor household groups for F-tests (Levene's test for equality of variances) and equality of means within the above and below poverty groups in the t-test, the study examined the significance of households' assets up on poverty.

In the F-test category, it is obtained that expected value of car, television, tape recorder, stove and other assets were found to be significant in explaining the prevalence of poverty at 95% confidence level. Independent sample test using t-test found that expected value of house, tape recorder, and other assets have significant value at 95% where as average income of households is significant at 99% confidence interval. Expected values of refrigerator and radio were found

insignificant in either of the F-or t- test. They are therefore not good indicators of poverty in Debre Markos(refer annex J table 29).

Literature believe that the monthly expenditures of households (whether on basic or non-basic) and their saving status give a crude way of judging households as poor or non-poor. Taking this point in mind the study employed these variables as to whether or not it is true in the surveyed area. Two hundred forty two (18 missed) households participated in the monthly basic needs expenditure query out of which 164 were found in the below poverty line where as 78 are in the above poverty-line. The monthly basic needs mean expenditure for the non-poor group is 452.53 Birr while that of the poor ones are 246.24 Birr, with an expenditure gap of 206.29 Birr.

In the case of the non-basic expenditure, both household groups of the poor and non-poor expend insignificant amount, on average, Birr 98.70 being for the former and 43.91 for the latter. Like the monthly expenditures on basic items, monthly expenditure in non-poor households in non-basics, consume twice of the poor households. This shows that, on average, there is a wide variation between the poor and non-poor households in Debre Markos. The saving status of households is also discouraging in both cases with 118.25 for the non-poor and 51.01 Birr for the poor on average per month.

Non-poor household's expenditure on basic and non-basic items varies more than those of the poor. This is because the value of the standard deviation, which measures dispersion of items around the mean, has big values than those of the poor groups. On the contrary, the value of standard deviation on saving is the reverse.

Although in principle it could have been better if households expenditures on clothes, ceremony, entertainments and domestic service (servant, guard salaries) were included in the identification of the poor from the non-poor families, practically, it is found difficult, and is better to see these expenditures separately. Contingent upon this justification it is found that households yearly mean expenditures on clothes, ceremonies, entertainments or on domestic services whether in the category of poor or non-poor is disappointingly small. There is also a big variation of

expenditures both in the poor and non-poor groups, as the standard deviation shows the fact (refer annex J, table 29).

Continuous variables such as households' monthly private tap charges, amounts of households annual health expenditure, monthly charge of electricity (for owners), number of rooms of the house, and monthly rent of kebele and private houses are analyzed in this section. The monthly mean charge and standard deviation of households with private tap water inside their compound in the non-poor category are 16.78 and 10.06 Birr respectively. And those of the poor groups are 12.64 and 9.47. At this juncture, it is easy to observe that there is no much difference being poor or non-poor as regards to the monthly charge of using water albeit literature says that the poor usually pay more than the non-poor. However, in the case of electricity there is a wide variation of monthly bill between the poor and non-poor groups. This is due to the non-poor households used electricity for other purposes like cooking, for fridge and ironing, which demands higher bills than those who does use for light only. The standard deviation of the non-poor, which is 13.92 Birr per month for electricity shows that there is a big variation of payments among the households.

With regard to health, only 18 households (10 non-poor and 8 poor) have a regular and fixed annual budget while 242 households do not generally have regular expenditure. We have discussed in the previous section that health is a good indicator of poverty in Debre Markos. The very small number of households with regular annual budget to health services could therefore contribute to the inefficient prevention of disease incidences in the town. The annual mean health budgets for households of non-poor and poor categories are 404 with standard deviation of 539.59 Birr.

3.4. Econometric Analysis of the Results

The Logit Model

As introduced earlier a Logit model was employed to analyze the data. This model is appropriate when we assume the random components of response variables follow binomial distribution & when most variables have categorical responses. Put differently, it is suited when the dependent variable is dichotomous and of the type that have a yes or no response. The form of the Logit model is shown as follows.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + ... + \beta_k X_k + \varepsilon \qquad (1)$$

$$\beta_i X_1 \; run from \beta_1 X_{1i} to \beta_k X_K$$

Where,

Ý = Probability of a household being poor or non-poor

α = Intercept (constant) term

β_k =Coefficients of the predictors estimated using the maximum likelihood method

X_i= Predictors (independent variables)

ε = Random effect (error term)

Aggregating the value yields

$$\acute{Y} = \sum \alpha + \sum_{k=1}^{k} \beta_k X_k + \varepsilon \qquad (2)$$

In practice Y is unobserved, and ε is symmetrically distributed with zero mean and has cumulative distribution function (CDF) defined as F (ε). What we observe is a dummy variable y, a realization of a binomial process defined by

$$y = \begin{cases} 1 if y > o \\ 0 otherwise \end{cases} \qquad (3)$$

From equation (2) leaving the constant term and rewriting the model yields

$$\text{Prob}(Y=1) = \text{Prob}\left(\sum_{k=1}^{k} \beta_k X_k + \varepsilon > 0\right)$$

$$= \text{Prob}\left(\varepsilon > -\sum_{k=1}^{k} \beta_k X_k\right)$$

$$1 - F\left(-\sum_{k=1}^{k} \beta_k X_k\right) \qquad (4)$$

The Logit model usually takes two forms. It may be expressed in terms of Logit or in terms of event probability. When expressed in Logit form, the model is specified as

$$Log\left[\frac{P(y=1)}{1-P(y=1)}\right] = \sum_{K=1}^{K} \beta_K X_K \qquad (5)$$

Using equation 4 and 5 can be transformed into a specification of the Logit model of event probability by replacing the general CDF, F, with a specific CDF, L representing the Logistic distribution

$$\text{Prob}(y=1) = 1 - L\left[\sum_{k=1}^{k} \beta_k X_k\right] = L\left[\sum_{k=1}^{k} \beta_k X_k\right] = \frac{e^{\sum_{k=1}^{k} \beta_k X_k}}{1 + e^{\sum_{k=1}^{k} \beta_k X_K}} \qquad (6)$$

The above equation represents the probability of an event occurring. For a non-event, the probability is just 1 minus the event probability.

$$\text{Prob}(y=0) = \left[-\sum_{k=1}^{k} \beta_k X_k\right] = L\left[\sum_{k=1}^{k} \beta_k X_k\right] = \frac{e^{-\sum_{k=1}^{k} \beta_k X_k}}{1 + e^{-\sum_{k=1}^{k} \beta_k X_k}} \qquad (7)$$

Multicollinearity

In most economic variables it is likely that a set of independent variables within themselves correlated each other. In situations where there is significant collinearity among the independent variables there is a difficulty of differentiating which variable should be the interest of the study. Collinearity ranges from 1 where there is complete relationship within the independent variables

to 0 where there is no relationship at all. In reality, however, there are rare or no such complete presences or absence of relationships among economic variables. If the interconnection between the explanatory variables is perfect (1) then:

a. estimate of the coefficients are indeterminate

b. the standard errors of these estimate become infinitely large.

The seriousness of the effects of multicollinearity seems to depend on the degree of interconnection within the explanatory variables as well as on the overall correlation coefficient. The solutions which may be adopted if multicllinearity exists in a function vary depending on the severity of multicollinearity, on availability of other sources of data (large samples, or cross-section sample etc), on the importance of the factors which are multicollnear, on the purpose for which the function is being estimated and other considerations.

