ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDY

THE EFFECT OF HEALTH SERVICE ON RURAL ECONOMIC DEVELOPMENT: THE CASE OF DIBATE WOREDA IN BENISHANGUL GUMZ REGIONAL STATE

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ECONOMICS

(ECONOMIC POLICY ANALYSIS)

BY

TAYE GENETU SIYOUM

FEBRUARY, 2007

ADDIS ABABA

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

"The Effect of Health Service on Rural Economic Development: The Case of Dibate Woreda in Benishangul Gumz Regional State."

By

Taye Genetu Siyoum

Approved by the Board of Examiners:

DR. J.M. RAO	
Advisor	**Signature**
Sharil Singh	
Examiner	**Signature**
G. RAMAKRISHNA	
Examiner	**Signature**

Acknowledgment

I should like to name every one who has helped me in collecting and compiling the data for this study and also in writing this thesis. As the list can be long, I confine my self to the short listed persons only. With this in mind, my special thanks go to the Dibate Woreda Finance and Economic Development Office which sponsored me for the Master of Science program and which enabled my enrollment possible. Also, I am indebted to my colleagues who gave me the moral support and the courage in pursuing my education taking in to account the work load which I should dared along with my education.

I owe, also, a special debt to my advisor, Dr. Manohor Rao , for his advice, assistance and guidance. Besides this, I would like to thank all those and my fellow school- mates and friends for their unfailing moral support in preparing this thesis.

Finally, I must confess that my pursuing of my education would have not been successful had it not been for the moral support of my wife, Tirunesh, who took care of my children, Firehiwot, Heven, and Bezawork in their education and up-bringing. My children bear with me by sacrificing a fatherly day to day attendance and care which I should have provided them with.

Table of Content

List of Tables

List of Annexes

Acronyms

No.	**Number**
Km.	**Kilometer**
WHO	**world Health Organization**
Qts.	**Quintals**
Tot.	**Total**
Teach	**Technician**
Lab.	**Laboratory**
ETB	**Ethiopia Birr**
NGOs	**Non- Governmental Organizations**
MOH	**Ministry of Health**
LDCs	**Less developed Countries**
OGA	**Other Governmental Agency**
TBA	**Traditional Birth Attendants**
CHA	**Community Health Agents**
Prof.	**Professional**
CSA	**Central statistical Authority**
ML	**Maximum Likelihood**
TB	**Tuberculosis**
STD	**Sexually Transmitted Disease**

Abstract

Provision of basic health service is one of the primary goal of social and economic development in the region. Dibate Woreda, as part of the region, is not an exception to this general truth.

Based on the above general truth, this study analyzed the effect of health service on the rural economic development in Dibate Woreda. Both economic and social factors were considered in making the study. In analyzing the study, econometric estimates were made to test the prior hypothesis and to analyze the problem addressed by this study. And also secondary data analysis was made to measure the economic burden of the dominate disease in the study area. The response given by the respondents in the Woreda show that even if family planning service were rendered satisfactorily, the average family size and the number of households get new born child in the past two years prior to this study remains high. Health centers, clinics and health posts were found to be used more than the private health facilities and traditional healers. Education, income and also demographic factors like sex, age, and family size were found to affect whether to seek medical care or not at the time of illness. From the secondary data analysis the overall finding based on the data show that the effect of poor health impose immense economic costs on individuals, households, and society at large by reducing labor availability, productivity and annual income of peasants.

Based on the analysis of this study, the policy implications are as follows:

Family planning has been positively affected by income of households and education. Thus, government should work to boost economic growth, reduce poverty, expand schooling and help strengthen women's ability to care for their families. Immunization service is one of the important health services provided. Thus, there is a need to provide primary health

education to enhance health awareness and to propagate the important concepts and practices of self responsibility in health. It may also important to increase availability of health facilities and must be accompanied by necessary medical inputs such as essential drugs with equipment and also be staffed with well trained personnel. Ill health is thought to impose economic costs. Thus, the government should focus on promoting the use of the most important assets of the rural poor through access to basic health care, education and nutrition.

CHAPTER ONE

INTRODUCTION

1.1 Background

Health is intrinsically desirable and productive. The intrinsic benefits of health are clear; ill health is one of the main causes of human suffering and can entail the risk of death.

Therefore, policies to promote health will have economic returns in terms of labor supply gains (through fewer days lost from work due to illness, greater productivity of time spent on work, lesser time spent carrying for the sick, longer working lives, less destruction of production due to unpredictable labour shortage), investment and saving effects (ill-health had an adverse effect on saving and hence on investment) income gains, and also child development gains (because illness can hinder child development by reducing the time parents devote to child care, lowering children's school performance, limiting amount of schooling provide to children).

Better health in Africa (1994) presented that; good health is basic to human welfare and a fundamental objective of social and economic development.

Accordingly:

It is not surprise therefore that ill health has a powerful effect on the regions economic progress. Productivity in some countries could increase by up to 15% were illness and disability attacked more strenuously. ... better control of disease would allow expansion of agriculture in to lands previously uninhabitable. Investments on education would yield a greater return because of longer life expectancy.

Thus, provision of health services is an important aspect of socio economic development. Poor health increases suffering and reduces people's alertness and their ability to cope with and enjoy life, poor health shackled human capital and undermines socioeconomic environments conducive to entrepreneurial activities. It is this fact and viewing of health as a public good that makes most governments to accept the declaration "Health for all (HFA) by the year 2000" even if its achievement requires that resources are made available to national health systems and are used efficiently (Health mirror, 2005).

Good health, as peoples know from their own experience, is a crucial part of well-being, but spending on health can also be justified on purely economic grounds. According to the World Development Researc (1993); improved health contributes to economic growth in four ways.

1. It reduces production losses caused by worker illness.
2. It permits the use of natural resources that had been totally or nearly inaccessible because of disease.
3. It increases the enrollment of children in school and makes them better able to learn and frees resources for alternative use (investment and saving effect).

It also presents that, the economic gains are relatively greater for poor people, who typically most handicapped by ill health and who stand to gain the most from the development of the underutilized natural resources. Thus, health affects welfare through its influence on the efficiency of human capital and on the productivity of work.

But, Ethiopia is one of the poorest developing countries with an annual per capita income of us $ 110 and about 45% of the population lives below the poverty line. During the period 1992 - 2002, GDP growth rate averaged 5.82% per annum before it declined to 1.2% in 2001/02 during the conflict with Eritrea and declined further to a negative 3.8% during the 2002/03 drought.

A period of recovery followed, with a growth rate of 11.6% recorded in 2003/04. During the same period inflation generally stood at a low level and was checked below 5% (Essential Health Service package for Ethiopia, August 2005).

According to this, Ethiopia's population face a high rate of morbidity and mortality and its health status is very poor. Available latest figures (2000) show infant mortality rate of 96.8/1000 while under five mortality rate is 140.1/1000. Approximately one-third of all under five deaths occur during the first month of life with neonatal mortality rate of 40/1000. These are very high levels though there has been a gradual decline in these rates during the past 15 years. Malaria and TB are the leading causes of hospital deaths.

According to the health sector strategy (1995); about 75% of the endemic diseases in Ethiopia are communicable and potentially preventable. Major problems among these include respiratory infections, diarrehoeal diseases, malaria, tuberculosis and sexually transmitted diseases (STD).

Thus, the major constraints of health services are the low number of health care facilities which are ill-equipped, maldistributed and in a state of disrepair, and ineffective health care delivery system which is top heavy, uncoordinated, inefficient and biased to wards the curative services.

According to Health policy paper (1993); in many developing countries, health policies are inefficient and inequitable. Too large proportion of public expenditures on health are allocated to impressive, but expensive, modern hospital facilities and sophisticated medical man power. The resources are typically concentrated on the needs of urban areas. Rural areas are

neglected; thus, only a small proportion of the total population is granted effective access to modern health care (World Bank 1975: 4).

1.2 The National Health Policy of Ethiopia

According to the health policy of Transitional Government of Ethiopia (TGE) (1993):

> *... health accords appropriate emphasis to the needs of the less privileged rural population which constitute the over whelming majority of the population and the major productive force of the nation. ... health, constituting physical, mental and social well-being, is a prerequisite for enjoyment of life and for optimal productivity. The government therefore accords health a prominent place in its order of priorities...*

Thus, establishing an effective and responsive health delivery system is an integral component of a national development policy that aims to reduce poverty and achieve economic growth and development.

Therefore, the need for special intervention to raise rural production income applies also to the provision of health service to rural population

The health policy of Ethiopia, which was approved in September 1993, reflects commitment and general directions towards decentralization and democratization focus on preventive and promotive components of health care and development of equitable and acceptable standard of health care services to reach all segments of the population. To this end, it is based on the following 10 principles.

1. Democratization and decentralization of the health service system.
2. Development of the preventive and promotive components of health care.
3. Development of an equitable and acceptable standard of health service system that will reach all segments of the population with in the limits of resources.
4. Promoting and strengthening of intersect oral activities
5. Promotion of attitudes and practices conducive to the strengthening of national self- reliance in health development by mobilizing and maximally utilizing internal and external resources.
6. Assurance of accessibility of health care for all segments of the population.
7. Working closely with neighboring countries, regions and international organizations to share information and strengthen collaboration in all activities contributory to health development including the control of factors detrimental to health.
8. Development of appropriate capacity building based on assessed needs.

9. Provision of health care for the population on a scheme of payment according to ability with special assistance mechanisms for those who cannot afford to pay.
10. Promotion of the participation of the private sector and non Governmental organizations in health care.

To achieve the policy objectives, the government of Ethiopia has developed its priorities of the policy towards:

- Information education and communication (I.E.C.) to the control of communicable, and disease related to malnutrition and poor living conditions, to the promotion of occupational health and safety;
- The development of environmental health, to the rehabilitation of the health infrastructure and the development of an appropriate health service management system;
- To the curative and rehabilitative components of health including mental health,
- The development of the beneficial aspects of traditional medicines;
- Applied health research;
- The provision of essential medicines, medical supplies and strengthened equipment;
- The development of human resources and;

- Special attention to women and children, neglected regions and segments of the population, victims of man-made and natural disasters.

1.3 Statement of the Problem

Effective health service creates healthy nations and it enhances productivity of the people and economic development. Therefore, the accessibility of the people to health service is crucial issue. How ever, there are factors which affect accessibility of people to health service to the study area such as:

- Low number of health care facilities which are ill-equipped, maldistributed and in a state of disrepair;
- An ineffective health care delivery system; resources, and
- An acute shortage of human and material resources with inefficient utilization of the available and the almost non-existent involvement and participation of the private sector and the beneficiary communities and related problems inciate me to have a research in this area.

1.4 Justification of the Study Area

Dibate, which is one of the Wordea, in the Metekel Zone is the site on which this study is based. The choice of this study area was based on varies considerations.

1. There was no prior study on the effect of health service on rural economic development has been done in this study area and the area is easily accessible for purposes of data collection.
2. There was high interest of the Woreda Council and also the Woreda Finance and Economic Development Office to have such type of research in the above title.
3. Dibate Woreda is one of the most populated rural areas that comprised about 57,055 people under its 15 Kebele's according to the current estimate of Health Office and these people are heterogonous in terms of socio-cultural conditions and may represent some parts of the peoples that are living in the region.

1.5 Scope of the Study

The scope of this study is only limited to the effect of health service on rural economic development in Dibate Woreda. The reason why I only remain with a single woreda is that there are problems associated with finance, Material, human resource, and transportation. The sample size is also limited to 5.5% of the total house holds (11,411). From the total household, about 624 are taken to make general analysis.

1.6 Objective of the Study

The main objectives of this study are:

i. To investigate the bottle-necks of rural health service development in Dibate Woreda.

ii. To show the relationship between health facilities and rural economic development.

iii. To suggest means and way of improving the poor quality control of drugs and injections.

iv. To come up with some conclusions and recommendations.

1.7 Significance of the Study

Improved health is a crucial part of people's wellbeing that contributes to the economic growth of a country. Determining the bottle-necks to rural health development would enable policy makers to design effective and efficient strategies of promoting the health status of the people. As such, making any research is to contribute something to the development effort given the limited resources. Therefore, the purpose of this study is to understand what health service is, what it contributes to rural economic developments and it may be useful to give some highlights and assist policy makers in the health sector particularly for the Benishangul Gumuz Regional State Health Bureau which is responsible for planning, implementation and Monitoring of health programmes.

1.8. Organization of the Study

This study is divided into six chapters. The first chapter introduces the over all ideas about the back ground, health policy of Ethiopia, statement of the problem, justification of the study area, scope, objective and significance of the study. The second chapter deals with review of literature. The third chapter covers description of the study area, general and specific to Dibate Woreda are presented. In chapter four research methodology, the theoretical frame work on which the study is based and specification of the empirical model followed by the hypothesized relationships and the estimation technique used, data types, sources and collection methodology and data limitation and reliability are presented. Then analysis of the results based on frequency distribution, the descriptive statistics, empirical findings and the results of secondary data analysis are performed in chapter five. The sixth chapter finalizes the body of the paper by conclusion and policy implications.

CHAPTER TWO

REVIEW OF LITERATURE

Three basic choices that determine the organization of health and medical service are stated by Feldstein (1968) in Kidane (1998) as follows. The first choice is a determination of both the amount to be spent on health and medical services and the composition of health and medical services. A selection of the best method for producing medical services is the second choice.

Theoretically, the consumer will select a particular type of good or services subject to his budget constraint to maximize his utility. The distinguishing characteristics of an individual's demand for medical services is not steady in origin as, for example, for food or clothing but irregular and unpredictable (we do not know when to take medical care i.e. periodic or seasonally), afford satisfaction only in the event of illness (we do not need it without illness), associated with a high probability of risk (e.g. death i.e. avoidance of illness is less guaranteed as comp aired to avoidance of deprivation of food with sufficient income). And also the expected behavior of the physicians which is different from other businessmen because of customers cannot test the product before consuming it, the physician is trusted and is concerned for the consumer welfare- which would not be expected of sales men, advertisement and price competition is less common (the price for the service is almost the same for a given quality), the physician is relied on as an expert in certifying existence of illness and

injuries for varies legal and other purposes, treatment is dictated by objectives needs of the case and not limited by financial considerations and others, and the product uncertainty (the quantity of the product to recover from illness is more uncertain). According to Arrow (1963) in Kidane (1998), medical services, apart from preventive services, afford satisfaction only in the event of illness, a departure from the normal state of affairs.