The standard errors, the correlation coefficients and the total R^2 may be used for testing multicollinearity. Yet none of these criteria by itself is a satisfactory indicator of multicollinearity (Koutsoyiannis, 1977) because:

a. Large standard errors don't always appear with multicollinearity. They may arise for various reasons and not only because of the presence of linear relationships among the explanatory variables.

b. The intercorrelations of the explanatory variables need not be high for the values of **b**(coefficient of $\mathbf{X}_j$) and their standard errors to be affected badly, that is r_{xixj} is not an adequate criteria by itself.

c. The overall R^2 may be high and yet the results may be highly imprecise and insignificant. In the checking up of multicollinearity existence the procedure is to regress the dependent variable on each of the independent variables separately. Then we insert variables and examine their effects on the individual coefficients, on their standard errors and on the overall R^2.In view of this a variable is either determinant or not based on the following grounds.

1. If the variable improves R^2 without rendering the individual coefficients unacceptable on a priori considerations, the variable is considered as detrimental and is taken as explanatory variable.

2. If the variable does not improve $R^2$and does not affect to any considerable extent the value of the individual coefficients it is considered as superfluous and rejected.
3. If the variable affects considerably the signs or the value of the coefficients (usaully$\leq$0.5) it is considered as detrimental.
4. If the intercorrelation between two explanatory variables is greater than or equal to 0.5 we reject either of the variables and if it is less than or equal to 0.5 we take both of them as detrimental variables.

Therefore, before analyzing the effect of independent variables on the dependent variable, all variables, which were hypothesized to depict the incidence of poverty, were checked for multicolinearity using bivariate correlation matrix table. The result of the test confirmed that there is moderately high collinearity between education and employment (0.48) where as the rest of the variables did not show significant collinearity between each other. Employment and education are taken as detrimental variables for their correlation is less than 0.5.

Model's Robustness (Predictive) Power

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

Therefore, to assess whether or not the model fits the data, the study used a prediction table (classification table) as shown below. The on and off-diagonals respectively tell the correct and incorrect number of predictions of the data. Thus, using these diagonals we can see how many households are correctly classified and how many are misclassified.

Table 42 Classification table

Observed	Predicted		
	Below PL	Above PL	Percentage Correct
Below PL	146	26	84.8
Above PL	35	53	60.2
Overall Percentage Correct			**76.5**

Source: Own Survey and Computation

The diagonal entries of the table show that 146 out of 172 households who live below the poverty line are correctly predicted. Similarly, the model correctly predicted 53 out of 88 households who live above the poverty line.

On the other hand, the off-diagonal entries of the table show that 26 households who live below the poverty line and 35 households who live above the poverty line respectively are incorrectly predicted.

From a total of 172 households who live below the poverty line 84.8 percent were correctly predicted and out of 88 households who live above the poverty line 60.2 percent were correctly classified. Generally, 76.5 percent of the 260 valid cases were correctly predicted. Therefore, the model is appropriate for the data.

Odds and Marginal Effects

Odds of the model tell by what factor the dependent variable change does whenever a unit change occurs in an independent variable. Odds ratio is the Log value of odds and is always positive. In this particular study it is found out that the odds ratio, the ratio of the probability of being poor to the probability of non-poor, is 1.95,(172/88). Marginal effects refer to the additional value to the dependent variable given an increase or decrease on the explanatory variable.

The first, second, and third columns of the following table respectively represents the independent variables, odds (coefficient of predictors) and standard error. The third, fourth, and six columns of the table depict *Wald* which is obtained by dividing odds (ß) to standard error and

squaring the value $(\beta/SE)^2$, significance level of each independent variable on urban poverty and exponent of β in order.

In most econometric analysis the most important variables used are the odds, significance levels and odds ratio (exponent of β).

Table 43 Logit Maximum Likelihood Estimates

Number of Observations =260					
Explanatory Variables	**ß**	**S.Error**	**Wald**	**Sig.**	**Exp (ß)**
Age	-.090	.347	.067	.795	.914
Marital St	-.604	.428	1.989	.158	.547
Family Size	.403	.111	13.312	.000*	1.668
Education	-.493	.375	1.728	.003*	0.637
Employment	-.512	.596	.736	.391	.600
Income	-2.242	.400	31.436	.000*	.106
Water	-.841	.748	1.266	.261	.431
Disease	1.616	.474	11.645	.001*	1.199
House	-.470	.394	1.420	.233	.600
Telephone	-0.082	0.276	0.113	0.684	. 871
Electricity	-0.062	0.184	0.092	0.571	.723
Sex	.056	.442	.016	.899	1.058
Constant	3.031	.732	17.152	.062	20.725

***Source**: Own Survey and Computation*

* Significant ***at 1 percent level***

$$Y = 3.03 - .09X_1 - 0.604X_2 + .403X_3 - .493X_4 - .512X_5 - 2.242X_6 - .841X_7 + 1.616X_8 - 047X_9 + .056X_{10}$$

$$.082_{X11} - .062_{X12}$$

Examination of the above Logit maximum-Likelihood estimates demonstrates that the variables that are positively correlated with the probability of being poor are sex, family size and disease incidence. The variables that are negatively correlated with the probability of being poor are age, marital status, education, employment, income, water, and house tenure, telephone, and electricity.

The fifth column of the table shows that out of a total of 12 predictor variables, only four of them: family size, educational level, monthly income, and disease incidence significantly affect households falling into poverty at 99% confidence level.

The positive value of β in household head sex indicates that as female heads the household the probability that a household falls into poverty increases though its contribution to poverty is found insignificant variable. In the same fashion as the size of the household increases the chance of falling into poverty increases. Hence female-headed households and high family size are positively associated with poverty in Debre Markos. Disease incidence has given the same result in that a household with frequent sick members experiences more chance of falling into poverty than those who are not.

On the other hand the negative value of the odds- (ß) to age (18-30 and greater than 60), income, marital status, educational level, employment, house tenure, and water source indicates that as the value of these variables increases or as one posses or lacks, the household is less likely to fall into or be away from poverty.

The table indicates that as the age of the household increases by one year (within the ranges of 18-30 and greater than 60), ceteris paribus, the odds (ß) and odds ratio (exp ß) of falling a household into poverty decreases by a factor of 0.09 and 0.914 respectively. Likewise, as the educational level of a household head increase by one, holding other independent variables constant, the odds and odds ratio of being poor decreased by a factor of 0.493 and 0.637 in order where as the value of employment decreases by 0.512 and 0.600.On the other hand as the number of the family size of the household increased by a unit, the odds and odds ratio of the data, keeping all other independent variables constant, increased by a factor of 0.403 and 1.668.This shows that as the number of household size increases the probability of being poor increases.

As regards to the categorical variables as a household head is married, have private tap water, house , telephone, and metered electricity the household experience less poverty. Yet each of their contribution to poverty in the study area is insignificant.

In short, by looking at the signs and significance levels attached to the predictors' coefficients-(odds) and odds ratio (exp ß), we observe that households headed by females, diseases incidence and big size of the family experience more poverty in the study area. These variables correlate with poverty positively and those that are negatively correlated with poverty are age, marital status, educational level, employment/occupation, water source, and house tenure.

Chapter Four

Summary, Conclusion and Policy Implication

4.1. Summary

The objective of the study was to assess determinants and their quantitative relationships up on urban poverty in Debre Markos. Both primary and secondary sources were used to carry out the study. A total of 260 household heads were randomly selected and the study was undertaken by a systematic random sampling in six Kebeles: Kebele 01, 03, 04, 05, 08, and 12 of the town.

The research used the food energy intake approach in the identification of the poor from the non-poor. It first enumerated baskets of food items households frequently consume in the area. Then these bundles of food items are weighted in kilograms. Third, the aggregate kilograms of food bundles were divided into the number of family sizes. This gives the average amount of kilograms an adult person would consume in a day. This kilogram is again converted into the amount of calorie equivalents it yields and is calibrated to the predetermined minimum value of 2200-calorie per day per adult.