To determine the least costly input combination for achieving an increase in health levels, it is necessary to understand the concept of health production function. Production functions are merely a way of representing, both qualitatively and quantitatively, the relationship that exists between input and outputs. Health can be produced using different combination of inputs (the varies resources such as manpower, equipment). With in the above frame work, the first step in using a health production function for making allocation decision is to state the quantity of a particular type of output (Q) as being determined by the varies inputs that go into its production and the way that these inputs are combined is represented by the state of technology or the use of a particular type of production process (Health Economics for Developing countries, 1998: 54).

Although the above conceptual distinction seems clear, in practice, analysis is not quite so straight forward and as a result an important area for research.

According to Kidane Tekle (1998); early health care demand models were simple reduced – form equations derived from the assumptions of utility maximization. The demand for a particular health service, as mentioned by number of visits to health facility, was hypothesized to depend on the price of that service, the price of alternative services, household income, and tastes. However, the above formulation exclude from the equation variables that measured time costs associated with using the services and demographic characteristics of patients, such as age and education, even though these variables have since been shown to be important determinants of health care use.

Demand for health services enters a utility function directly. Health care is also derived demand, derived from a more fundamental demand for good health. So, according to Gross man (1972) in Kidane (1998), it may be argued that when consumers purchase health service it is not these services that they do demand but rather, their demand is for good health. Accordingly, using individuals as the unit of measurement the study estimated the individuals demand for healthy time. Good health or healthy time, in the study is demanded both because it enters the individuals utility function directly for its consumption value and because, as an investment, it increases the time available for other activities. The study found that education increases efficiency in producing health and the income elasticity of health is negative, inspite of positive income elasticity with respect to medical services.

According to Heller (1982) in Kidane (1998), studied medical care demand patterns in developing countries using discrete choice formulations of health care decisions. Patients assumed to seek help from a health care system characterized by many providers in the event of an illness. The patient or his relative that yields the maximum expected utility that is stochastic and in a semilog linear form and thus leads to a well –known variety of logit specifications of individual choice of medical treatments.

The utility function is either maximized or minimized subject to the patient's budget constraint. They used log likelihood function that needed to be maximized in order to estimate values of the parameter vectors which show the marginal effects of social and provider characteristics on conditional utility from a medical care provision alternative.

Emmanuel Jimenez (1987) in Kidane (1998), in analyzing household decisions about the consumption of curative health services, assumed that the assumption of curative health services to depend up on the random incidence of illness, the cost of the services, and the income, size, and location of the consuming household. Consumption of these services also depends upon how much the household spends on prevention. According to this study, the microeconomic estimates that have been done so far indicated that health demand, whether measured by expenditure or utilization, is relatively unresponsive to price. Since health care is often

viewed as a necessity, relatively price- inelastic demand for health care is not surprising.

According to the study made by Germano Mwabo, Martha Ainsworth, and Andrew Nyamete (1993) in Kidane (1998), underutilization of medical facilities in Africa countries is widely believed to be a result of consumer disappointment with quality of care. They used data from a randomized household survey, which was enriched with exogenous information on health facility attributes, to examine more deeply the quality factor in health care demand in rural Kenya.

In their model for dependent variables, which are used in the analysis, indicated the type of provider selected for the patient' first condition- government, mission, private, or self treatment. Three groups of explanatory variables used in the model were access variables, quality of variables, and individual and household characteristics. Further more, in several specifications the sex of the household member has been interacted with the distance, user fee, and quality at the nearest facility of each type to assess the differential impact on the demand for health care of these factors according to the gender of the patient. They found that shortages in particular type of drugs may be either negatively or positively related to medical care demand. No significant difference in the demand for health care was found by gender, although the signs on the coefficients indicated that women may be more disadvantaged by distance and user fees than

men. The results for quality variables reflecting drug scarcity show that they are significant determinants of demand.

Contrary to intuitive expectations, lack of prescribed drugs was also positively related to medical care demand which affects the rural health service development while lack of aspirin reduces demand. Lack of drugs is one of the factors which affects the rural health service development (bottle-neck to rural health service development) and positively correlated with demand, because there is excess demand for available supplies. The results of their study indicated the importance of selecting truly exogenous indicators of service quality for demand analysis. They also found that health care demand decreases with user fees with greater distance to the provider, but increases with income. Gender was not a significant determinant of the choice of medical care in their data- set. The policy implication of their findings focuses on reducing the distance to government health facilities will likely raise demand as well increasing the number of drops available and their results indicate unambiguously
that private and mission health providers are important sources of medical care for high income house holds in rural Kenya were two main points.

According to the World Bank Discussion Paper (1997: 23), studies of the demand for health service analyze that price influences the sick person's decision to use health service, but not a great deal. And also it affects the choice of provider more than the decision of whether to use services at all.

Further more, non price costs of using services (such as time and transportation costs) born by consumers influence both the decision to use services and the choice of provider. Lastly, people's perceptions of the quality of services (specially the availability of drugs) influence both the decision to use services and the choice of provider.

In studying the household willingness to pay for health care in Ethiopia, Health care financing secretariat (2001: 48), tried to identify the factors that determine the respondents' choice among different categories of providers.

In the study, the data was taken from the urban / Rural household WTP survey based on Central Statistics Authority (CSA) comprising 19 urban and 13 rural domains.

The regression result indicated that distance to the nearest health facility (travel time of the patient to reach the facility) has a significant effect in the choice of all health provider. That is, its coefficient is negative. Income has also a stronger positive effect on the choice of health facilities. And also education has a negative effect on provider choice. Concerning the age, it has a negative influence on the choice of provider indicating older people tend to obtain treatment from individual health

providers or they treat themselves. Moreover, travel time has a negative effect on private providers. That is, as the travel time increases the patients choose the government facilities rather than private providers.

However, in their study health care financing secretariat does not take into account the non monetary cost of treatment (i.e. waiting for treatment, distance to the near by facility) except for travel time. And also fail to take into consideration the cost of medication even if it has an effect in the choice of providers.

Concerning child care services, age has a negative coefficient indicating that as the age of individuals increases the utilization of immunization services decreases. Marital status, education, Household size and distance has a positive effect on utilization of immunization services except income which does not affect individual household utilization of health service.

According to Abdulamid and Alem (1999), in Nahum, in identifying the main socio economic factors that determine access to and utilization of health care services in urban Ethiopia, they employed bi-nomial probit models and a multinominal logit model that is motivated by random utility models for the analysis of choice of type of facility. Accordingly, the analysis was based on the data collected from 7 known towns of Ethiopia that include a sample of 1,500 households.

The regression result indicates that income was found to be an important determinant of whether treatment was sought or not. Their finding was in fact interesting, because regarding the estimation result on the health care service utilization was residents of most of the towns (Bahar Dar, Dessie, and Jimma) were more likely to seek treatment than residents of Addis

Ababa while residents of Diredawa had a lower probability and residents of Mekele were as likely as that of Addis Ababa to seek treatment. Thus, this finding implies that utilization of health service by individual households varies depending on their residence.

In addition to this, their finding on provider choice reveals that richer households were the most to utilize private facilities than do the poorer households. And older people were found to use private facilities more often which falls with age later. Sex of head of the household was also found to be significant determinant of choice of service provider- private Vs public- while it was in significant in all other cases.

Mother's education rather than father's education has a significant effect on both cases favoring private services in the first case and hospital treatment on the other case.

According to this study, certain variables that are choice specific (distance, waiting time for treatment, and time spent to reach the facility, and medical cost) were not included in the estimated models due to the paucity of the available data set which may have some impact on the reliability of the estimated result.

CHAPTER THREE

DESCRIPTION OF THE STUDY AREA

3.1 General

Benishangul-Gumuz National Regional state (BGNRS) is located in the Western part of the country. It stretches along Sudanese border between 09.17^0 and 12.06^{0}N. The Western and Eastern limits are given by the longitudes 34.10^0 and 37.04^{0}E, respectively. The Amhara, Oromia and Gambella Nation Regional state are bordering the Region in the North East and South, respectively.

The total area of the region is estimated to be about 50,380 km^2. The Region is administratively devided into 3 zones, 18 Woredas and 2 special Woredas.

The major part of the region- about 75% is low lands (Kolla, below 1500 masl.), 24% is middle land (Woyna dega, 1,500 – 2,500M) and only 1% is high land (Dega, above 2,500M).

The climate of the region is characterized by a monomodal rainfall pattern (i.e. single maximum rainfall duration per year).

The duration of the rainy season decreases from south to North. According to the classification of rainfall regimes given by National Meteorological

Service Agency Benishangul – Gumuz lies in the region which is characterized by a Wet season from April/may to October/November.

The temperature reaches a daily maximum of 20 – 25^{0}c in the dry season. The hottest period is from February to April. The maximum temperature ranges from 12^{0}c to 20^{0}c depending up on season and altitude.

Provision of basic health service is one of the primary goals of social development in an area. The region was in a poor condition in the provision of basic health services in the past and in order to solve this problem various efforts have been undertaken.

Until 1997 the health service coverage of the region was 41% and since then efforts have been done to improve the health situation and the coverage was improved successively: 50.4% in 2000; and 52% in 2001, 52.4% in 2002; and 54% in 2003.

According to the Federal Democratic Republic of Ethiopia MOH report (2004/05) there are only two hospitals owned by the government out of which one is zonal and also the remaining one is district hospital. Here the contribution of Other Governmental Agency, Non-governmental Organizations, and private sector in providing hospital services is still lacking. The number of beds is 262 and its ratio to the population of the region is 1: 2,326 which are inadequate to the region's population of 609,509.

In the region there are also only 11 health centers with 8 beds, 56 health stations, 65 health posts and 19 private clinics providing inadequate quality service to its population.

According to Health and Health Related Indicators MOH publication in 2004/05 there are 53 pharmaceutical retail outlets and out of which 2 are pharmacies, 17 are Drug shops, and the rest 34 are Rural Drug Vendors owned by NGOs, Drug shops, and pharmacies owned by public and private sectors are still not available for citizens living in the region. Meaning there is insufficient provision of pharmaceutical retail outlets there.

Major identified diseases of the region are malaria, water born diseases, respiratory diseases, skin diseases, dysentery, and malnutrition. And major problems of the health sector in the region are:

- Lack of trained health personnel;
- Uneven distribution of health services;
- Lack of infrastructure and logistics;
- Ever increasing disease spread;
- Dominancy of traditional beliefs; and
- Low level of education

3.2 Dibate Woreda (The Study Area)

Dibate Woreda is found in BGNRS with in Metekel zone and borders are Amhara Region in the East, Bullen Woreda in the west, Mandura Woreda in the North, and Kamash Zone in the South.

Agroclimatic condition of the Woreda is Kolla (blow 1500 masl). And this climatic condition has direct relationship with the health status of people living in this area.

There are various natural resources in the study area, which can be useful for eradication of problems associated with health of people either traditionally or scientifically if research is made. There are natural forests, wild animals, underground resources, steam water, and the like.

Agriculture is the only activity of the population in the rural Kebeles where Teff, Wheat, Vetch, Lentil, sorghum, maize and Nueg crops are mainly produced.

The settlement of the people in the Woreda is scattered which is not conducive to deliver health services in the area. According to unofficial estimate of the Woreda Health Office, the total population in the Woreda is about 57,055 and out of which 53,061 lives in the rural and the rest 3,994 are in urban areas. And also the total household in the Woreda is about 11,411.

Currently the Woreda has got one health center, 2 clinics and 5 health posts. All these basic health services are inadequate to provide quality services to the population in the area. And the health service coverage of the woreda was 54% in 2005/06.

The health human resources in the Woreda consists of only 8 senior nurse working in urban area only, 13 junior nurses working both in urban and rural areas, 1 sanitarian, 2 health assistances who are working in rural and urban areas; 2 Traditional Birth Attendants (TBA), 1 CHA both working in Rural areas. The health institution requires maintenance; however, the budget constraint does not permit them to do so.

Even though the health office has motor bicycles, and cars, they are always kept on maintenance. The inadequacy of such facilities has an adverse impact on the provision of health services to the population in the study area.

3.2.1. Infrastructural set-up in Dibate Woreda

Dibate Woreda is found in North West Ethiopia on 547 km. from national capital Addis Ababa. (See the map attached to this paper). The Woreda is ignored by many of past governments particularly in social service provision like the health sector.

The Woreda was ignored by the government in provision of health services and incentives to encourage the traditional medicines that may be a short cut to extract existing knowledge from the grass roots.

In Dibate Woreda, there is no hospital as a whole, so, we can see only basic health services in the Worda.

i. Health center in Dibate Woreda

There is only a single health center in the study area that is constructed by the government. It is not only single in number but also under- equipped by material, drug, and health human resources. So, One can understand that the health center is inefficient to provide quality services to the population of the study area.

Table 3.1 Health center in Dibate Woreda

No.	Name of the Health center	Location	Distance from Dibate (Woreda center)
1	Dibate Health center	Dibate	0 (zero)

Source: Health Office Annual Report 2006.

ii. Clinics in Dibate Woreda

There are only two clinics in the study area and are financed by the government. Even if the two clinics are found in the rural areas, they are

under equipped in health human resources, drugs, and other necessary materials. Let us see the clinics in their situation in tabular form.

Table 3.2 Clinics in Dibate Woreda

No.	Name of the Clinic	Location	Distance from Dibate
1	Berber clinic	Berber	36 km.
2	Dangicha clinic	Korka	82 km.

Source: Health Office Annual Report 2006

The health human resource allocation in each clinic is inadequate in relation to the population that gets services from them. To be practical, there are maximum of two health human resources in each clinic. However, the numbers of people who can get the service from each of these clinics on the average are 28,528 people. If we compare this ratio to the world health organization (WHO) standards ratio of 1: 10,000, really it is self explanatory to some one to look the inadequacy of clinic services in the study area. The health professionals in each clinic are not only scarce but also less qualified to provide quality services. The professionals can help mainly on the primary health services than that of serious health problems like curative cases.

iii. Health posts in Dibate Woreda

There are only 5 health posts in the study area and also they are financed by the government. Both of them are found in rural areas.

Table 3.3 Health Posts in Dibate Woreda

No.	Name of Health post	Location	Distance from the Woreda
1	Girze Health post	Girze	20 km
2	Zigh Health post	Zigh	19 km
3	Wubgish Health post	Wubgish	11 km
4	Donben Health post	Donben	41 km
5	Gallesa Health post	Gallesa	60 km

Source: Health Office Annual Report 2006.

iv. Rural Drug Vendors

There are three Rural Drug Vendors in the study area situated both in the rural and urban areas. All of them are financed and owned by the private individuals who always search for profit margin like any other firms in the business environment. In the words of economics, we know the behavior of private firms that they charge higher prices and provide less quantity to the market. This theory is also applicable to the private health care service providing individuals except that of advertisement.