Based on this approach the study founds out that out of the 260 surveyed households 172 of them are found below the poverty line. The fact that 66 percent of the sampled households live below the poverty line, the head count ratio, poverty gap, and severity of poverty are 0.66, 0.21 and 0.09 respectively suggest ample evidence for one to draw inferences about the incidence of hard core poverty in the town.

Variables, which were hypothesized to account for the incidence of poverty in the town, were selected and analyzed. These were income, assets, education, sex, age, family size, employment, marital status, and disease incidence. Social services like water source, house tenure, telephone subscription, and energy utilization were also analyzed.

These variables were analyzed through descriptive statistics. A Logit model was employed to quantify the relationship between some selected determinants and poverty. In the descriptive part analysis was made by making use of SPSS-12 version .In this part categorical responses were treated via percentages, ratios, Chi-squares and significance levels with the help of tables. Where

as continuous variables were analyzed by, means, standard deviations, F and t-tests. In the econometric part the study employed the Logit model. It is found that the robustness (predictive) power or goodness of the model is 76.5 percent. The odds which tell by what factor does the dependent variable change given a unit change of the predictor variable was also discussed. The odds ratio, which is Log of odds and marginal effects and significances of each predictor variable, were quantified. Based on the descriptive and econometric analysis (Logit model) the following results were obtained.

In aggregate terms most households' monthly income were found meager. The findings of the study showed that only 30 percent of the households earn greater than or equal to 800 Birr a month. As a result more than 70 percent of the households couldn't cover their monthly expenditure. Most of them were found leading meager life with the existing income and some of them were remitted from abroad or supported by their relatives, particularly, of the old household heads.

The other determinant that played roles in the incidence of poverty in the town is employment. Overall, 88 percent of the surveyed population is employed and yet most of them couldn't escape from falling into the poor. This is because the return they get from being employed is not sufficient to have effect on their life standard. Although literature and empirical findings proved considerable associations between employment and poverty, the result as regards to Debre Markos is not remarkable. However, the negative association of unemployment to poverty in the town vindicate that there is a need to have labor market administration in the town as a potential instrument for tackling poverty in the town.

A closer examination of the occupation of households showed that the lower income groups are found among females. As to the type of the specific job they engaged in, the petty-trade, preparing and sealing local drinks like *Tella* and foods dominate most female household heads. The number of female-headed households who are in civil service are almost absent.

Marital status is the other correlate of the well-being of a household. In the study married households take the lion's share of which it is 59 percent of the sample. The findings of the study

showed that the divorced sections of the society experience more poverty than those who are not. The probability of a household being non-poor increased, as the head of the household is married.

In the descriptive part income, sex, marital status, number of dependents in the household, education, employment, disease incidence and house tenure of the household were found statistically significant affecting the incidence of poverty. They are, therefore, good parameters of poverty in the town. Besides, Outside household dependents, income-expenditure gap, ways of filling income-expenditure gap, recreation, watching movies, saving, satisfaction rate of using private vendors, frequently consumed drinks, (purity, quantity, reliability) of private tap water, continuity and satisfaction or dissatisfaction of using public tap water consumption, dissatisfaction in (charge, quantity and purity) of using private vendors, telephone subscription, toilet and shower facility were found statistically significant indicators of poverty. However, religion, ethnic group, dependency, productive family members, main source of water and status of electric connection were found statistically insignificant indicators of poverty.

The Logistic regression obtained four variables: income, education, family size, and disease incidence of households found significantly affecting the incidence of poverty in the town. The results of the model using LIMDEP software showed that there is a positive and strong relation between household size and poverty in the town. Put differently, households with larger family size are more likely to fall into poverty than those with smaller family size. Telephone subscription and energy utilization were found insignificant variables.

A quantitative analysis undertaken in this study confirms the fact that female-headed households experience poverty more than male headed ones. Similarly, disease incidence in the household increases prevalence of being poor than those who are not sick frequently.

As regards age the probability of being poor decreases as the household age is in the young and old ages or when it is found in the ranges from 18-30 and beyond sixty (retirement period) .On the contrary, it increases as the head is found in the age ranges of 31 to 60. Thus, it is imperative to note that there is no conclusive remark as to the relationship between age of the household

head and poverty unless one is made to know a demarcation. The result calls further research to understand the effects of age on poverty.

Both the descriptive statistics and Logit model showed that increases in educational attainment of the household head have a significant impact on reducing the probability that a household is poor. Even though education is negatively correlated with poverty, basic education will not suffice. Education is not a sufficient condition to escape from poverty. This indicates that there are other factors which affect poverty of the household in conjunction with education.

4.2. Conclusion and Policy Implications

That incidence of poverty is rampant among the surveyed households (66%), 0.66 the head count ratio, 0.21 poverty gap, and 0.09 as the severity index in the town respectively calls for urgent interventions aimed at curbing the fate of the poor. One way of doing this is studying the determinants of urban poverty by informing concerned parties as the factors are important in fighting against poverty. Without the clear identification of the factors that account for the sporadic or continuous impoverishment of life in the town it is really ridiculous to come up with concrete solutions. As urban poverty, per see, is a multitude of interrelated factors-a cause being a consequence simultaneously, critical identification of the variables is important. However, because it is difficult to bring panaceas for the whole problems over night prioritization of the variables is of paramount importance.

The messages and policy implications of this research among other things include the following:

1. Construction of comprehensive poverty profiles at the town level is vital but the task could only be possible if there is commitment from the government, town administrators, NGOs, researchers, the residents and any concerned body. This research is cross-sectional which only can tell a result of one time survey. The availability of panel data is, therefore, badly needed in order to be able to construct better models of the determinants of poverty in the town.

2. The study assessed the incidence of poverty in the selected Kebeles at a household level. It only can tell the incidence of poverty based on these households. It is of the writer's feeling that future studies should study the town's poverty other than the household level so as to get a wider view of poverty profiles and policy implications. This could be seen from the institutional, social, gender, and extra perspectives.

3.The study employed the FEI approach in the identification of the poor from the non-poor. The validity of this research could be testified if other approaches are applied. Therefore, methods other than the ones developed should be incorporated in other studies in the future.

4. That the educational attainment of the head of the household is found to be the most important factor associated with urban poverty clearly suggests ways of focusing on the value of education. Adequate education is central in addressing incidence of poverty. Specifically, college education is found to be of paramount importance in reducing poverty in Debre Markos. In this regard the recently introduced private colleges would play critical and/or vibrant roles and they therefore should be given emphasis. This is because students who were able to learn but incapable of joining higher government institutions have the opportunity to further pursue their academic pursuit.

5. The study found out that female-headed households are more likely to be poor than households of which the head is men. The implication is therefore that promoting female education should be an important element of poverty reduction policies. This is because female education and fertility are negatively correlated, such a policy could also have an impact on household size which is another important determinant of poverty in Debre Markos.

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

7. Income, as it was expected, correlated negatively and affected poverty significantly. Thus, ways of diversifying the means of increasing income should be introduced. At this juncture both the households and the government should have the joint effort and responsibility to find possible panaceas. One of the potential ways of doing this is through education. Technical and vocational trainings, which are available in the town, can play instrumental roles. Entrepreneurship development could also be the other option.

8. Disease incidences of the households were also found to affect the incidence of poverty significantly. Not a large number of households took medical treatments though they contracted diseases. They, therefore, should be diagnosed whenever they contract a disease and bad beliefs

and suspicions about the curability of modern medical facilities be avoided. In this regard health professionals have the prime responsibility to teach households in how to combat the incidence of disease.