It is naturally accepted theory that charging higher prices may derive away the consumers from consumption of that given commodities. Since health of an individual is wealth of that individual, higher prices that are charged by the individual private providers have a drawback effect on the wealth and development of that individual consumer. As a kind of health facilities, much of the service is expected from those Rural Drug Vendors.

Table 3.4 Rural Drug Vendors in Dibate Woreda

No	Name of Rural Drug Vendor (RDV)	Location	Distance from Dibate	Ownership
1	Deresa RDV	Gallesa	60km	Private
2	Shanda RDV	Berber	36km	"
3	Dejene RDV	Dibate	0km	"

Source: Health Office Annual Report 2006

The health human resources in each Drug Vendor is only one. These human resources are not only a single in number but also less qualified and even with no qualification about health care. As I asked one of the Rural Drug Seller in Rural Drug Vendor, he has no knowledge about medicines (tablets) even for himself but he is the seller of drugs for the people. So, from this logic one can say something concerning the low quality of services provided by that rural drug seller. Not only the sellers are unfit to the provision of such services but also the drug house owners, the one who gives even injection, are not active people to produce adequate service. This is because; currently they do not attend any refreshment course about their services. Even if there are three Rural Drug Vendors in the study area, they are under equipped in all necessary materials and human resources.

On top of these problems, their location also does have its own problem. That means, all the three are situated in town areas in the residence of the

owners implying inequitable distribution. So, one can safely say that the Rural Drug Vendors are mostly inaccessible to remotest rural mass.

As I asked many people who are consumers of these Rural Drug Vendors, the health personnel who are working there are not willing to visit people in the village with the aim of exchanging information on the health care. This shows that, the private firms have no interest to diffuse information perfectly (about resource costs, scarcity efficiency, and opportunity cost of production) except their profit maximization.

V. Health Human Resources in Dibate Woreda

The health center, clinics, health posts, and Rural Drug Vendors are functional if and only if the health human resources are allocated fairly among them in accordance to the needs of the population near by each of them. To the end of this, there is a need to increase the number, to bring about an appropriate mix of skill to rationalize the ratio of development. Actually, health human resources are not sufficient nationally, but the Dibate Woreda is different from the national scarcity. This special case of the study area can be shown in tabular form as follows.

Table 3.5 Health Human Resources in Dibate Woreda

No	Types of Profession	No. of individuals in the profession	Location	Remark
1	Senior clinical nurse	8	Urban	Health center
2	Senior public nurse	0	-	-
3	Sanitarian	1	Urban	Health center
4	Lab. Technician	-	-	-
5	Junior public nurse	2	Urban	Health center
6	Junior clinical nurse	9	Urban and Rural	Health center clinics and Health posts
7	Junior mid-wafers	2	Urban	Health center
8	Health assistance	2	Urban	Health center
9	Community Health Agent (CHA)	1	Rural	Health post
10	Traditional Health Attendants	2	Rural	Health post
11	Health controller	2	Urban	Office Head, Health center head,
12	Health extension workers	10	Rural and Urban	Health center, clinics, and Health post.

Source: Health Office Annual Report 2006

From the above table, one can clearly understand the presence of health human resources inadequacy in the study area. There are only 9 Diploma graduate professionals in the study area and the others are low graduates and seminarcissit who will not provide quality service to the population. It is health human resource shortage that magnified health problem.

The health assistance services are also inadequate because of lack of appropriate career structure, incentive schemes and unacceptable pay with situation of initial salaries. Due to this demoralization, they do not want to visit people in the village, to provide education programs. Remember that these people are the professionals who are supposed to be a vehicle to run the study areas health service given this failure to provide incentives for their services.

Community health agents are just the people who are assigned to attend meetings subjected to health care and to give education on family planning advice and service, preventive health care services like nutrition, education and immunization in particular peasant associations, and service cooperatives to defuse new information to the community. However, they attend the meetings on call, but fail to exchange information with their village communities. This is due to failure in the provision of incentives for them.

The Traditional Birth Attendants (TBA) are the crucial people who arrive at the serious child delivery of mothers mostly in rural areas. However, most of

these people in the rural area are not even known by the Woreda Health Office. This ignorance has its own contribution to maternal and child mortality in the locality. As I interviewed the Woreda Health Office, they did nothing to encourage these people's services. This is due to difficulty to handle them and even the health office has a financial problem.

The health controller has the responsibility to manage and control health delivery system and to provide the environment to democratize its internal management with active popular participation of the staff and community. Meaning, health institutions shall incorporate in their health care service, preventive and promotive aspects of health, education on health and nutrition, promotion of personal hygiene and environmental health and safety, appropriate for them.

However, the existing health service is highly centralized, bureaucratic and non-participatory in its management and service delivery. Not only are these problems but also there no opportunity to up grade their know-how about health care.

From these all above, one can easily understand that, in the study area there is no precondition that is planned to use even the existing knowledge of the people in the villages.

Vi. Cultural Medicine Providers

There are also people who are able to provide cultural medicines to people and body arrangement disorder maintaining people in the study area who can play a big role in health problems. They are many but non of them are known by the Woreda Health Office except one.

Table 3.6 Cultural Medicine Providers

No.	Type of service the people provide	No. of people in each service	Known by woreda	Not known by Woreda
1.	Cultural Medicine	60	-	60
2.	Body Disorder Maintenance	25	1	24
3.	Others	40	-	40

Source: Primary Data

From the above table one can clearly see that cultural medicine providers are many in the Woreda but are not given due attention by the Woreda Health Office. This also shows that in the study area there is no incentive to use and encourage the existing knowledge to improve the health status of the Woreda's population.

3.3. Prevalence of Disease in Dibate Woreda

Among the ten top diseases in the Woreda, Malaria is the Dominant one. This can be shown by the following table.

Table 3.7 Type of disease in the Woreda (1996 – 2005)

No.	Type of disease	No. of people infected and years Covered									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	Malaria	1140	1161	2540	2759	4445	7328	8160	9281	17,268	19,464
2	Tractive infection	1010	757	722	662	915	789	802	2340	2635	2177
3	Intestinal parasite	1137	1160	1260	860	1358	1390	2732	3689	4163	2635
4	Wound	834	744	836	812	1017	872	594	602	1005	952
5	Gastritis	644	472	365	542	831	1001	1179	1265	1082	1002
6	Fever	1087	1100	446	650	1185	1179	2132	2437	6157	3673
7	Diarrhea	551	437	554	614	581	631	1217	1073	1257	1130
8	Rheumatism	534	500	858	897	820	1990	1137	1462	1462	1391
9	STD	320	350	377	387	390	315	270	301	407	451
10	Anemia	540	479-	241	318	565	385	280	576	503	505

Source: Health Office Annual Report 2006.

From the above table one can see the prevalence of different kinds of diseases in the study area as reported by the Woreda Health Office. According to this report malaria is the dominant disease in the study area starting from 1996 to 2005. Other diseases also prevail in the area with

their own trend in which some are at increasing rate and others at decreasing rate.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 The Framework of the model

The Framework used in this study is a utility maximization problem according to Varian (1992) i.e. an indirect utility function or minimization of expenditure. For our case let's consider the former. A usual utility function in which utility depends on health and on the consumption of goods other than medical care. When an individual is faced with an illness, then individuals decide to seek a medical treatment from a health care service provider or not. The benefit from consuming a medical care is an expected improvement in health, and the cost of medical care is reduced consumption of other goods and service. If it is seeking treatment outside of his home, the direct utility derived by the individual i from a health care provider j can be formulated as follows.

$$U_{ij} = U_{ij}(H_{ij}, C_{ij}) \quad \text{---------- (1)}$$

Where:-

U_{ij}= expected utility that is conditional on receiving care from Provider j,

H_{ij}= the expected improvement in health status of individual i after receiving treatment from provider j; and

C_{ij} = the consumption of all other non-health goods and services

by individual i the amount of which depends up on the choice of provider j.

The way Mwabu, Ainsworth, and Neyamete in Kidane treated the utility function to facilitate empirical work is also adopted here to take into account of the unobservable variable H_i. Thus, H_{ij} can be expressed as follows:

$$H_{ij} = H (S_i, X_{ij}, Q_i) \text{ ---------- (2)}$$

Where:-

S_i= a vector of observable socio economic attributes of individual i, (sex, age, education);

X_{ij}= a vector of medical and physical attributes faced by individual in facility j, such as availability of drug, distance, waiting time, travel time, etc.; and

Q_j= a vector of perception for quality and staff behavior of medication and several dummy variables for residential areas.

The above variables are not choice variables as such but conditioning variables that affect the preference function of the household. In addition to this, individual i is assumed to spend his time, and money on services like medical check-up, immunization, consulting the physician, consumption of nutritious food, etc. to produce good health.

Utilization of health service by individual is constrained by his level of income. Therefore, individual i maximize his utility from consumption of goods and services subject to his income constraint. The consumer allocates his entire budget (income) in such a manner that he consumes his two commodities without violating the constraint that can be specified as:

$$Y_i = P_h H_{ij} + Pc\ C_{ij} \text{ ---------- (3)}$$

Where Yi is annual income of the individual i, P_H and P_C are the price associated with the consumption of health care services and all other goods and services respectively.

Considering equations (1) through (3) we derive a demand function which explains the bottle necks to rural health service. This yields a system of demand equations as functions of price and income.

$$D_{ij} = d\ (P_h, P_c, Y) \text{ ---------- (4)}$$

By substituting the demand function (4) in to the utility function (1) and then also equation (2) for H_{ij}, then individual i's indirect utility function is constructed as follows:

$$V_{ij} = f(\ Pc, P_h, Y_i, S_i, X_{ij}, Q_j) \text{ ---------- (5)}$$

Where V_{ij} = Utilization of health services by individual i of type j,

i= 1, 2, 3, ----------, n, j = 1, 2, 3, --------, m

S_i, X_i, Q_j, Prices and incomes are as explained earlier.

In estimation of the model, Proxy for the prices is used as prices for each medical service can not be established. The proxies are travel time, waiting time and distance to health stations. Also, Pc is normalized to unity to ease econometric work. In econometrics implementation, we have to follow the standard assumption. Therefore, the utility function below is made stochastic, and is of the form,

$$V_{ij}= V_{ij}^* + u_i \text{ ---------- (6)}$$

Where V_{ij} is the symmetric component of utility, and u_i is an additive disturbance term.

From the above all, by assuming u_i is distributed, we will present the probit model based on utility theory or rational choice perspective on behavior. Thus, this equation leads us to a well know probit specifications of individual choice of medical treatments.

Based on the above general model, 4 models were considered based on the assumptions which the study aims.

The utilization of immunization, family planning, and seeking outside medical assistance were estimated by using probit model. The probit model is fitted to estimate these as we are dealing with dichotomous dependent variables which equal 1.

Here, our interest is to predict the conditional probability pi, that IMMsi equals 1 for given values of the explanatory variables. By assuming that the probit, L_i, is a linear function of the explanatory variables, a binary model is therefore specified below and estimated using maximum likelihood (MLE) technique.

$$L_i = b_1 + b_2X_{2i} + \text{----} + b_kXk_i \text{ ---------- (7)}$$

Finally, regarding choice of providers of health service, the following multinominal logit model is used:

$$L = \Sigma_i \Sigma_i G_{ij} \log P_{ij} \text{ ---------- (8)}$$

Where L= the logarithm of the likelihood function;

G_{ij}= is dichotomous variable that takes the value 1/0.

4.2 Nature of the Model and Estimation Methodology

Based up on the above general model, the following four equations were derived to make the analysis of utilization of the four types of health services which explain the rural health service development condition. The first one deals with the utilization of family planning and the second one with utilization of immunization services to control population pressure and thus in enhancing calorie intake per person with in the household. The third deals with the choice of health service provider. The last but not the least deals with whether individuals seek a medical treatment or not at the time of illness. The four equations are specified as follows based on the concept below.

Since we can not use OLS estimators to estimate family planning and immunization services and the behavior of individuals whether to seek medical treatment or not because of the reason that the dependent variables (the regressend) are not continuous quantitative variables (Thus, we use qualitative response regression model). The regressand itself is qualitative (dichotomous). Hence, the response variable, can take only two values 1 or 0. In other words the regressand is a binary, or dichotomous, variable. Three probit model equations are estimated in this study to determine the factors influencing the utilization of immunization, family planning service and individual's behavior whether to seek medical care or not at the time illness as shown below.

1. IFP = f (CON, Q – 4- Sex, Mar-status- dummy, q-5-dummy, Annual- Incom- dommy, Tim-med-log, Fam- Size- log, time – hc-log, D- Dummy, Y- dummy, Gir- Dummy, Gal-dummy, Ber- dummy).

2. IMMS= f (CON, Q4- Sex, q-5-dummy, Mar-status- dummy, Annual- incom dummy, Fam- size-log, Age- log, D-dummy, Y-dummy, Gir-dummy, Gal- Dummy, Ber-dummy).

*Here, for estimation of Immunization and Family planning services probit will be used.

3. Di= f (con, Q-4 sex, q-5-dummy, Mar-status- dummy, Annual- incom- dummy, family size-log, Age-log, D-dummy, Y- dummy, Gir- dummy, Ber- dummy).

4. (HEAl, clini, Private) = f (CON, Fam- size – log, Age- log, q-5-dummy, Annual- incom – dummy, q-23, distance – H institute-log, Q-40-2, Q-4-sex, Mar- status- dummy, WTH, D-dummy, Y-dummy, Gir-dummy, Gal- dummy, Ber- dummy).

To estimate provider choice of individuals, logit model is employed. Here, logistic model is fitted to estimate choice of health center and private providers against health clinics / posts.

4.3 Variable Definition

i. Variables Included in Vector S_i

Annual- Incom – dummy= A Dummy for total annual household income of Birr 1501 and above equals 1 else 0.

Age – log = log of age of head of household in years.

Mar-status- dummy = Dummy variable which equals 1 if the head of house hold is married, 0 other wise.

Fam- Size-log = log of number of family members of household.

q-4-Sex = Dummy variable which equal 1 if head of household is female and 0 otherwise.

q-5-dummy = Dummy variable which equals 1 if head of household's education is high school and above, otherwise 0.

ii. Variables Included in Vector X_{ij}

Time – med-log = Time taken to reach the nearest health facility

Time – hc-log= waiting time to get medical service

Distance – H institute – log = log of distance traveled to reach a health facility in kms.