9. The respondents' evaluation on the overall health service provision of the government in the town is almost negative. The government, particularly, the town health service, should therefore upgrade the provision of health services including the laboratories, pharmacies, and qualified professionals. Better payments of professionals could be one way of reducing frequent turnovers. Crucial to the provision of commendable services could also be supplemented with the private health centers and the government should see them friendly.

10. Although employment was found insignificant indicator of poverty it at least is correlated negatively. In the town the issue of unemployment according to the survey results is not that much serious. The paradox is, nevertheless, that even the employed ones are not able to lead commendable lives. This is because the return they get is not sufficient. This shows that the situation of unemployment should be revisited again.

11. The variables that are not significantly correlated with poverty (in the Logit model) are telephone and electricity. This doesn't, however, to mean that they are unimportant parameters of poverty but are not as desperately needed at this time for poverty analysis as the other variables do. They need to be strengthened in the future.

12.In general, the problem of poverty in the town can be reduced to a significant level so long as there are joint efforts in the identification of the causes, consequences, and commitments in the implementation from the government, NGOs & CBOs (if any), researches by professionals, the poor themselves, and from any interested stakeholder(s).

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Addis Ababa University
School of Graduate Studies
Regional and Local Development Studies
(RLDS)
Questionnaire for Master of Arts Degree Thesis in RLDS

Objective: The purpose of this questionnaire is to gather information about *Determinants of Urban Poverty in Debre Markos* for the partial fulfillment of the Master of Arts Degree in Regional and Local Development Studies at Addis Ababa University.

General Directions:

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

Thank You in Advance!

A. Household Characteristics

1. Age of Household Head _____
2. Sex
   1. Male 2.Female
3. Marital Status
   1. Never Married 3. Divorced
   2. Married 4. Widowed
4. Religion Denomination
   1. Orthodox Christian 4.Islamic/Muslim
   2. Catholic Christian 5.Others____ (specify)
   3. Protestant
5. Ethnic Group
   1. *Amhara* 3. *Oromo*
   2. *Tigrie* 4. Other _____ (specify)
6. Household Size_____
7. Number of economically active (productive) family members _____
8. Number of dependents in the household _____
9. Number of dependents outside the household____
10. Age of household dependents in the ranges of _____
11. Total number of household dependents_____

12. Household head highest educational level

1. Illiterate	5. Secondary (9-12)
2. Read and Write	6. Diploma Holder
3. Primary (1-6)	7. First Degree Holder
4. Junior (7-8)	8.Above first Degree Holder

B. Employment /Occupation

13. Status of employment
    1. Employed
    2. Unemployed
    3. Pensioner

    If "employed" to Q.13, inquire

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

1. Self-employed /Self-account	3.Private Employee
2. Government employee	4.NGO employee

If "self- employed" to Q.14 inquire

15. Which type of own-account/self-employed are you engaged in?

1. Petty-trade/*Gulit*	5. Preparing and sale of f local drinks
2. *Trade*	6. Sale of Food
3. Metal /Wood Work	7. Handicraft (embroidery, pottery)
4. Hotel Service	

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

C. ASSETS

17. Quantity in Birr the following assets if you have.

	Type of Asset	Value in Birr
1	House	
2	Car	
3	Refrigerator	
4	Television	
5	Tape Recorder	
6	Radio	
7	Stove	
8	Milk Cow	
9	Other _____(specify)	

D. INCOME

18. Which category of the following best describes the total average income that you and all other members of your household earn per month (in Birr)?

1. Below 100
2. 100-199
3. 200-299
4. 300-399
5. 400-599
6. 600-799
7. 800-999
8. 1000-1299
9. 1300-1499
10. 1500-1699
11. 1700-1999
12. 2000 and above

19. Where do you categorize your households' monthly income (in Birr)?

1. Upper income (more than 1500)
2. Middle income (800_1500)
3. Lower income (400-799)
4. Extremely lower income (below 399)

20. Does your household monthly income cover your expenditure?

1. Yes
2. No

If "no" to Q 20, inquire

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

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

22. In your residence (Debre Markos), does education have impact on your life standard?

1. Yes
2. No

If "yes" to Q. 22 inquire

23. On what aspects?

1. Getting secure jobs
2. Better salary
3. To educate children
4. Increase in saving habit
5. Develop Entrepreneurship
6. Others_____(specify)

If "five" to Q. 23, inquire

24. Do the working habits have impact on your life?

1. Yes
2. No

If "one" to Q 24, inquire

25. In what way?

1. To work efficiently/effectively
2. Increases working ethos
3. Other _____ (specify)

E. Consumption Expenditure

26. How much is your household monthly **expenditure** (in Birr)?

1. Below 100
2. 101-200
3. 201-400
4. 401-600
5. 601-900
6. 901-1200
7. 1201 and above

27. How much does your family spend to **basic needs** (food, cloth and houses etc) per month?

_____Birr.

28. How much for the **non-basic needs** do you spend in a month?
_____Birr.
29. How much is your household monthly expenditure on education?
_____Birr
30. Concerning your children's schooling 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
31. How much does your family save per month?
_____Birr.

If your answer to Q.31 is nothing, inqure,

32. Why?
    1. Lack of sufficient income
    2. Transfer to other duties
    3. Other ____ (specify)
33. Of the following food items which ones does your family ***frequently*** consume?
    1. *Injera* with *Shiro*
    2. *Injera* with Meat products
    3. Bread with *Shiro*
    4. Spaghetti/Macaroni
    5. Vegetables
    6. Other ____ (specify)

34. Quantify the following items with the appropriate units of measure. For items 1 to 16 expenditures will be expressed monthly while items from seventeen to twenty are assumed annually.

Item no	**Food/Drink Items (on Monthly Bases)**	**Amount in Kilograms, Liters and Birr**
1	**Teff (Kg)**	
2	Wheat (Kg)	
3	Maize (Kg)	
4	Barely (Kg)	
5	Potato (Kg)	
6	Onion (Kg)	
7	Beans & Peas (Kg)	
8	Lentil (Kg)	
9	Vegetables (Kg)	
10	Dry Pepper (Kg)	
11	Edible Oil (Litter)	
12	Milk (Litter)	
13	Butter (Kg)	
14	Meat ((Kg)	
15	Sugar (Kg)	
16	**Coffee (Kg)**	
	Non-food Items (on yearly bases)	
17	Clothes (in Birr)	
18	Ceremony (in Birr)	
19	Entertainment (in Birr)	
20	Domestic Service: for guard, servant salary (in Birr)	

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

1. Yes
2. No

36. If your answer to question 35 is yes, how many are they?

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

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

1. *Tella &Local Areki*
2. *Tej*
3. Soft Drink
4. Draft
5. Other ____ (specify)

If 1 or 2 to Q. 37, inquire

38. Why?
    1. Because of its low price
    2. Because of its excellent taste
    3. Because of its convenience to health
    4. Other _____ (specify)

39. How often does your family go to recreation?
    1. None
    2. Some times
    3. Most of the time
    4. Other _____ (specify)

40. How often does your household watch theaters /cinemas?
    1. None
    2. Some times
    3. Twice
    4. frequently
    5. Other ____(specify)

F. About Water

41. What is the **main** source of water for your household?
    1. Piped water ⟶ go to Q. 42
    2. Other _____ (specify) ⟶ go to Q.58

42. What kind of piped water services does your household consume currently?
    1. Tap inside the house ⟶ go to Q. 43
    2. Tap in the compound, private ⟶ go to Q. 43
    3. Tap in the compound, shared ⟶ go to Q. 45
    4. Tap outside the compound ⟶ go to Q. 46

If "Tap inside the house/compound" to Q. 42, inquire

43. How much, on average, are you charged per month, for using this source?
    _____ Birr

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

Category	Rate		
	Good & above	Satisfactory	Poor
Quality			
Quantity			
Reliability			

If "Tap in the compound, shared" to Q. 42 inquire

45. How many households shared the tap in the compound?
    _____ Households.

If "tap outside the compound" to Q. 42, inquire

46. From which source do you get water currently?
    1. Public tap ⟶ go to Q. 47
    2. Private venders ⟶ go to Q 54
    3. Other ⟶ (Specify)

If "Public tap" to Q. 46 inquire

47. Why do you prefer this source?
    1. No Capacity to pay for other alternatives
    2. Its reliability
    4. Lower Volume charge
    5. Other _____ (specify)
48. Who, ***usually***, collects /fetches water from the public tap?
    1. Girls
    2. Boys
    3. Mother
    4. Servant
    5. Others _____ (specify)

49. How much do you pay per *Baldi / Insera* on average?
    _____ Birr
50. Would you like to continue using this source of water?
    1. Yes
    2. No

If "No" to Q. 50, inquire

51. Are you satisfied with this source (tap water outside the compound)?
    1. Yes
    2. No

If "No" to Q. 51, inquire

52. Why are you dissatisfied? Rate your response by putting your dissatisfaction as 1, 2, 3&4
    High volume charge _____ Poor Quality__
    Low quantity ___ Others _____ (specify)
    Unreliability ___

If your response to Q. 46 is not 1, inquire

53. From whom do you buy water?
    1. Private vendors
    2. Other _____ (specify)
54. Why do you prefer this source? Rank your responses by putting your choices as 1, 2, 3 and 4
    I cannot afford to have own tap___ Low volume charge__
    No access to the existing pipe system__ other _____ (specify)
    Its reliability___
55. How much do you pay per *Insera/Baldi*?
    _____ Birr/Cents.
56. Are you satisfied with the provisions of water from this source?
    1. Yes
    2. No

If "No" to Q. 56, inquire

57. Why are you not satisfied? Rate your response by putting 1, 2, 3 &4.
    High volume charge___ Unreliability___
    Low quantity____ Other _____(specify
    Poor quality____

If "Others" to 41, inquire

58. Do you use Well water?
    1. Yes
    2. No
59. Who, usually, goes to collect/fetch from this source?
    1. Girls
    2. Boys
    3. Mother
    4. Servant
    5. Others _____ (specify)
60. Are you comfortable with this source of water?
    1. Yes
    2. No

If "No" to Q. 60, inquire

61. Why? Rate your responses by putting your choices as 1, 2, 3, &4.
    High charge___ Unreliability___
    Low quantity___ others _____ (specify)
    Poor quality___
62. To what extent do you think the current provision of piped water in Debre Markos town is an issue worth discussion?
    1. Too serious
    2. Serious
    3. Moderately serious
    4. Less serious
    5. No Problem at all
63. Who do you think is accountable for the provision of sufficient quality water in the town?
    1. The municipality
    2. The Community
    3. The town water supply/service
    4. Private stakeholders
    5. Other _____ (specify)

If your answer to Q.63 is 3

64. To what extent does the town water supply/service introduced problem solving mechanisms in the provision of piped water to households?
    1. To a greater extent
    2. To a moderate extent
    3. To a lesser extent
    4. No attention at all.

G. Health

65. Have any of your household members frequently suffered from diseases?
    1. Yes
    2. No

If "Yes" to Q. 65, inquire

66. Degree of illness
    1. Very critical
    2. Critical
    3. Moderate
    4. Simple

If your answer is1 or 2 for Q. 66, inquire

67. Have you visited any medical facility?
    1. Yes → go to Q.68
    2. No→go to Q. 75

If "Yes "to Q. 67, inquire

68. Which facility?
    1. Government (Hospital, Health center, Clink, Pharmacy)
    2. Private (Clink, Diagnostic laboratory, Pharmacy)
    3. Traditional healer
    4. Other _____ (specify)

If 1 to Q 68, inquire,

69. Why do you prefer government facility?
    1. Because it has lower charge
    2. Because of its good facility
    3. Because of qualified professionals
    4. Other _____ (specify)

If 2 to Q. 68, inquire,

70. Why do you prefer Private medical facilities?
    1. Better treatment/hospitality 3.Efficient service
    2. Better medicine 4.Other _____(specify)

If 3 to Q. 68, inquire,

71. Why do you prefer traditional medicine?
    1. Low charge
    2. Cures better than scientific medicines
    3. Better follow up
    4. Other _____ (specify)

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

Medical Facility	Visit Frequency	
	1	2
Government		
Private		
Non-governmental		
Traditional		

73. How much is your household annul health expenditure?
    1. _____Birr
    2. No regular budget

74. How do you evaluate the quality of treatment received based on the availability of common drugs, Diagnostic laboratory tests, and performance of staffs?

Evaluation Rate	Government	Private	NGO	Traditional
Excellent (4)				
Very good (3)				
Good (2)				
Poor (1)				
No Evaluation				

If "No" to Q. 67, inquire

75. Why did not visit modern medical facility?
1. Unable to afford the charge
2. Uncertainty to the curable/Preventable nature of the treatment\
3. The very nature of the disease
4. Other _____ (specify)

If 3 to Q. 75, inquire

76. Is the disease not preventable or curable in any of the medical facilities in the town?
1. Yes
3. No

If "yes" to Q.76

77. Can you tell what sort of disease(s) your household (member) has?
1. I can
2. I cannot.

If 2 for Q. 77, inquire

78. Does this disease bring an impact on occupation?
1. Yes
2. No

If "Yes" to Q 78, inquire

79. How severe is the disease?
1. Very
2. Moderate
3.Low

If "very" to Q. 79, inquire

80. How often, on average, per month do you(r) household stay on bed?
1. Some times
2. Usually
3. Other____(specify)

81. Who do you think is responsible for quality health provisions in the town?
    1. Regional Government
    2. Town Health Service
    3. Private health centers
    4. Others _____ (Specify)

If your answerer to Q.81 is 2, inquire

82. So far, to what extent does the town health service provided attention in solving health problem?
    1. A lot attention to the problem
    2. Some attention to the problem
    3. Little attention to the problem
    4. No attention at all
    5. No Comment at all

H. About Telephone

83. Are you a subscriber of a fixed telephone line?
    1. Yes → go to Q.84
    2. No →go to Q. 86

If "Yes" to Q 83, inquire

84. Which type of line?
    1. Residential line
    2. Business line
    3. Both

85. Taking the monthly charge of your home phone, how do you rate its charge?
    1. Extremely high
    2. High
    3. Medium
    4. Low
    5. Extremely Low

If "No" to Q. 83, inquire

86. Why are you not a fixed telephone subscriber?
    1. Inability to pay the subscription line
    2. Inability to pay monthly rent and/or bill
    3. No importance /little importance to me
    4. Other___(specify)

I. About Electricity

87. Do you have your own-metered electricity?
    1. Yes
    2. No

If "Yes" to Q. 87, inquire

88. For what purpose do you use?
    1. Lighting only
    2. Lighting and cooking
    3. Lighting, cooking and ironing, fridge
    4. Other _____ (specify)

If "Lighting only" for Q. 88, inquire

89. Which type of fuel(s) does your household ***frequently*** use for cooking purpose?
    1. Wood
    2. Gas
    3. Cow dung
    4. Other _____ (specify)

If 1 for Q. 89, inquire

90. Why did you prefer wood to electricity for this purpose?
    1. Because of its low charge/price
    2. Because of its easily availability
    3. Easiness for manipulation and free of danger
    4. Other ____ (specify)

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

92. Who do you think is responsible for providing requisite electricity?
    1. The government
    2. The town electric Corporation
    4. The Private Sector
    5. Other _____(specify)

If your answer to Q.92 is 2

93. in your opinion has the town Electric Corporation made enough contribution in solving the problem in the provision of electricity (rate your responses)?
    1. High contribution
    2. Some Contribution
    3. Little contribution
    4. No contribution at all

J. Housing

94. Who is the owner/ tenure of your housing unit?
    1. Own occupied
    2. Rent from *Kebele*
    3. Rent from privates
    4. Others_____?