WTH = Dummy equals 1 if head of household spends les than an hour waiting for treatment in health facilities else 0.

iii. Variables Included Invector Qj

Q- 23 = Dummy which equals 1 if prescribed drug is available else 0.

q-40-2 = Dummy which equals 1 if respondent takes the treatment given is fair, else 0.

D- dummy = A dummy which equals 1 if respondent is resident of Dibate Zuria else 0

Y- dummy = A dummy which equals 1 if respondent is resident of Yamp Zuria else 0.

Gir- dummy= A dummy which equal 1 if respondent is resident of Girze Zuria else 0.

Gal- dummy= A dummy which equal 1 if respondent is resident of Galessa Zuria else 0.

Ber- Dummy = A dummy which equals 1 if respondent is resident of Berber Zuria else 0.

iv. Dependent Variables

IFP = A dummy variable which equal 1 if respondent has used a family planning method, else 0.

IMMS= Dummy variable which equals 1 if household has used immunization services, other wise 0.

Di= 1 if individual i seeks medical treatment in times if illness 0 if not.

Choice HEAl. = 1 if the sick person sought treatment from a Health center, else choice Heal = 0

Choice clini. = 1 if the sick person sought treatment from health Clinics/health post else choice clini=0

Choice private= 1 if the sick person sought treatment from private health facilities, else choice priv. =0

4.4 Description of Hypothesized Relationship

Economic theory makes statements of hypotheses that are mostly qualitative in nature. Thus, economic theory postulates a relationship between the variables. However, the theory it self does not provide any numerical measure of the relationship. Though, there might be some difficulties to make a firm expectation on the sign of coefficients of the individual and household specific variables, from a general economic theory view point the following relation ships can be hypothesized.

i. Income

It captures the annual income of the total households in Ethiopian Birr. Higher expected annual income of head of the household is significantly and positively associated with the probability of seeking outside medical assistance (Health care) as far as health care service utilization is a normal good for individual. Thus, the significant association between income growth and health remains strong and of similar magnitude.

ii. Education

Having higher education level seem to raise the probability of seeking out side medical assistance during time of illness. Because educated people who have had more schooling seek and utilize health information more effectively than those with little or no schooling. And also schooling develops people's understanding to value a healthy condition more than those who are illiterate. In addition to this, households with more education enjoy better health both for adults and children. Thus, we would expect a positive coefficient. However, on the other hand having higher education level seem to reduce the probability of seeking out side medical assistance. They may not invest in health through medical care rather through other more efficient means including improved diets and preventive care. Thus, we would expect a negative coefficient.

iii. Medical Cost

Access to free or low-cost care can produce large increase in the consumption of health care. Medical cost includes all out of pocket expenses usually incurred in making a consultation to the preferred source of care per trip. Such as registration fees, drug costs, laboratory test expenses, and others. Thus, the demand relation ship most often referenced by economists is between quantity demanded and price, which almost always has an inverse relationship. Hence the coefficient for medical care will be expected negative.

iv. Perceived Quality

How satisfied people with their own health and their health care can be only partly explained by objective criteria; however, it is difficult to measure and asses the quality of a medical care service due to some technical aspects associated with health care as subjective expectations matter. People choose whether to seek care and which provider to consult on the basis of many factors such as travel time or cost, waiting time, availability of doctors or drugs and how patients are personally treated. Generally higher quality of service leads to more utilization of a health care service at a given price. Thus, we would expect a positive coefficient for satisfied perceived quality.

v. Distance

Distance in km. represents the distance from home to the health care facility attended and the nearest health facility to the head of household.
As larger distance involves higher money and time costs, the utilization for health care service will be lower and hence we would expect a negative coefficient for distance. Thus, the larger the distance is associated with less consumption of health services. Distance to health facility limits people's willingness and ability to seek out side medical care particularly when transport is limited. Generally larger the distance is for a given medical care services the lesser that particular service is demanded.

vi. Waiting Time

We would expect a negative coefficient for waiting time. Because waiting time involves an opportunity cost to the user of a health care service. It is expected that the higher the amount of waiting time in seeking treatment, the lower will be the demand for that health facility.

vii. Household Size

Given the income level, a larger family size leads to a lower per-capita than does a smaller family size with the same income. Thus, it is expected that demand for health care service will be lower for higher family size. Therefore, we would expect a negative coefficient for such variable.

viii. Place of Residence

Residents in different inhabitants were found to be different to seek outside medical assistance.

4.5 The Data

4.5.1 Data Source and Type

All the data available for this study were collected from both primary and secondary sources. In my case, data from primary sources implies all data gathered from the beneficiaries of health services through structured questionnaire. Complementary to this, community elders and religious leaders of the rural dwellers, government officials and other sectors involved in the program are interviewed using unstructured questionnaire. The data from secondary source implies data from secondary source including books, study documents, government archives, annual reports, journals, periodicals and other official documents of relevant quality.

4.5.2 Sampling Frame, Sampling Size and Sampling Technique

One of the central objectives of this thesis is to investigate the bottle- necks of rural health services development in the study area. To conduct such kind of research one obviously needs to collect primary data through field research from each and ever of customer of the service. However, due to lack of finance and time constraints the research would focus on selected households. Sampling technique is introduced to select the target population. In Dibate Woreda there are 15 'kebeles'. The 'kebeles' are clustered for this study. The sampling frame of this study is 2006 recent up dated un official house hold lists of the 15 'kebeles' of the study area.

Household is the unit of analysis in this study in which, household head is contacted for interview. Stratified multistage cluster sampling technique is used to draw samples from the entire households. This technique helps to resin and improve upon the sampling technique there by raising the representativeness of the sample. The aim of stratification is to create homogeneous group there by reducing the sampling error at each stage.

This technique helps to ensure that all section of the society would be surveyed, i.e. it provides all the households with equal chance of being include in the sample.

It is desirable to have a sample which is representative of the total households of the Woreda as much as possible, but due to time and cost limitation 5.5% of household head is included in the sample. Thus, the sample size of the household is 624. The sampling is conducted calculating the percentage proportion of households of existing in each 'Kebele' to the total number of households of the rural area.

After the calculation was conducted the sample households were randomly selected from each stratus based on the percentage proportion.

Table 4.1 Number and amount of sample households in each strata

No	Name of Strata	No. of house holds in the strata	No Kebeles in the strata	Sample household	
				amount	Percent
1	Dibate Zuria	1625	2	117	18.8
2	Yamp "	1583	3	67	10.7
3	Girze "	1968	2	103	16.5
4	Berber "	2460	4	147	23.6
5	Gallessa "	3777	4	190	30.4
	Total	11413	15	624	100

4.5.3 Data Gathering, Statical Tools and Methods of Analysis

As indicated above, multiple data gathering instruments would be employed to collect data for the study. Structured questionnaire, unstructured interview, personal observation and Document analysis were principal means of gathering the data that was used in the study.

After gathering the data, the statistical methods like ratio, frequency distribution, percentages, arithmetic mean, range cross tabulation, descriptive statistical methods, and Binary response regression model analysis (logit and probit) were used to analyses and interpreting the data used for the study.

Here SPSS (Statistical package for social scientists) was employed for data entry and analysis.

4.5.4 Field Work Problems and Data Reliability

Only 5.5% of the households in Dibate Woreda were approached due to the time and budget constraints. Such problems may have an effect on the statistical reliability of the estimated model. The other problem encountered was a problem of getting a person who were creating a contact with a kebele committees and other known individuals that have the knowledge about the dwellers. Moreover, the annual income in the survey data may not be accurate. However, it was assumed that as if it is accurate and representative.

CHAPTER FIVE

ANALYSIS OF RESULTS

The raw-data, which were collected from the random sample and secondary sources as illustrated in the forgoing part of this study, are analyzed both statistically and econometrically, conclusion and Recommendation of the study is made on the basis of the findings of the estimates made as follows.

5.1 Primary Data Analysis

5.1.1. Frequency Statistics

The raw data are analyzed to allow the study to be more detailed and deep in the analytical presentation of the overall scenario in terms of the socio-economic condition of the respondents to the questionnaire.

Socioeconomic Characteristic of Respondents

Out of the total 624 respondents interviewed, 333 (53.4%) were illiterate, followed by 124 (19.9%) of grade 1-6, 79 (12.7%) responded to only read and write, 43. (6.9%) 7-8 grade completes 23 (3.7%) of 9-12 grade completes, 11 (1.8%) of certificate holders. There were 5 (0.8%), 2 (0.3%) Diploma and university degree holders respectively and the rest 4(0.3%) are missing system.

The majority of the respondents (27.6%) are found to earn Birr 901 – 1500 per annum, followed by 26% earning Birr 900 and less, 23.6% earning above birr 2500 and the rest 21.9% earning from birr 1501 – 2500.

Among the respondents 83% are male while the remaining 17% are female headed households. Regarding the question to marital status, it is found that 88% are married, 4.8% single, 1.9% divorced, 2.7% widowed, and 2.6% prostitute. Those households having family size from 1 to 3 comprise about 11.9%, from 4-6 39.3%, from 7-9 32.2%, from 10-12 14.1%, and those having family size 13 and above comprises 2.4%. Regarding the question of age of head of household, the minimum age found to be is 15 while the maximum one is 90. Besides this, those falling between 31 to 50 comprise 55. 7% of the overall respondents.

The occupation of the head of households interviewed is found to be very varied. 78% of the respondents, are farmers, 9.8% traders, 3.8% civil servants, 2.6% students, the ret 5.4% jobless, wavers, prostitutes and also 0.3% (2) missing system.

Concerning the question of source of water, 28.7% of the respondents use river or pond, 22% from hand – pump, 7.2% tape water, 14.9% stream water. 13.3% developed stream water, and the rest uses combination of the above different sources.

Assessment of self- morbidity and Health facility condition

To the question asked where household seek treatment of any member of the households get sick, 86% responded to seek treatment in government health facilities (Health center, clinics, and Health posts). The remaining

13.2% seek treatment in private health institutions. A minority 0.8% sought treatment from traditional health service providers and self treatment.

The respondents were asked if any member of the household was sick during the last 4 weeks before the interview time. 52.4% said yes while the remaining 47% said no, and 0.6 (4) were missing values. Regarding the sex of the patients 53.1% were female and the remaining 46.9% were male. 79.2% patients got treatment while 20.8% replied no. It is 49.4% from age 15 to 30, 22.9% from age 31 to 50, 24.1% from the age 51-63, and 3.7% from the age of 64 and above. And also 86.9%, 12.2%, and 0.8% of these patients are treated from public, private and traditional healers respectively. Here the data reviles that the age of the patients significantly affects the choice of the service provider. The patients are asked for the duration of their illness, which was found to range from 1 to 365 days. Among the reasons to why they visited health facility centers, 23.3% was for injection, 66.1% for laboratory tests 0.6% for further examination 8.8% for both laboratory and injection, and 1.2%e for injection, laboratory and further examination. The respondents were being asked if any member of the household died in the past year, 11.9% respond yes and the rest 88.1% replied no.

The respondents were asked if they do have latrine. 61.6% said no while the remaining 38.3% said yes. It is 98.5% that dispose their wastes on open fields and only 1.5% that uses other option. This shows that these diseases

transmitted by human faces and their incidence is very high in the study area even if these diseases are frequently debilitating and chronic rather than causes of acute illness or death.

The main mode of transport used by respondents while going to a health facility is on foot (87.7%). The remaining, that is, 4.7% use pack animal, 0.2% vehicle, and the rest 7.4% both combination of foot and pack animal.

The cost estimated for the travel by the respondents ranges from Birr 0.50 to Birr 500. Those paying from Birr 0.50 to Birr 10 counts for about 40.4% of all the respondents. The distance covered to reach health facilities by the respondents' ranges from a less than a kilometer (0.01) to 190 kilometers. The majority (59.7%) are traveling more than 5 kilometers to reach a near by health facility.

The minimum time taken to travel to near by health center, clinic, health post and private facility is 0.16, 0.16, 0.03 and 0.08 hours respectively. However, the maximum time taken is 154, 7, 120 and 168 hours respectively.

24.3% of the respondent spent less than an hour waiting for treatment, 61.1% between an hour and three hours, 12.3% from 4 hours to 6 hours, and the rest 2.3% 5 hours to 48 hours. The average payment for a single visit to health institute ranges from Birr 1 to Birr 4oo. Near half of the respondents (49.6%) replied to the question to have paid less than Birr 18 for medical cost. With regard to the question how expensive medical cost is,

1.3% responded the cost to be small, 44.2% as fair, and the remaining 54.5% as expensive.

Majority of the respondents evaluated the quality of treatment as not satisfactory (poor). 68.3%) responded as to be not satisfactory and 31.7% to be satisfactory. Regarding the question of availability of enough drugs, the majority (68.9%) responded that enough drug is available but the rest 31.9% as not enough drug is available. 99.5% of the respondents revile that they are self paying for medical cost except 0.5% whom the government cover the payment. 67.9% of the respondents expect the government to cover the cost of medication but 32.1% replied to cover them selves the cost of medication in the future. 26.4% does not know who built the health institutes in their locality. 73% of the health institutes are built by the government, 0.6% by NGOs.

Concerning the question of participation in the construction of health institutes, 91% replied yes, but 9% did not participate in the construction. The respondents are asked if they were visited by health professionals in the past year. Only 6.4% responded no. The respondents were asked if the health professionals gave them health education. 84.9% replied yes but the remaining 15.1% as no. 92.7% participate in the health education while only 7.3% failed to participate on health education.

Among the respondents, 86% revile that health education on malaria was given by health professionals but 14% said not. 94.4% participate in malaria education except 5.6% of the respondent.

Regarding the question of problem of health delivery system by health personnel, only 1.9% replied yes but the majority (98.1%) replied the health personnel as the right personnel. 73.6% of respondents expect that the health institutes in their locality would improve their health status, while 26.4% replied the health institutes in their locality would not improve their health status. Regarding the question of patients faced problem due to incapable professionals 98.6% replied yes, and 1.4% no. The respondents were asked if they were referred to other health institutes for medical purpose. Only 21.3% responded no. Concerning the choice of treatment by respondents when their family member suffers from malaria, their first choice was Health center (97.6%) followed by private facility (89.6%) and their third choice was also traditional healers / self treatment (50.3%).