If 1 to Q 94, inquire

95. How many rooms does this house have?
    _____ Rooms

If "two" to Q. 94, ask

96. How much do you pay monthly?
    _____ Birr

If "three" to Q.94, inquire

97. How much do you pay monthly?
    _____ Birr

98. What are the main construction materials of the house you live in?
    1. Wood with mud
    2. *Blockets*
    3. Bricks
    4. Other _____ (specify)

99. 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

100. Toilet facility
    1. No toilet
    2. Private Pit
    3. Shared pit
    4. Other _____ (specify)

101. Bathing/Shower facility
    1. None
    2. Private shower
    3. Shared shower
    4. Other _____ (specify)

Thank you!

List of Annexes

Annex E

Table 24 Accountability of providing adequate health service

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Table 25 Why not a fixed telephone subscriber?

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Table 27 Toilet Facility

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Table 28 Bathing Facility

Annex J

Table 29 Independent Sample Test

Annex A: Educational Level of Household Head

Table 1 Highest Educational level of household head

Poverty Level of the Household		Illiterate	Read & Write	Prim (1-6)	Junior (7-8)	Second. (9-12)	Diploma Holder	Degre Holder	Above 1st degree	Total
Above Level	Count	13	13	14	5	18	21	4	0	88
		14.8%	14.8%	15.9%	5.7%	20.5%	23.9%	4.5%	0%	100%
Below Level	Count	49	26	27	17	31	14	7	0	171
		28.7%	15.2%	15.8%	9.9%	18.1%	8,.%	4%	0%	100%
Total	Count	62	39	41	22	49	35	11	0	259
		23.9%	15.1%	15.8%	8.5%	18.9%	13.5%	3.1%	0%	100%

Source: Own Survey and Computation

*

Annex B: Type of Self-account

Table 2 Type of Self-account

Poverty Level of the Household		Type of own-account/self-employed									
		Petty-trade /Gulit	Trade	Metal /Wood Works	Hotel Serv	Drink Sale	Sale of Food	Handic raft	Not self-employed	Unempd	Total
Above PL	Count	12	13	3	0	1	0	3	51	5	88
		13.6%	14.8%	3.4%	0%	1.1%	0%	3.4%	58%	5.7%	100%
Below PL	Count	22	12	4	3	11	5	14	73	20	164
		13.4%	7.3%	2.4%	1.8%	6.7%	3%	8.5%	44.5%	12.2%	100%
Total	Count	34	25	7	3	12	5	17	124	25	252
		13.5%	9.9%	2.8%	1.2%	4.8%	2%	6.7%	49.2%	9.9%	100%

Source: Own Survey and Computation **

Annex C: Income and Expenditure

Table 3 Household Monthly Income

Poverty Level of HH		Below 100	100-199	200-299	300-399	400-599	600-799	800-999	1000-1299	1300-1499	1500-1699	1700-1999	2000 and above	Total
Above PL	Count	2	6	3	6	8	9	6	22	8	4	2	12	88
		2.3%	6.8	3.4	6.8	9.1	10.2	6.8	2%	9.1%	4.5%	2.3%	13.6%	100
Below PL	Count	20	37	33	21	24	12	4	7	2	2	2	8	172
		11.6%	21.5	19.2	12.2	14	7%	2.3	4.1%	1.2%	1.2%	1.2%	4.7%	100
Total	Count	22	43	36	27	32	21	10	29	10	6	4	20	260
		8.5%	16.5	13.8	10.4	12.3	8.1	3.8	11.2%	3.8%	2.3%	1.5%	7.7%	100

Source: Own Survey and Computation
*

Table 4 Ways of Filling Income- expenditure gap

Poverty Level of Households		Sale of assets	Support from relatives	No option	Others	No gap	
Above PL	Count	0	9	15	2	62	88
		0%	10.2%	17%	2.3 %	70.5%	100%
Below PL	Count	2	30	70	8	62	172
		1.2%	17.4%	40.7%	4.7 %	36%	100%
Total	Count	2	39	85	10	124	260
		0.8%	15%	32.7%	3.8 %	47.7%	100%

Source: Own Survey and Computation *

Table 5 Household Monthly Expenditure

Poverty Level of Household		Average monthly expenditure of household							
		Below 100	101-200	201-400	401-600	601-900	901-1200	1201 and above	Total
Above PL	Count	3	8	18	16	18	11	14	88
		3.4%	9.1%	20.5%	18.2%	20.5%	12.5%	15.9%	100%
Below PL	Count	18	57	52	30	7	5	3	172
		10.5%	33.1%	30.2%	17.4%	4.1%	2.9%	1.7%	100%
Total	Count	21	65	70	46	25	16	17	260
	%	8.1%	25%	26.9%	17.7%	9.6%	6.2%	6.5%	100%

***Source**: Own Survey and Computation**

Table 6 Frequently Consumed Drinks

Poverty Level of Household		Frequently Consumed Drinks								
		Tella	Tej	Soft Drink	Draft	Other	1 & 2	3 & 5	No drink	Total
Above PL	Count	50	2	9	2	18	1	1	5	88
		56.8%	2.3%	10.2%	2.3%	20.5%	1.1%	1.1%	5.7%	100%
Below PL	Count	116	3	10	1	34	1	0	5	172
		67.4%	1.7%	5.8%	0.6%	19.8%	0.6%	0%	2.9%	100%
Total	Count	166	5	19	3	52	2	1	10	260
		63.8%	1.9%	7.3%	1.2%	20%	0.8%	0.4%	3.8%	100%

***Source**: Own Survey and Computation ***

Annex D: Water Source

Table 7 Type of Water Supply

Poverty level of the household		What Kind of Piped Water Do you Use?					
		Tap inside the house	Private Tap in the compound	Shared Tap in the compound	Public Tap	No pipe water	Total
Above PL	Count	0	72	9	4	3	88
		0%	81.8%	10.2%	4.5%	3.4%	100%
Below PL	Count	3	111	6	36	10	166
		1.8%	66.9%	3.6%	21.7%	6%	100%
Total	Count	3	183	15	40	13	254
		1.2%	72%	5.9%	15.7%	5.1%	100%

Source: Own Survey and Computation

Table 8 Quality (purity) of Private Water

Poverty level of the household		Quality of water services-Private					Total
		Poor	Satisfactory	Good and above	No use of private tap	No tap water service in general	
Above PL	Count	1	34	36	14	1	86
		1.2%	39.5%	41.9%	16.3%	1.2%	100%
Below PL	Count	1	46	65	50	5	167
		0.6%	27.5%	38.9%	29.9%	3%	100%
Total	Count	2	80	101	64	6	253
		0.8%	31.6%	39.9%	25.3%	2.4%	100%

Source: Own Survey and Computation

**

Table 9 Quantity of Private Water

Poverty Level of the Household		Quantity of water services-Private					Total
		Poor	Satisfactory	Good and above	No use of private tap	No tap water service in general	
Above PL	Count	5	56	11	15	1	88
		5.7%	63.6%	12.5%	17%	1.1%	100%
Below PL	Count	9	77	23	53	5	167
		5.4%	46.1%	13.8%	31.7%	3%	100%
Total	Count	14	133	34	68	6	255
		5.5%	52.2%	13.3%	26.7%	2.4%	100%

Source: Own Survey and Computation

Table 10 Reliability of Water Service

Poverty Level of the Household		Reliability of water service					Total
		Poor	Satisfactory	Good and above	No use of private tap	No tap water service in general	
Above PL	Count	19	45	8	13	3	88
		21.6%	51.1%	9.1%	14.8%	3.4%	100
Below PL	Count	36	54	16	50	8	164
		22%	32.9%	9.8%	30.5%	4.9%	100%
Total	Count	55	99	24	63	11	252
		21.8%	39.3%	9.5%	25%	4.4%	100%

Source: Own Survey and Computation

**

Table 11 Public Tape Water

Poverty Level of Household		Kind of public tap water					Total
		Public tap	Private venders	No tap water-outside use	No tap water use in general	1 & 2	
Above PL	Count	2	2	81	2	1	88
		2.3%	2.3%	92%	2.3%	1.1%	100%
Below PL	Count	31	18	112	10	0	171
		18%	10.5%	65.5%	5.8%	0%	100%
Total	Count	33	20	193	12	1	259
		12.7%	7.7%	74.5%	4.6%	0.4%	100%

Source: Own Survey and Computation

*

Table 12 Continuity of Using Public Tap

Poverty Level of the Household		Would you like to continue using Public Tap?						
		Yes	No	No public tap use	No tap water-outside use	No tap water use in general	3 & 4	Total
Above PL	Count	0	2	5	2	4	75	88
		0%	2.3%	5.7%	2.3%	4.5%	85.2%	100%
Below PL	Count	7	11	23	7	14	110	172
		4.1%	6.4%	13.4%	4.1%	8.1%	64.0%	100%
Total	Count	7	13	28	9	18	185	260
		2.7%	5%	10.8%	3.5%	6.9%	71.2%	100%

Source: Own Survey and Computation

**

Table 13 Satisfaction of Households using Public Tap

Poverty Level of Households		Do you Satisfied using Public Tap?						
		Yes	No	No public tap use	No tap water-outside use	No tap water use in general	3 & 4	Total
Above PL	Count	0	2	1	6	4	75	88
		0%	2.3%	1.1%	6.8%	4.5%	85.2%	100%
Below PL	Count	8	10	10	20	14	110	172
		4.7%	5.8%	5.8%	11.6%	8.1%	64%	100%
Total	Count t	8	12	11	26	18	185	260
		3.1%	4.6%	4.2%	10%	6.9%	71.2%	100%

Source: Own Survey and Computation

**

14. Dissatisfaction Rate of Households using Public Tap

		Dissatisfied in using public tap-High charge								
		Yes	No	Satisfied	No use of public tap	No use of any public	No tap water in general	3 & 4	4 & 5	Total
Above PL	Count	1	1	0	11	6	2	8	50	88
		1.1%	1.1%	0%	12.5%	6.8%	2.3%	9.1%	56.8%	100%
Below PL	Count	6	3	9	31	19	9	9	66	171
		3.5%	1.8%	5.3%	18.1%	11.1%	5.3%	5.3%	38.6%	100%
Total	Count	7	4	9	42	25	11	17	116	
		2.7%	1.5%	3.5%	16.2%	9.7%	4.2%	6.6%	44.8%	100%

Source: Own Survey and Computation

**

15. Dissatisfaction Rate of Households using Public Tap

Poverty Level of the Household		Dissatisfied in using Public tap-low quantity								
		Yes	No	Satisfied	No use of public tap	No use of any Public tap	No tap water in general	7	8	Total
Above PL	Count	2	0	0	11	6	2	8	59	88
		2.3%	0%	0%	12.5%	6.8%	2.3%	9.1%	67.0%	100%
Below PL	Count	5	4	9	31	19	9	9	85	171
		2.9%	2.3%	5.3%	18.1%	11.1%	5.3%	5.3%	49.7%	100%
Total	Count	7	4	9	42	25	11	17	144	259
		2.7%	1.5%	3.5%	16.2%	9.7%	4.2%	6.6%	55.6%	100%

Source: Own Survey and Computation

16. Dissatisfaction Rate of Households using Public Tap

Poverty Level of the Household		Dissatisfaction in Using Public tap-poor Quality								
		Yes	No	Satisfied	No use of public tap	No use of any tap	No tap in general	3 & 4	4 & 5	Total
Above PL	Count	1	1	0	11	6	2	8	59	88
		1.1%	1.1%	0%	12.5%	6.8%	2.3%	9.1%	67.0%	100%
Below PL	Count	3	6	9	31	19	9	9	85	171
		1.8%	3.5%	5.3%	18.1%	11.1%	5.3%	5.3%	49.7%	100%
Total	Count	4	7	9	42	25	11	17	144	259
		1.5%	2.7%	3.5%	16.2%	9.7%	4.2%	6.6%	55.6%	100%

Source: Own Survey and Computation

17. Dissatisfaction Rate of Households using Public Tap

Poverty Level of the Household		Dissatisfaction in using public tap-other reasons								
		Total								
		Yes	No	Satisfied	No use of public tap	No use of any tap	No tap water	3 & 4	4 & 5	
Above PL	Count	0	2	0	11	6	2	8	59	88
		0%	2.3 %	0%	12.5%	6.8%	2.3%	9.1%	67%	100%
Below PL	Count	1	7	9	32	18	9	9	86	171
		0.6 %	4.1 %	5.3%	18.7%	10.5%	5.3%	5.3%	50.3%	100%
Total	Count	1	9	9	43	24	11	17	145	259
		0.4 %	3.5 %	3.5%	16.6%	9.3%	4.2%	6.6%	56%	100%

Source: Own Survey and Computation
**

Table 18 Private Vendor Consumers

Poverty Level of Household		Why do you prefer private vendors?					Total
		I cannot afford to have own tap	I didn't buy from private vendors	I didn't use tap water in general	1, 2 & 3	1, 2, 3 & 4	
Above PL	Count	3	77	4	0	0	84
		3.6%	91.7%	4.8%	0%	0%	100%
Below PL	Count	4	128	18	10	4	164
		2.4%	78%	11%	6.1 %	2.4%	100%
Total	Count	7	205	22	10	4	248
		2.8%	82.7%	8.9%	4%	1.6%	100%

*Source: Own Survey and Computation***

Table 19 Dissatisfaction Rate of Using private Vendors

Poverty Level of the Household		Dissatisfied in using private vendors - High Charge					Total
		Yes	I didn't buy water from private	No tap water use in general	5	5	
Above PL	Count	3	1	81	0	3	88
		3.4%	1.1%	92%	0%	3.4%	100%
Below PL	Count	14	4	139	1	14	172
		8.1%	2.3%	80.8%	0.6%	8.1%	100%
Total	Count	17	5	220	1	17	260
		6.5%	1.9%	84.6%	0.4%	6.5%	100%

Source: Own Survey and Computation

Table 20 Dissatisfaction Rate of using private Vendors

Poverty Level of the Household		Dissatisfied in using Private Vendors-Low quantity						
		Yes	No	I didn't buy water from private	No tap water use in general	5	5	Total
Above PL	Count	3	0	1	81	0	3	88
		3.4%	0%	1.1%	92%	0%	3.4%	100%
Below PL	Count	12	2	4	139	1	14	172
		7%	1.2%	2.3%	80.8%	0.6%	8.1%	100%
Total		15	2	5	220	1	17	260
		5.8%	0.8%	1.9%	84.6%	0.4%	6.5%	100%