Immunization

The respondents were asked if their children are fully immunized and 92.9% respond yes.

With regard to the travel they make to get immunization services, the respondents made a replay to travel from arrange of 0 kilometer to 25 kilometers. However, 50% of the respondents travel up to 0.8 kilometers. The maximum time taken to travel to area of immunization is about 10

hours and the minimum is some minutes (0.01 hours). However, the majority (73.1%) take half an hour to travel to an immunization center.

Maternity service

Regarding the question where the mothers delivered their children, 82.5% replied to have their children delivered in home traditionally 17.5% in health institutes.

Family Planning

The interviewed households were asked if they are aware of family planning methods. For this question 79.6% replied yes. Despite this fact, 40.1% of households get new born child in the past two year prior to this study.

5.1.2 Descriptive Statistics

To examine the data themselves becomes imperative before attempting to estimate parameters of a population or fit models. The descriptive statistics of the variables which are used in the estimation of the four models are presented as follows.

The mean shows a 6.65 members of household; 41 years of age of head of household; 2024.8 Birr of annual income of head of household; 22.5 years of age of patient in a household; 2.3 hours of time spent waiting to get medication; 38.4 Birr spent for the travel to health institution; 21.3 kms. Of distance to near by health facility; 25.5, 1.1, 6.8 hours of time spent to near by health center, clinics, and health post respectively; 23.2, 1.9, Birr payment for a single visit to health institutions, and payment for the service respectively, and on average 12.7 days are taken for the patient to recover. And also 2.1 kms is the distance to get vaccination, 0.7 hours of time spent to get vaccination.

As most of the variables above are dummy variables their standard deviation is small. However, the dispersion of the sample observations for average annual income (1881.3 birr) and cost estimated to travel to the near by health facility (66.6 birr) are the highest. And also all the variables in descriptive statistics are positively skewed.

Examining the kurtosis that refers to the heights of distribution, we have 6 variables below the normal peak of 3 and such lower values than 3 makes

them to have a lower peak and thus they are platykurtic. Those above three are also 10 variables and they have high peak and thus they are leptokurtic.

Table 5.1 Descriptive statistics of the variables used in the Estimation of the model

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Skew ness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Age	622	75.00	15.00	90.00	40.9695	13.03522	.606	.098	.248	.196
Family Size	618	18	1	19	6.65	2.751	.544	.098	.702	.196
Male Members	610	10	0	10	3.38	1.778	.845	.099	.798	.198
Average Annual Income	591	9900.00	100.00	10000.00	2024.7936	1881.31000	1.988	.101	3.847	.201
Age of Patient	321	89.00	1.00	90.00	22.5171	18.05375	1.001	.136	.907	.271
time taking to health center	574	153.84	.16	154.00	25.4702	33.92163	1.748	.102	2.858	.204
time taking to clinic	161	6.84	.16	7.00	1.1072	1.18223	2.491	.191	7.018	.380
time taking to health post	375	119.97	.03	120.00	6.7413	20.28828	4.063	.126	16.467	.251
time taking to private clinic	381	167.92	.08	168.00	27.6215	51.33234	1.832	.125	1.841	.249
time taking to get medication	560	47.95	.05	48.00	2.3367	3.61296	9.546	.103	111.814	.206

means to travel	619	12	1	13	1.99	3.151	3.161	.098	8.203	.196
cost estimated for the travel	485	500.00	.00	500.00	38.4309	66.55249	4.476	.111	25.389	.221
Distance to health institute	580	189.99	.01	190.00	21.3188	37.21589	2.822	.101	7.826	.203
average payment for a single visit to health institute	615	399.00	1.00	400.00	23.1577	25.21528	7.045	.099	86.059	.197
payment for the service is	617	2	1	3	1.90	.989	.206	.098	-1.951	.196
days taking for a patient to recover	608	364.00	1.00	365.00	12.6661	24.71649	10.571	.099	139.430	.198
Distance to get vaccination	360	25.00	.00	25.00	2.1409	3.31267	2.878	.129	10.560	.256
time to get vaccination	432	9.99	.01	10.00	.6947	1.19356	4.457	.117	26.883	.234
Valid N (list wise)	12									

5.1.3 Econometric Analysis

i. Family planning

Probit model is the estimating model that emerges from the normal cumulative Distribution function (CDF). And also instead of following this route, we will present the probit model based on utility theory, or rational choice perspective on behavior as developed by McFadden.

This procedure measures the relationship between the strength of a stimulus and the proportion of cases exhibiting a certain response to the

stimulus. It is useful for situation where we have a dichotomous output that is thought to be influenced or caused by levels of some independent variables.

Therefore, to estimate the use of family planning services a probit model is used as the dependent variable, the regressand, or the response variable, which can take only two values (1 if the respondent used family planning method and 0 if not used). In other wards the regressand is a binary, or dichotomous, variable.

The dependent variable used in the model is a dummy that equals 1 if head of household uses family planning services. The independent variables Q-4-sex =dummy 1 if head of household is female, Mar- status- dummy= dummy 1 if head of household is married, q-5- dummy= dummy 1 if head of household of has education of high school and above, annual-income dummy= dummy 1 if head of household has annual income of 1501 and above, time med-log is log of time taken to reach the nearest health facility, fam- size- log is log of number of family members of household, time- hc-log is log of waiting time to get medical services, D- dummy= dummy 1 if respondent is from Dibate zuria, Y-dummy= dummy 1 if respondent is from Yamp zuria, Gir- dummy= dummy 1 if respondent is from Girze zuria, and Ber- dummy= dummy 1 if respondent is from Berber Zuria.

The parameters were used in a model with 297 (48.8%) cells (i.e., dependent variable levels by combination of predictor variable values) with zero

frequencies to make an estimate of the model. The model is tested fro heteroskedaticity using a likelihood ratio statistic which is found to homoskedastic at 5% significance level.

The results of the variable estimates are presented in the following table:

Table 5.2 Probit Regression for Family planning service

-2 log-likelihood- Maximum likelihood function Results: (ML)

Restricted ML ---------- 484.787

Unrestricted ML ---------- 433.348

Chi-square---------- 51.439

Level of significance ---------- 0.000

McFaddenR^2 (R^{2}McF) ----------0.102

Variable	Coefficient	Wald	Sig
Intercept	- 0.725	3.665	0.56
Q-4- Sex	0.291	1.031	0.310
Mar-status- dummy	0.742	6.745	0.009
q-5-dummy	0.832	4.721	0.030
Annual – incom- dummy	0.183	1.237	0.266
Time – med-log	-0.172	5.669	0.017
Fam- size-log	- 0.540	9.772	0.002
Time – hc. Log	0.033	0.411	0.521
D- dummy	0.132	0.336	0.562
Y-dummy	0.057	0.047	0.829
Gir – dummy	1.190	10.211	0.001

Ber- dummy	0.720	13.302	0.000

The signs of the coefficients of the explanatory variables are as expected except for waiting time for medication.

Family planning services can help women reduce the health risks from mistimed and unwanted pregnancies. Logically, waiting time causes women to discontinue contraceptive use. Therefore, it is expected that the coefficient of waiting time is negative. However it is reviled that its coefficient is positive and the reason to this is not clear. Accordingly, dissatisfaction due to waiting time does not cause women to discontinue contraceptive use to have more children.

When one looks at the results of the probit analysis, one sees that residents of Berber and Gireze Zuria were significantly more likely to use family planning services over other residents. And also among all other variables, marital status, education level, time taken to reach the facility and family size of households significantly and positively affect the level of family planning service utilization. Except Fam-size-log which affect negatively. However, the coefficients for sex, annual income, waiting time, Resident of Dibate and Yamp are not significant at individual level. The constant term is also not significant at 10%. And the negative coefficient may be because of the use of natural self birth control methods.

ii. Immunization

To look at the independent effect of the factors that were associated with respondents' utilization of immunization services, binary response regression analysis was done using probit method.

An immunization service is the dependent variable that takes the value 1 if the respondent utilizes immunization services and 0 otherwise. Meaning the dependent variable used in the model is an immunization = dummy 1 if head of household uses immunization services. The explanatory variables are Q-4-sex= dummy 1 if household is female, q-5-dummy= dummy 1 if head of household has education of high school and above, Mar-status-dummy= dummy 1 if head of household married, annual- income dummy= dummy 1 if head of household has annual income of Birr 1501 and above, fam-size-log which is the log of the number of family size, Age- log is the log of the years of age, D-dummy= dummy 1 if respondent is resident of Dibate zuriae, Y- dummy= dummy 1 if respondent is resident of Girze zuria, Gal-dummy= dummy1 if respondent is resident of Gallessa zuria, and Ber-dummy= dummy 1 if respondent is resident of Berber zuria. The result of the probit method achieved is as follows:

Table 5.3 probit regression Result for Immunization services

- 2 log – likelihood – Maximum likelihood (ML) Estimation

Modeel fitting information:

Restricted ML ----------271.209

Unrestricted ML ----------175. 671

Chi- square ----------95.538

Level of significance ----------0.000

McFadden (R^2McF) ----------0.342

Variable	Coefficient	Wald	Significance
Constant	1.658	1.696	0.193
Q-4-Sex	-0.311	0.952	0.329
q-5-dummy	-0.461	1.952	0.162
Mar-status- dumy	-0.337	0.930	0.335
Annual – Incom	0.256	1.021	0.312
Fam-size-log	1.431	33.132	0.000
Age-log	0.335	0.849	0.357
D-dummy	0.285	0.848	0.357
Y- dummy	5.681	-	-
Gir- dummy	0.204	0.154	0.695
Ber- dummy	-0.347	2.072	0.150

As shown in the above table, the signs of the coefficients are as expected except for female headed house hold, education of high school and above,

for married household, and being resident of Berber zuria. The reason is obscure and deems further investigation. Although the sign of the coefficients for the other remaining variables is as expected, however, they are not significant at individual level even though their combined effect is significant. The larger the family size of households is the greater to utilize the immunization services logically and the coefficient is positive and significant.

The model is tested for homoskedasticity and found to be homoskedastic at 5% significance level using likelihood ratio (LR) statistic.

iii. Regression Analysis of Provider choice

To look at the independent effects of the factors that were associated with respondents' choice of providers' regression analysis was done. In the first part the binary probit regression was used to analyses the factors that determine the respondents' decision whether or not to seek medical treatment in times of illness. Then the binary logistic regression was employed to look at how these factors affect people's choice among the different categories of providers given the decision to seek outside medical assistance.

Table 5.4 Binary probit Regression of seeking outside medical Assistance

	Restricted ML ---------- 109. 976 Unrestricted ML---------- 80.574 Chi-square----------29.402 Significance---------- 0.001 McFadaen(R^2McF)---------- 0.170		
Variables in the Equation	Coefficient	Wald	Significance
Constant	-2.118	15.931	0.000
Q-4-sex	0.424	0.931	0.335
q-5-dummy	-0.851	3.825	0.050
Mar-status-dummy	0.585	2.539	0.111
Annual-income-dummy	0.058	0.041	0.839
Family-size-log	-0.331	5.492	0.019
Age-log	-0.105	0.449	0.503
D-dummy	0.627	3.154	0.076
Y-dummy	0.465	1.041	0.308
Gir-dummy	0.150	0.188	0.665
Ber-dummy	5.934	-	-

As can be seen from the above table, having higher educational level seemed to reduce the probability of seeking outside medical assistance during the time of illness. Higher annual incomes of head of the household, being married and female headed household were positively associated with the probability of seeking outside medical assistance. And also household size and age group were negatively associated with the probability of outside Medical assistance. Because a larger family size leads to a lower percapita than does a smaller family size and when households' age increase it reduce the probability of seeking outside medical assistance as they treat themselves or use traditional healers (younger patients tend to utilize health facilities more often). In addition, residents of Dibate zuria, Yamp zuria, Girze zuria, and Berber zuria were found to be more likely to seek outside medical assistance.

The second estimation is made here on the choice of a provider of health service. Three health providers were used here to estimate utilization of health facilities by respondent. These are health center, health clinics / posts, and private health facilities.

A multinominal logit model is used here. Among three providers, health clinics/ posts is made the base where a value of zero is a signed to all responses made to using health clinics / post. Also, values of 1 for health center, 2 private health facilities are given.

The dependent variables included in the model are choice HEAl=dummy 1 if person seeks treatment in health center, choice clini= dummy 1 if person seeks treatment in health clinics or health posts, choice priv.= dummy1 if person is treated through private facilities. The independent variables are Fam- size – log is the log of the number of family members of the household, Age-log is the log of the age in years of the head of the household, q-5-dummy= dummy 1 if head of household has education of high school and above, annual income-dummy=dummy 1 if head of household has annual income of Birr 1501 and above, q-23= dummy 1 if prescribed drug is available, distance- H institute- log is the log of the distance traveled to a health facility, q- 40-2= dummy 1 if perceived quality is fair, Q-4-sex= dummy 1 if head of household is female, Mar- status- dummy=dummy 1 if head of household is married, WTH= dummy 1 if time taken waiting to get medical service in health facilities is less than an hour,

D-dummy= dummy 1 if resident is from Dibate Zuria, Y- dummy= dummy 1 if resident is from Yamp zuria, Gir- dummy= dummy 1 if resident is from Girze zuria, and Ber- dummy = dummy 1 if resident is from Berber Zuria.

Depending up on the above framework, the results achieved through a multinominal logit estimate is as follows.