Source: Own Survey and Computation

Table 21 Dissatisfaction Rate of using private Vendors

Poverty Level of the Household		Dissatisfied in Using Private Vendors-Poor Quality						
		Yes	No	I didn't buy water from private	No tap water use in general	5	5	Total
Above PL	Count	1	3	4	75	0	5	88
		1.1%	3.4%	4.5%	85.2%	0%	5.7%	100%
Below PL	Count	13	5	7	131	1	15	172
		7.6%	2.9%	4.1%	76.2%	0.6%	8.7%	100%
Total	Count	14	8	11	206	1	20	260
		5.4%	3.1%	4.2%	79.2%	0.4%	7.7%	100%

Source: Own Survey and Computation

Table 22 Dissatisfaction Rate of Using Private Vendors

Poverty level of the Household		Dissatisfied in Buying from Private Vendors-Unreliability						
		Yes	No	I didn't buy water from private	No tap water use in general	5	5	Total
Above PL	Count	2	1	1	81	0	3	88
		2.3%	1.1%	1.1%	92%	0%	3.4%	100%
Below PL	Count	12	1	4	140	1	14	172
		7%	0.6%	2.3%	81.4%	0.6%	8.6%	100%
Total	Count	14	2	5	221	1	17	260
		5.4%	0.8%	1.9%	85%	0.4%	6.5%	100%

Source: Own Survey and Computation

23. Accountability of Providing Quality and Sufficient Water

Poverty Level of the Household		Who is accountable in providing adequate water to the town?						
		The municipality	The community	The town water service	Private stakeholders	Other	1, 2 & 3	Total
Above PL	Count	12	1	68	1	3	0	88
		13.6%	1.1%	77.3%	1.1%	3.4%	0%	100%
Below PL	Count	42	2	123	1	2	1	172
		24.4%	1.2%	71.5%	0.6%	1.2%	0.6%	100%
Total	Count	54	3	191	2	5	1	260
		20.8%	1.2%	73.5%	0.8%	1.9%	0.4%	100%

Source: Own Survey and Computation

Appendix E: Health Service

Table 24 Accountability of Providing Adequate Health Service

Poverty Level of the Household		Who is Accountable for the Provision of adequate Health service in the town?							
		Regional Govt.	Town Health Service	Private health centers	Others	1 & 2	1 & 3	1, 2 & 3	Total
Above PL	Count	22	48	0	0	2	0	1	73
		30.1%	65.8%	0%	0%	2.7%	0%	1.4 %	100%
Below PL	Count	50	89	6	2	4	1	1	153
		32.7%	58.2%	3.9%	1.3%	2.6%	0.7%	0.7 %	100%
Total	Count	72	137	6	2	6	1	2	226
		31.9%	60.6%	2.7%	0.9%	2.7%	0.4%	0.9 %	100%

Source: Own Survey and Computation

Annex F: Telephone Service

Table 25 Why Are you not a Fixed Telephone Subscriber?

Poverty Level of the Household		Why are you not a fixed line subscriber?							
		Inability to pay the subscription line	Inability to pay monthly rent and/or bill	No importance /little importance to me	Other	Fixed Telephone subscriber	1 & 3	3 & 4	Total
PL of the HH	Above PL	2	2	2	5	76	1	0	88
		2.3%	2.3%	2.3%	5.7%	86.4%	1.1%	0%	100%
	Below PL	20	7	22	19	100	1	1	172
		11.6%	4.1%	12.8%	11%	58.1%	0.6%	0.6%	100%
Total		22	9	24	24	176	2	1	260
		8.5%	3.5%	9.2%	9.2%	67.7%	0.8%	0.4%	100%

***Source**: Own Survey and Computation*

*

Annex G: Electricity Service

Table 26 Debre Markos Town Electric Corporation Intervention

Poverty Level of the Household		The town Electric Corporation Intervention Contribution					
		High	Some	Little	Notat all	5	Total
Above PL	Count	24	25	21	4	0	74
		32.4%	33.8%	28.4%	5.4%	0%	100%
Below PL	Count	54	41	33	7	1	136
		39.7%	30.1%	24.3%	5.1%	0.7%	100%
Total	County	78	66	54	11	1	210
		37.1%	31.4%	25.7%	5.2%	0.5%	100%

Source: Own Survey and Computation

Annex H: Toilet Facility

Table 27 Toilet Facility

Poverty Level of the Household		Toilet facility					
		No toilet	Private Pit	Shared pit	Other	2 & 4	Total
Above PL	Count	4	73	8	2	1	88
		4.5%	83%	9.1%	2.3%	1.1%	100%
Below PL	Count	15	144	9	2	2	172
		8.7%	83.7%	5.2%	1.2%	1.2%	100%
Total	Count	19	217	17	4	3	260
		7.3%	83.5%	6.5%	1.5%	1.2%	100%

Source: Own Survey and Computation

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Annex I: Bathing Facility

Table 28 Bathing Facility

Poverty Level of the Household		Bathing/Shower facility			Total
		None	Private shower	Shared shower	
Above PL	Count	71	17	0	88
		80.7%	19.3%	0%	100%
Below PL	Count	142	28	1	171
		83%	16.4%	0.6	100%
Total	Count	213	45	1	259
		82.2%	17.4%	0.4%	100%

Source: Own Survey and Computation

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Annex J: Sample Test

Table 29 Independent Samples Test

	Levene's Test for Equality of Variances		t- test for Equality of Means					
	F	Sig.	t-value	Sig.	Mean Diff	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Value of House	.037	.847	2.58	.015	11436.9	4653.2	2254.712	20619.07
			2.22	.017	11436.9	4722.8	2094.850	20778.9
Value of Car	5.319	.033	1.257	.225	68681.3	54653.9	-46142.450	183505.8
			1.628	.123	68681..3	42183.9	-20785.762	158148.
Value of Refrigerator	.009	.924	-.072	.943	-273.684	3787.4	-8058.816	7511.5
			-. 076	.940	-273.684	3587.0	-7805.145	7257.8
Value of Television	4.659	.033	1.810	.073	1253.613	692.07	-118.017	2625.24
			1.912	.060	1253.613	655.67	-55,.28	2562.24
Value of Tape Recorder	9.999	.002	2.743	.007	372.539	135.8	104.606	640.47
			2.631	.009	372,539	141.73	92.655	652.42
Value of Radio	3.585	.063	1.54	.25	52,500	33.77	-15.038	120.03
			1.472	.149	52.5	35.67	-19.520	124.52
Value of Stove	8.177	.021	-1.228	.254	-472.857	385.13	-1360,.83	415..26
			-.829	.487	-472.857	570.12	-2726.621	1780.9
Value of Milk Cow	.158	.695	.524	.605	752.747	1435.6	-2203.842	3709.36
			.529	.602	752.747	1423.31	-2181,492	3686.98
Value of Other Assets	112.104	.000	3.900	.001	20031.34	5136.35	9473.417	30589.27
			2.627	.030	20031.34	7626.5	2445.074	37617.61
Total average income of the household per month	1.904	.169	8.350	.00	3.117	.373	2.382	3.85
			8.137	.000	3.117	.383	2.360	3.87

Source: Own Survey and Computation

Note that the values of each asset is expressed in Birr

DECLARATION

I declare that this thesis is my original work and has not been presented for a degree in any university and all the sources of materials used for the thesis are duly acknowledged.

Name: _____

Signature _____

Date: August 3,2006

Place: Addis Ababa University

I confirm that this thesis has been submitted with my approval as an academic advisor.

_____ (PhD)

Signature _____

Date : August 3, 2006