Table 5.5 Multinominal logit Regression of provider choice

		Restricted ML----------181.980 Unrestricted ML----------118.041 Chi-square---------- 63.935 Level of significance ---------- 0.000 McFadden (R^2McF)---------- 0.351			
Facility chosen	Variable	Coefficient	Wald	Significance	Adds ratio
Health center	Intercept	-20.301	0.000	0.991	
	Fam- Size-log	15.233	0.838	0.360	4126746.987
	Age-log	9.247	0.552	0.457	10373.39879
	q-5-dummy	7.809	0.000	0.995	2462.66653
	Annual-incom-dummy	-22.341	0.006	0.938	0.000
	q-23	-7.492	0.000	0.984	0.000055
	Distance-H institute-log	0.466	0.220	0.639	1.59360
	q-40-2	8.707	0.003	0.954	6057.18227
	Q-4-Sex	2.091	0.000	0.999	8.09300
	Mar-status-dummy	-12.100	0.000	0.987	0.000*

	WTH	0.048	0.000	1.000	1.049170
	D-dummy	21.682	0.000	0.991	26083925
	Y-dummy	15.058	0.000	0.993	3464226.731
	Gir-dummy	7.320	0.000	0.997	1510.20397
	Ber-dummy	-6.576	0.000	0.996	0.00139
Private	Intercept	-40.167	0.001	0.979	0.000
	Fam-size-log	16.025	0.926	0.336	9111063.479
	Age-log	9.505	0.581	0.446	134766.9274
	q-5-dummy	8.444	0.000	0.995	4647.10628
	Annual-incom-dummy	-24.019	0.007	0.933	0.000
	q-23	-5.501	0.000	0.988	0.00040
	Distance- H Institute	0.451	0.199	0.656	1.56988
	q-40-2	8.952	0.004	0.953	7723.32307
	Q-4-sex	-12.270	0.000	0.995	0.000*
	Mar-status-dummy	-0.060	-	-	0.94176
	WTH	1.463	0.000	0.999	4.31889
	D- dummy	25.326	0.000	0.990	9.975662^{10}
	Y- dummy	15.589	0.000	0.993	5891375.148
	Gir- dummy	9.596	0.000	0.997	14705.8404
	Ber- dummy	-5.027	0.000	0.997	0.000065

All the variables including the constant are not significant both related to health center and private health facilities. The reason is not clear. The signs are okay as except Anumual income – dummy, Married household, q-23, WTH and resident of Berber zuria. Peoples in Dibate zuria, Yamp zuria, Guirze zuria may be resorting in favor of health center, while those of Berber zuria are resorting to health clinics or health posts than health center because they are far from main town (Dibate). Proxies of prices like distance and waiting time are positive. However, the signs of coefficients for such price proxies are negative in the case of Mwabu, Ains worth and Nyameta. The reason may be that the residents may be near to the health center and their waiting time in health center is less than an hour.

The odds for female household heads to have had chosen the health center for treatment in times of an illness is estimated 8.093 times as high as male headed house hold heads other tings being equal. Moreover, the odds for education level of the patient being secondary level and above to have had chosen the health center is estimated to 2462.666 as high as patients with education level of below secondary level other things being equal. Here there is an increasing chance of choosing the health centers by patients with education level of secondary and above.

As it is evidenced from this estimation result age – log of the patient were found to influence the probability of choosing health center positively. This

result indicates the older patients tend to utilize health center more often. But this tendency would fail for younger individuals.

The perceived quality of medication in health center by respondents is positive; hence there is an increased chance of choosing health center because of the effect of the perceived quality variable. And this result was consistent with the findings of Muaba et. al (1993). The coefficient for the availability of prescribed drug was negative. This may be according to Mwabo et. al (1993). They found shortage in particular type of drugs may be either negative or positive related to medical care demand. And also according to the World Bank Discussion paper 1997, the availability of drug influences both the decision to use services and choice of provider.

5.2 Secondary Data analysis

We can see the growth rate of each disease in the following table.

Table 5.6 growth rates of disease types in the woreda

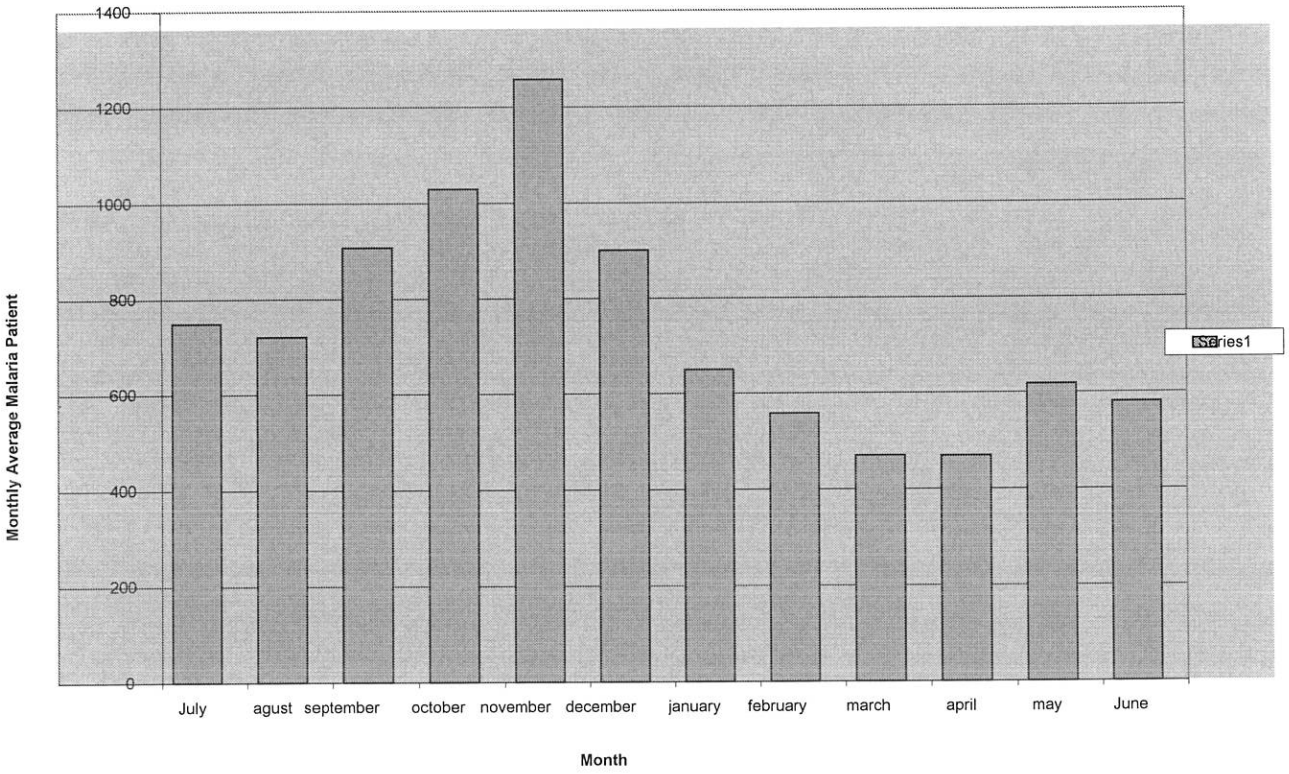
No	Type of Disease prevail	**Type of Disease and yearly growth rate**								
		1996/97	97/98	98/99	99/2000	2000/01	2001/02	2002/03	2003/04	2004/05
1	Malaria	1.8	118.8	8.60	61.1	64.9	11.4	13.7	86.1	12.7
2	Tractive infection	-25	-4.6	-8.3	38.2	-13.8	1.6	191.8	12.6	-17.4
3	Intestinal parasite	2	8.6	-31.7	57.9	2.4	96.5	35	12.8	-0.4
4	Wound	-10.8	12.4	-2.9	25.2	-14.3	-31.9	1.3	66.9	-5.3
5	Gastritis	-26.7	-22.7	48.5	53.3	20.5	17.9	7.3	-14.5	-7.4

6	Fever	1.2	-59.5	45.7	82.3	-0.5	80.8	14.3	1.5	-40.3
7	Diarrhea	-20.7	26.8	10.8	-5.4	8.6	93.2	-11.8	17.1	-10.10
8	Rheumatism	-6.4	71.6	4.5	-8.6	142.7	-42.9	28.6	0	-4.9
9	STD	9.4	7.7	26.5	0.8	-19.2	-14.3	11.5	35.2	10.8
10	Anemia	-11.3	-49.7	32	77.7	-31.9	-27.3	105.7	-12.7	0.4

As computed above in table 7, malaria is the dominate disease in the study area. If one observes the above table carefully, the trend of malaria through out the study years are self explanatory. That is there is a rapid growth of malaria disease in the study area. In between 1997 to 1998 the growth rate is 118.8 percent where as it is only 1.8 percent in between 1996 and 1997. However, the annual rate of growth is positive between 1996 to 2005. This indicates that the prevalence of the diseases increase in the study area. In other diseases there are fluctuations in their growth rate. The negative sign in the above table shows the decline in the prevalence of disease in the area.

Since malaria is the dominant disease out of ten top diseases in the study area, the study focuses on its trend on the given period. The known season in which the disease highly prevails is from July to November (as reviled by the chart below based on average monthly data of malaria for 8 consecutive years).

Fig. 1 - **8 years Monthly patient on Malaria**



We know these months concide with the season of sowing and harvesting. So, from this one can easily estimate the impact of prevalence of malaria on farmers' production and total out put or earning. According to the Woreda report, if once some one is infected by malaria, it may take a minimum of a month to get cured. When he/she is sick, it is obvious that there are direct and indirect effects on peasant farm incomes. These effects are stated in the words of economics as direct and indirect shadow, debilitating, multiplier, and income effects. Here direct effect implies to the loss of already attached individuals from production site and indirect effect implies to the time sacrifice of working household on carrying the sick on to the health

institutes. Shadow effect implies to the compensation of sick one's work hours by the healthy that may also reduce labour supply on farm. Debilitating effect implies to the decline in the efficiency after and before the attack of disease till full recovery of the victim. Last but not least, disease will have an effect on family income through the cost of private medication and unforeseen family expenses to entertain visitors. So that disease has a drawback effect on the socioeconomic performance of that attacked community.

5.2.1 Impact of inadequacy of Health service

The effects of poor health go far beyond physical pain and suffering. Learning is compromised, returns to human capital diminished, and environments for producer and productive activities are constrain. No country has attained high level of economic development with a population crippled by infant and maternal mortality, high rate of illness of its workforce, and low life expectancy. Disease is considered as an environmental variable, which is taken by the tenant as exogenously given. It has a whole set of multiple effect working differently on different components of family welfare. For instance, it delays people from work, reduce efficiency, draws on the tight family budget, disturbs the existing pattern of family activities, and cause a lot of changes in the day-to-day family management. For agricultural communities, these effects are aggravated by socio-economic factors such as strong and extensive social

relations and extensive use of family labor. And also disease will eventually affect agricultural out-put.

Poor health imposes immense economic costs on individuals, households, and society at large. One can calculate these costs on the basis of percentage of workers experiencing illness, workers inactive due to illness, average work days loss to ill, share of normal monthly earnings to treat illness, income loss as a share of per capita GDP. Since it is difficult to mention all the available data for the above points, the study used only workers experiencing illness, income lost due to illness as a share of quintals and total income lost in quintals for 2004 and 2005.

Malaria is location specific and has a discouraging effect on settlement and on development of fertile land. As mentioned above in section 5.2.1, Malaria is the dominant disease in Dibate Woreda that influence working force participation in any production. According to the annual report of Agricultural and Rural Development Office annual peasant production from cropping is as follows.

Table 5.7 Annual peasant production from cropping

No.	Production in quintals	Year of Production
1	178,902.55	2001
2	104,468.9	2002
3	174,043.3	2003
4	214,046.62	2004
5	252,276.9	2005

Source: Agricultural and Rural Development Report 2006

As it is mentioned at the beginning of this section, the illness prevails among peasants in the main second round production of July to November and it is stated in the report it takes minimum of one month to get cured. So, from these related conditions, it may be easily observable that illness by malaria has its own negative effect on peasant economic performance in that Woreda. This burden can be seen in tabular form as follows.

Table 5.8 Economic Burden of Malaria

Type of disease	Workers experiencing illness		Average work days lost to illness	Income lost due to illness as a share of quintals		Total income lost in quintals	
	2004	2005		2004	2005	2004	2005
Malaria	13814	15571	22	0.31	0.37	4282.3	5761.3

Here the data in the above table are collected as follows: number of working forces experiencing illness is 80% people figure in table 7 (disease table) as it is reported by the Woreda Health office. This is 80/100 (17268) or 13814

and 80/100 (19464) or 15571 for the years 2004 and 2005 respectively. The average work days are given by the woreda Agriculture and Rural Development Office annual report as 22. The income lost due to illness is calculated as an average of 1/12 months income of households from crop production which is about 0.31 and 0.37 quintals per month for the year 2004 and 2005. These figures are calculated out of the total annual farm income from cropping in the Woreda that is divided to the total population in the area and again for 12 months to obtain the monthly income of peasant from crop production. The total income lost due to illness in quintals is arrived just by multiplying workers experiencing illness in a given year by the income lost due to illness as a share of quintals.

Accordingly, the 2004 income loss due to malaria is totaled about 4282.3 quintals and it is 5761.3 quintals for the year 2005. One can easily understand from thee figures that how far the study area is suffering by malaria in both social and economic terms.

From the total income loss column what one has to understand is the loss in 2005 is more than 2% of the total annual income of peasants from crop production in that Woreda. Even in 2004 income loss is also more than 2%. So, one can safely say that the prevalence of malaria in Dibate Woreda has imposed economic burden of 2 percent of peasants income. If one includes other sectors income, I hope the share in loss will increase in the study area.

The burden also goes far beyond the above. There are also monetary and other expenses to treat the illness. As mentioned at the beginning of the second and this section, because of lack of equipped health institutes in the study area, peoples incur expenditures for transport, bed in hotels, food and the like in going to other facilitated areas. As I interviewed the Woreda Health Office Head Ato Worku Inabo, most of the peoples who are infected by malaria from border of the Woreda Should undergo through different kinds of examinations in Dibate Woreda Health Center. This again shows that this people have incurred a minimum of the expenditures that are mentioned above. To have examination on some kind of disease; malaria in our case, the victim has to pass at least six days for one trip. From what I interviewed individuals at the examination center called Dibate Health Center, the following are expenditures the patient has to incur.

Table 5.9 Expenditures that the patient has to incur in going for malaria examination to Dibate Health Center

Case of Expenditure	**No. of days**	**Types of expenditures in ETB**				**Total**
		Transport	**Feeding per day**	**Bed in hotel per day**	**Examination and Tablet**	
Malaria Examination	6	100.00	10.00	5.00	21.00	
Total	6	100.00	60.00	30.00	21.00	211.00

From the transport column what one has to understand is the transport cost is very high. The reason why it is too high is that the majority utilizes as means of transport packed animals or on foot in the Woreda which costs at minimum 100.00 ETB for a trip. And also from the above columns one can understand that the minimum cost that the individual can incur only for himself in treatment of malaria but basically we know that the patient can not go alone to the health center. So, the expenditure will rise at least for every thing except treatment costs. Therefore, in the table above except 21.00 ETB of treatment, the rest 190.00 ETB will double if the people are two including the victim. In that case, the total expenditure that the patient family is going to incur accounts about 380.00 ETB. So, the expenses due to malaria prevalence in Dibata Woreda are high in each year of the period under study and they are increasing.

The patients from the study area are not only incurring the above kinds of expense but also they do have other expenses like payment for the card, something to the guard himself, and the like. These expenses over and above the treatment cost more specifically the expenses they incur for guard at the gate. If an individual do not want to approach the guards at the gate smoothly or the way other people do, they have their own role on the turn arrangement of patients. As I interviewed the patients in the pawie Hospital the guards and card callers in coordination play a significant role on patients by favoring their relatives either by blood or other linkages. The

strangers I interviewed were Wro. Silenat kebede and Ato Tadele Hirepa from Dibate Woreda and two individuals from other areas.

The strange patients have raised also other problems associated with those guards and card callers. That is they hide the file of patients and visverse the turn arrangement when they arrive to the doctors room gate for examination. This is the Main and dangerous mischief that they impose mainly on strange patients. That is the guards and card caller do the same on strange out patents. Here by the strange out patients I mean patients from the study area who are suffering a lot in Pawie Hospital. If the situation is observed in economic terms, it imposes time and psychological costs and marginally the monetary expenses to the patients.

Observing the above problems, I approached the manager of Pawie Hospital just to inform the situation and hear the method that they plan internally to resolve such mischiefs. But he said that "these are the main problems in administrative of our hospital that we could not handle even. Most of the time we are trying to handle it but because of many of patients do not want to expose them and the mischiefers them selves developed techniques or are technique full we could not come across the problem." From these problems we can see that there are some burdens imposed on out- patients in Pawie Hospital that are already known by the hospital administrators but difficult to handle in order to find solution.

Since Dibate Woreda has no hospital and well equipped health institutions, it is self explanatory that the patients suffer a lot by the guards and card callers are patients from Dibate Woreda. From the roles that the guard and card callers does have, one can safely say that it is not a doctor that is difficult to approach for patients but the guards and card callers in Pawie hospital.

CHAPTER SIX

CONCLUSION AND POLICY IMPLICATIONS

6.1 Conclusion

Health development shall be seen not only in humanitarian terms but as essential component of the package of social and economic development as well as being an instrument of social justice and equity. So, good health is basic to human welfare and a fundamental objective of social and economic development. It is argued by many people including economists, "Health of people is wealth of a country". Therefore, it is not surprising to say that ill health has a powerful effect on the regions economic progress. This paper has examined the frequency distribution descriptive and empirical results of the primary data that was collected from the residents of households in Dibate Woreda and the secondary data analysis from different sources. Particularly, the study examines the determinants of seeking medical treatment or not in times of an illness, and utilization of family planning, immunization services, and the choice of provider, further more, the study examines, the economic burden of diseases (specific to malaria) in the study area.

From the frequency distribution and descriptive stastics analysis, 20.8% did not seek treatment while 79.2% did and out of this, 86% responded to seek treatment in government health facilities (health center, clinics, health

post). The remaining 13.2% seek treatment in private health institutions. A minority 0.8% sought treatment from traditional healers and self treatment. Analysis of the estimated empirical results leads to the following conclusions.

Higher annual incomes of health of the household, being married and female headed household were found positively associated with the probability of seeking out side medical assistance. And also having higher educational level, households size, and age were negatively associated with the probability of seeking out side medical assistance and this is explained in the prior hypothesis.

Concerning choice of provider of health service, there is an increasing chance of choosing the health center by patients with education level of secondary and above. And having annual income of birr 1501 and above were found to choose health clinics or health posts than health center.

The distance in kms. to reach the near by health institute was found to be discouraging factor in choosing health clinics/health posts than health center. Married household heads have negative preference to health center and to that of private health facilities than health clinics or health posts. That is, married house holds prefer clinics or health posts than health center. Concerning area of residence, except resident of Berber, residents of

Dibate, Yamp, and Girze zuria may be resorting in favor of health center and private facility.

The results of quality variables that is denoted with the perceived quality of treatment obtained was found to be positive effect in choosing the health center and privately provided health care services. And also the availability of prescribed drug was found to have a negative effect in choosing the health centers and privately provided health care facilities. That is availability of prescribed drug is in favor of health clinics or health posts. Waiting time for treatment was found to have positive effect on the probability of choosing the health center and private providers. This is due to the reason that there are only one health center and limited number of private facilities.

Family planning method was found to be used by 76.6% of the respondents. Among the variables used in the econometric analysis of family planning method, being married and having an education level of high school and above were found to have positively and significantly affect utilization of family planning services. In addition, log of family size was found to have strong negative effect on utilization of family planning services. This may be due to the fact that the residents do not have naturally prior information on the utilization of family planning methods for which the sign of the constant term is negative. Furthermore, being resident of Girze and Berber Zuria

were found to have strong positive effect on the utilization of family planning services.

Concerning immunization services, 92.9% responded to have their children immunized. The probit result from the econometric analysis indicated that the long of family size were found to have a strong positive influence in using immunization services.

Lastly, out of ten prevailing diseases in the study area, malaria is the dominant one starting from 1996 to 2005. It infects a minimum of 1140 people and a maximum of 19464 in the study area. These figures account more than 1 to 3 percent of the total population. The impacts of poor health go far beyond physical pain and suffering. It impose immense economic burden on the woreda's working population. It accounts on average for about 22 work days of the year that are lost due to malaria, 0.31 to 0.37 percent of one quintal of production and 4282.3 to 5761.3 quintals out of total income per year for, example, in 2004 and 2005. In addition to this, there are also other burdens like affecting education, returns to human capital diminishes, and environments for entrepreneur and productive activities are constrained. Guards and card callers in the study area's neighbor hospital play a great role and some times more than that of doctors. Their role is highly enhanced due to inefficient hospital administration. Problems that are caused by the corrupt hospital guards and card callers have scaled up the cost of treatment for the victim strange

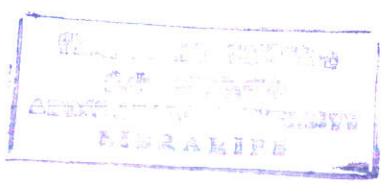
out patients, particularly from small towns and rural areas are highly exposed to the problem of such type.

6.2 Policy implications

Based on the descriptive, and analytical findings, and secondary data analysis of this study there are some definite policy implications.

As stated earlier, family planning method is used by 76.6% of the residents. In our empirical finding income of the household and education was found to have a positive impact on utilization of family planning services.

In this regard, even it is a general macroeconomic policy of most governments, devising mechanism to economic and educational development may encourage family planning (special education for women); family planning improves nutrition; nutrition improves health; health can improve attitudes to family planning, reduce absenteeism, increase labor availability and productivity and facilitate exploitation of natural resources. Thus, as people's ability to improve their own health depends so much on income and education, the policy conclusions are clear: government should work to boost economic growth, reduce poverty, expand schooling (particularly for girl), and help strengthen women's ability to care for their families. And also there is a need to active involvement in the awareness creation campaign about family planning services and reproductive health is necessary.



Vaccines to prevent tuberculosis, measles, diphtheria, pertussis, tetanus, and polio have revolutionized preventive medicine over the past two decades. Deadly diseases like diphtheria, tetanus, polio, and T.B. have been controlled effectively by the immunization programs. If the objective is to bring development to the area's rural grass roots, there is a need to provide primary health education to enhance health awareness and to propagate the important concepts and practices of self- responsibility in health which could be useful for preventive case.

There has to be encouragement for traditional medicine providers by encouraging utilization of its beneficial aspects. Because only 0.8% of the patients in the study area were treated from traditional healers. Thus encouraging research including its linkage with modern medicine, and appropriate regulation and registration for its practice that can serve as a short cut to exploit the existing knowledge.

The poor also have considerably worse access to health care. Low income households especially in rural areas have to travel considerably farther or longer to reach the first level or referral services, usually a primary health care centers or doctors office. Therefore, partly because of difficulties in access, the rural poor generally consume fewer health services. But increasing access by constructing new health facilities alone can not be a panacea to increase utilization because quality of treatment with sufficient

medical inputs was cited as important. Further more, how satisfied people are with their own health and their health care can be only partly explained by objective criteria; subjective expectation matter. Peoples choose whether to seek care and which provider to consult on the basis of many factors-hours of service, travel time, travel cost, waiting time, availability of doctors or drugs and how patients are personally treated. The time required to get care can be valued according to local wages and treated as a cost of service together with money payments. On this basis, free public medical care often is more costly than unsubsidized private care for which patients do not have to travel so far or wait so long. It is not surprising that, under these circumstances, even poor people express their dissatisfaction with public services by paying for a great deal of private out patient care. Thus, the increased availability of health facilities must be accompanied by necessary medical inputs such as essential drugs with medical equipment and also be staffed with a well trained personnel particularly that of the public health sector.

The average waiting time for treatment in the public health facilities was found to be about 2.3 hours and the average medical cost of treatment per visit at the government health facilities was about 1.90 birr. Thus, any policy that is structured with regard to such variable must take this in to account.

Given the poor transport typical of rural area, is a serious impediment to obtain health care (bottle- neck to the rural health developments). Dirt roads and non availability of roads often become impossible in the rainy season and, in any case travel on foot or by drought animal may be the only form of transport available to the inhabitants of a rural area, particularly in an emergency. Yet speed can be essential to effective treatment. However, speed can be essential in the case of infants with acute diarrhea and adult patients with cholera distant health facility may seem almost insurmountable. Thus, there has to be provision of road to the rural mass in the study area. And also more emphasis has to be given to the construction of small rural health units, formation of mobile health units, health camps in order to address the remotest rural mass in all seasons.

61.6%, of the residents was found to have no latrine and 98.5% dispose their wastes on open fields. Therefore, this indicates the fecally related or fecally transmitted diseases found through out the study area and diarrhea disease will spread more easily. Thus, due attention should be given to provide public and private latrines which are very useful for environmental sanitation to reduce total illness to infants or under nourished young children. In addition there has to be a need to accelerate the provision of safe and adequate water for the rural mass.

Ill health is thought to impose economic costs by reducing the availability of labor, impairing the productivity of employed workers and capital goods,

wasting current resources particularly nutrients and impending the development of natural resources, animal wealth, and tourism potential. Thus, health is apriority in its own right as well as a central input into economic development and poverty reduction. To this end, reduction or alleviation of poverty provides a straight forward rationale for public intervention in health. Thus, the government should focus on promoting the use of the most important asset of the rural poor – their labor and increasing their human capital through access to basic health care, education and nutrition. Since investment in the health of the nation (specially the rural grass-root) rises their educability and productivity which gives both the assets they need to lift themselves from poverty and the immediate welfare gain or relief from physical suffering.

References:

C. Grifin Charles. 1992. Health care in Asia: A comparative study of cost and finance, World Bank Regional and sectoral studies.

C.R. McCounel 1990. Microeconomics. 11th edition, von Hoffmann Press.

Clawer Ann and Perkkins David. 1998. Economics for health care management, University of Kent at Canterbury printed and bound in Great Britain.

E. Getzen Thomas. 1997. Health Economics, Fundamental and Flow of funds

Fairbanks Alan, PhD Abte Associates inc. 2001. Improving the quality of service and adjusting user fees at Ethiopian Government Health Facilities: estimating the potential impacts of implementing various options, working paper 3, Addis Ababa.

Federal Ministry of Health. 2005. Essential Health service Package for Ethiopia, Addis Ababa.

Health care Financing secretariat Federal Ministry of Health. 2001. Estimating willingness to pay for Health care in Ethiopia: research results and analysis, study report 3

Health care financing secretariat, Federal Ministry of Health. 2003. The Role of Increased Financing for improving Quality of Health care: Evidence from multi-dimentional HCF studies in Ethiopia, Analytical Report 4, Addis Ababa.

Health mirror. 2005. Make every Mother and Child count, By Health Education center (MOH), Vol. 05, No. 09, Addis Ababa.

James. V. Koch 1976. Microeconomics theory and Applications, First Print, Published simultaneously in Canada.

Kidane Tekle. 1998. Utilization of Health service in the regional state of Tigray. Addis Ababa University school of Graduate Studies, Addis Ababa.

Linde low Magnnus. 2005. The performance of Health Workers in Ethiopia, Results from Qualitative Research, World Bank, Addis Ababa.

Mills Anne and Gilson Lucky. 1998. Health Economics for Developing countries, Evaluation and planning center for Health care, London School of Hygien and Tropical Medicine, a survival kit, No. 17, London.

Ministry of Finance and Economic Development. 2002. Sustainable Development and Poverty Reduction. Program, Addis Ababa.

Ministry of Health (MOH). 2005. Health and Health Related indicators.

Mush Fig Ahmed Mobarak. 2004. The Poletical Economy of Health service provision and Access in Brazil, Department of Economics, University of Economics, University of Colorado, world Bank.

Najra Josee A, Liese Bernhard H., and Mammer Jeffery. 1992. Malaria, New paterns and perspectives, World Bank Technical paper, No. 183.

The academy of Poletical science. 1977. Health service, the local perspective, Vol. 32, Number 3, New York.

Transitional Government of Ethiopia. 1993. Health Policy of the Transitional

Government of Ethiopia, Addis Ababa.

Transitional Government of Ethiopia. 1995. Health sector strategy Addis Ababa.

World Bank, 1988. Objectives and Methods of a World Health Survey, policy planning and Research working paper, population and Human resource department.

World Bank, 1994. Better Health in Africa, Experience and Lessons Learned, Washington, D.C.

World Bank. 1975. Health sector policy paper.

World Bank. 1975. Rural Development Sector policy paper.

World Bank. 1988. Cost Effective integration of immunization and Basic Health services in Developing countries, the problem of joint costs.

World Bank. 1991. Economics for Health Sector Analysis, concepts and cases, EDI Technical Material, World Bank, Washington, D.C.

World Bank. 1992. The Health of Adults in the Developing World, Oxford University Press.

World Bank. 1993. Investigating in Health, World Development Research, World Development indicators.

World Bank. 1997. Evaluating Health Projects, Lessons from the literature, world Bank Discussion paper.

A. Questionnaires

1. Name of Woreda _____
2. Name of Kebele _____
3. Type of Association _____
4. Name of respondents _____

   - Age _____ - Sex _____

5. Education Status

   Write / read

   Illiterate _____

   Grade 1- 6 _____

   Grade 7 – 8 _____

   Grade 9 – 12 _____

   Grade 12 and above _____

   Certificate _____

   Diploma _____

   Degree and above _____

6. Marital Status

   Single _____

   Married _____

   Separated _____

   Divorced _____

   Widowed _____

   Other _____

7. Occupational status

   Farmer _____

   Government employee _____

   Trader _____

   Unemployed _____

   Students_____

   other _____

8. What is your average annual income from crop production in Ethiopia birr? It is _____ ETB

9. From where do you get water?

Protected stream_____ Pond/ river_____

Unprotected stream_____ Protected well (hand pump) _____

Piped water _____ Unprotected well _____

10. You have latrine?

No, I haven't _____, why? _____

Yes, I do have _____, year of construction 19__ E.C.

11. If no, where do you dispose you solid waste?

Open field _____ Garbage pit _____

Burning _____ Others _____

12 Was any one sick in you family in the past 4 – week?

No _____ Yes _____ if yes, sex _____ age _____

For how long the patient has this problem (in days, months, or years)

_____

13 Did the patient get treatment?

No _____ yes _____ if yes, from where? _____

14 If a member of your family suffers from malaria, when do you prefer to seek treatment?

First choice _____ Third choice _____

Second choice _____

15 Did any one in your family given birth in the past two years?

No _____ Yes _____

If yes, where did the delivered _____

Who attended the delivery _____

Was it registered? No _____ Yes _____

16 Did any one in your family died in the past year?

No _____ Yes _____ if yes, by whom? _____ was

he/she registered? Yes _____ No _____

17 Are there health stations, clinics, traditional health attendants?

and the like in your kebele?

No _____ Yes _____ (Specify) _____ I do not know _____

18 If yes, where do she/ he work most of the time?

At health post _____ others _____

At his home _____ I don't know _____

Mobile _____

19 what is his/her name?

I don't know _____ I know; his/her name is _____

20. Do you know what services the health centers, clinics, health?

Posts and private health institution readers?

No _____ Yes _____ if yes list the services _____

1, _____ 2, _____ 3, _____

21. Do you/your family member ever avail the services provided by the centers?

No _____ Why? _____

Yes _____ if yes, what kind of services _____

From Whom _____

When _____

22. Were you satisfied with the services you got?

Yes _____ No _____ if no

What services _____

Why _____

23. Are there sufficient drugs for use in the health centers?

Yes _____ No _____ I don't know _____

24. Who provides you the money to buy the drugs? _____

25. Who, according to your? Should give you the money for buying the drugs? _____

26. Do you think that the rural health facilities are helpful or beneficial? in improving health status of your community?

No _____ Yes _____ if yes, how do you quantity? _____

27. Who has built the health stations, clinics, health centers, etc in your kebele?

I don't know _____ I know _____, if you know, you / your Family member participated? Yes _____ No_____

28. Did the health personnel visit your home in the past year?

No _____ Yes _____, if yes for what? _____

When was his/ her last visit? _____

29. Did the health personnel give health education in the past year?

No _____ Yes _____, if yes have your family member attended

Yes _____ No _____ if no, why _____

30. Is the health personnel give health education on malaria prevention

and control. No _____ Yes _____ when _____

31. Did the health personnel have some problems in delivering the health services?

No _____ Yes _____ if yes what are his/ her problems?

1. _____
2. _____
3. _____

32. Did the community discuss the problems faced by health personnel? in the study area?

No _____ Yes_____, if yes you/your family member participated?

No _____ Yes _____ if no why? _____

33. Are there people in your family whose health adversely affected after? taking the service from health stations, clinics and the like?

No _____ Yes _____

If yes, name of health station/ clinics/ centers and the like

_____

Name of health personnel _____

Profession _____

Name of adversely affected _____ age _____ sex _____

Type of damage _____, _____, _____

Service that resulted in damage

Injection _____ Drugs _____ other _____

34. Do you have any suggestions that you believe would improve your community health services? If yes what are your suggestions?

1. _____

2. _____

3. _____

35. Time taken in hours/minutes to travel to the medical center

36. Time spent waiting for treatment in hours/minutes

37. Mode of transport used to come to the health Facility:

i. Foot ----------

ii. Private care (vehicles) ----------

iii. Pack animal ----------

38. Distance covered to reach this facility ---------- kms.

39. Cost of transport paid if public transport is used in Birr ----------

40. Medical cost paid for treatment in Birr ----------

Is this per your estimate?

i. it is small ----------

ii. it is fair ----------

iii. it is expensive ----------

41. Are you referred to another hospital? Yes ---------- No ----------

43. Have you been asked to return again? Yes ----------, No --------

Reasons for returning

a. injection ----------

b. laboratory test -------

c. Further examination ---------

d. other please specify ---------

45. Do you have your child/children fully immunized? Yes --------, No ----

46. if not immunized, why ----------

47. distance in km. covered to travel for immunization ----------

48. Time spent to travel for immunization in days/ hours/ minutes ---

49. Are you aware of family planning methods?

Yes ----------, No ----------

Note: This questionnaire is translated in to Amharic for collection of accurate data through this native language in the study area.

B: Frequency Table

1: Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
	female	96	15.4	15.6	15.6
	male	518	83.0	84.4	100.0
	Total	614	98.4	100.0	
Missing		10	1.6		
Total		624	100.0		

2:Educational level

		Frequency	Percent	Valid Percent	Cumulative Percent
	illiterate	333	53.4	53.7	53.7
	read/write	79	12.7	12.7	66.5
	grade 1-6	124	19.9	20.0	86.5
	grade 7-8	43	6.9	6.9	93.4
	grade 9-12	23	3.7	3.7	97.1
	Certificate	11	1.8	1.8	98.9
	Diploma	5	.8	.8	99.7
	Degree/above	2	.3	.3	100.0
	Total	620	99.4	100.0	
Missing	**System**	4	.6		
Total		624	100.0		

3: Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
	Not married	30	4.8	4.8	4.8
	Married	549	88.0	88.0	92.8
	Separated	12	1.9	1.9	94.7
	Widowed	17	2.7	2.7	97.4
	Prostitute	15	2.4	2.4	99.8
	Other	1	.2	.2	100.0
	Total	624	100.0	100.0	

4: Job Category/Type

		Frequency	Percent	Valid Percent	Cumulative Percent
	Farmer	487	78.0	78.3	78.3
	Govt Employee	24	3.8	3.9	82.2
	Merchant	61	9.8	9.8	92.0
	Job Less	2	.3	.3	92.3
	Student	16	2.6	2.6	94.9
	Others	32	5.1	5.1	100.0
	Total	622	99.7	100.0	
Missing	**System**	2	.3		
Total		624	100.0		

5: Sick Members in the past 4 weeks

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	327	52.4	52.7	52.7
	no	293	47.0	47.3	100.0

	Total	620	99.4	100.0	
Missing	**System**	4	.6		
Total		624	100.0		

6: Sex of patient

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	female	171	27.4	53.1	53.1
	male	151	24.2	46.9	100.0
	Total	322	51.6	100.0	
Missing		302	48.4		
Total		624	100.0		

7: Patient got Treatment

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	yes	271	43.4	79.2	79.2
	no	71	11.4	20.8	100.0
	Total	342	54.8	100.0	
Missing	**System**	282	45.2		
Total		624	100.0		

8: Treated in which health Institute

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	Health Center	222	35.6	86.0	86.0
	Pharmacy	34	5.4	13.2	99.2
	other	2	.3	.8	100.0
	Total	258	41.3	100.0	
Missing	**System**	366	58.7		

Total	624	100.0		

9: First Preferred Health facility

		Frequency	Percent	Valid Percent	Cumulative Percent
	Health Center	609	97.6	99.7	99.7
	Pharmacy	2	.3	.3	100.0
	Total	611	97.9	100.0	
Missing	**System**	13	2.1		
Total		624	100.0		

10 : Second Preferred Health facility

		Frequency	Percent	Valid Percent	Cumulative Percent
	Pharmacy	559	89.6	99.6	99.6
	Others	2	.3	.4	100.0
	Total	561	89.9	100.0	
Missing	**System**	63	10.1		
Total		624	100.0		

11: Third Preferred Health facility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Others**	314	50.3	100.0	100.0
Missing	**System**	310	49.7		
Total		624	100.0		

12: family get new Born Child

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	248	39.7	40.1	40.1
	no	370	59.3	59.9	100.0
	Total	618	99.0	100.0	
Missing	System	6	1.0		
Total		624	100.0		

13: Delivery service from

		Frequency	Percent	Valid Percent	Cumulative Percent
	Home	174	27.9	82.5	82.5
	Health Center	37	5.9	17.5	100.0
	Total	211	33.8	100.0	
Missing	System	413	66.2		
Total		624	100.0		

14: Death of family member in past years

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	74	11.9	11.9	11.9
	no	548	87.8	88.1	100.0
	Total	622	99.7	100.0	
Missing	System	2	.3		
Total		624	100.0		

15: Is there any health consultant in the kebele ?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	420	67.3	68.0	68.0
	no	198	31.7	32.0	100.0
	Total	618	99.0	100.0	
Missing	System	6	1.0		
Total		624	100.0		

16: Place of delivery

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	147	23.6	32.0	32.0
	2	7	1.1	1.5	33.5
	3	11	1.8	2.4	35.9
	4	160	25.6	34.8	70.7
	5	13	2.1	2.8	73.5
	12	49	7.9	10.7	84.1
	13	63	10.1	13.7	97.8
	15	3	.5	.7	98.5
	25	2	.3	.4	98.9
	123	4	.6	.9	99.8
	125	1	.2	.2	100.0
	Total	460	73.7	100.0	
Missing	System	164	26.3		
Total		624	100.0		

17: Do you know services expected from the Health Institute?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	551	88.3	90.3	90.3
	no	59	9.5	9.7	100.0
	Total	610	97.8	100.0	
Missing	System	14	2.2		
Total		624	100.0		

18: Do you use services from the Health Institute?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	596	95.5	96.0	96.0
	no	25	4.0	4.0	100.0
	Total	621	99.5	100.0	
Missing	System	3	.5		
Total		624	100.0		

19: From which Health Institute?

		Frequency	Percent	Valid Percent	Cumulative Percent
	Health Center	501	80.3	90.1	90.1
	Pharmacy	55	8.8	9.9	100.0
	Total	556	89.1	100.0	
Missing	System	68	10.9		
Total		624	100.0		

20: Do you Satisfied with the services?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	196	31.4	31.7	31.7
	no	422	67.6	68.3	100.0
	Total	618	99.0	100.0	
Missing	System	6	1.0		
Total		624	100.0		

21: Is Enough Drugs Available?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	425	68.1	68.9	68.9
	no	192	30.8	31.1	100.0
	Total	617	98.9	100.0	
Missing	System	7	1.1		
Total		624	100.0		

22: Who provides the money to buy the drug?

		Frequency	Percent	Valid Percent	Cumulative Percent
	self	618	99.0	99.5	99.5
	government	3	.5	.5	100.0
	Total	621	99.5	100.0	
Missing	System	3	.5		
Total		624	100.0		

23: Whom do you think should provide money for buying the drug?

		Frequency	Percent	Valid Percent	Cumulative Percent
	self	423	67.8	67.9	67.9
	government	200	32.1	32.1	100.0
	Total	623	99.8	100.0	
Missing	System	1	.2		
Total		624	100.0		

24: Did health Professional Visited your home in the past year?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	583	93.4	93.6	93.6
	no	40	6.4	6.4	100.0
	Total	623	99.8	100.0	
Missing	System	1	.2		
Total		624	100.0		

25: Did Health education given by professionals in the past year?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	529	84.8	84.9	84.9
	no	94	15.1	15.1	100.0
	Total	623	99.8	100.0	
Missing	System	1	.2		
Total		624	100.0		

26: Did you participate in the health education?

		Frequency	Percent	Valid Percent	Cumulative Percent

	yes	469	75.2	92.7	92.7
	no	37	5.9	7.3	100.0
	Total	506	81.1	100.0	
Missing	System	118	18.9		
Total		624	100.0		

27: Did health professionals give health education on malaria?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	535	85.7	86.0	86.0
	no	87	13.9	14.0	100.0
	Total	622	99.7	100.0	
Missing	System	2	.3		
Total		624	100.0		

28: Did you participate in malaria education?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	508	81.4	94.4	94.4
	no	30	4.8	5.6	100.0
	Total	538	86.2	100.0	
Missing	System	86	13.8		
Total		624	100.0		

29: Did the health personnel have problems in delivering health services?

		Frequency	Percent	Valid Percent	Cumulative Percent

	yes	11	1.8	1.9	1.9
	no	558	89.4	98.1	100.0
	Total	569	91.2	100.0	
Missing	System	55	8.8		
Total		624	100.0		

30: Did the community discussed on the problems?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	41	6.6	19.6	19.6
	no	168	26.9	80.4	100.0
	Total	209	33.5	100.0	
Missing	System	415	66.5		
Total		624	100.0		

31: Did you participate in the discussion?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	18	2.9	45.0	45.0
	no	22	3.5	55.0	100.0
	Total	40	6.4	100.0	
Missing	System	584	93.6		
Total		624	100.0		

32: Do rural health facilities have the capacity to improve health status of the

community?

		Frequency	Percent	Valid Percent	Cumulative Percent
	yes	455	72.9	73.6	73.6
	no	163	26.1	26.4	100.0
	Total	618	99.0	100.0	
Missing	System	6	1.0		
Total		624	100.0		

33: days taking for a patient to recover

		Frequency	Percent	Valid Percent	Cumulative Percent
	1.00	6	1.0	1.0	1.0
	2.00	12	1.9	2.0	3.0
	3.00	29	4.6	4.8	7.7
	4.00	43	6.9	7.1	14.8
	5.00	94	15.1	15.5	30.3
	6.00	34	5.4	5.6	35.9
	7.00	127	20.4	20.9	56.7
	8.00	24	3.8	3.9	60.7
	9.00	9	1.4	1.5	62.2
	10.00	63	10.1	10.4	72.5
	12.00	1	.2	.2	72.7
	14.00	8	1.3	1.3	74.0
	15.00	81	13.0	13.3	87.3
	16.00	2	.3	.3	87.7
	20.00	15	2.4	2.5	90.1
	21.00	1	.2	.2	90.3
	30.00	40	6.4	6.6	96.9
	48.00	1	.2	.2	97.0

	60.00	8	1.3	1.3	98.4
	72.00	3	.5	.5	98.8
	90.00	2	.3	.3	99.2
	100.00	1	.2	.2	99.3
	120.00	1	.2	.2	99.5
	180.00	1	.2	.2	99.7
	365.00	2	.3	.3	100.0
	Total	608	97.4	100.0	
Missing	**System**	16	2.6		
Total		624	100.0		

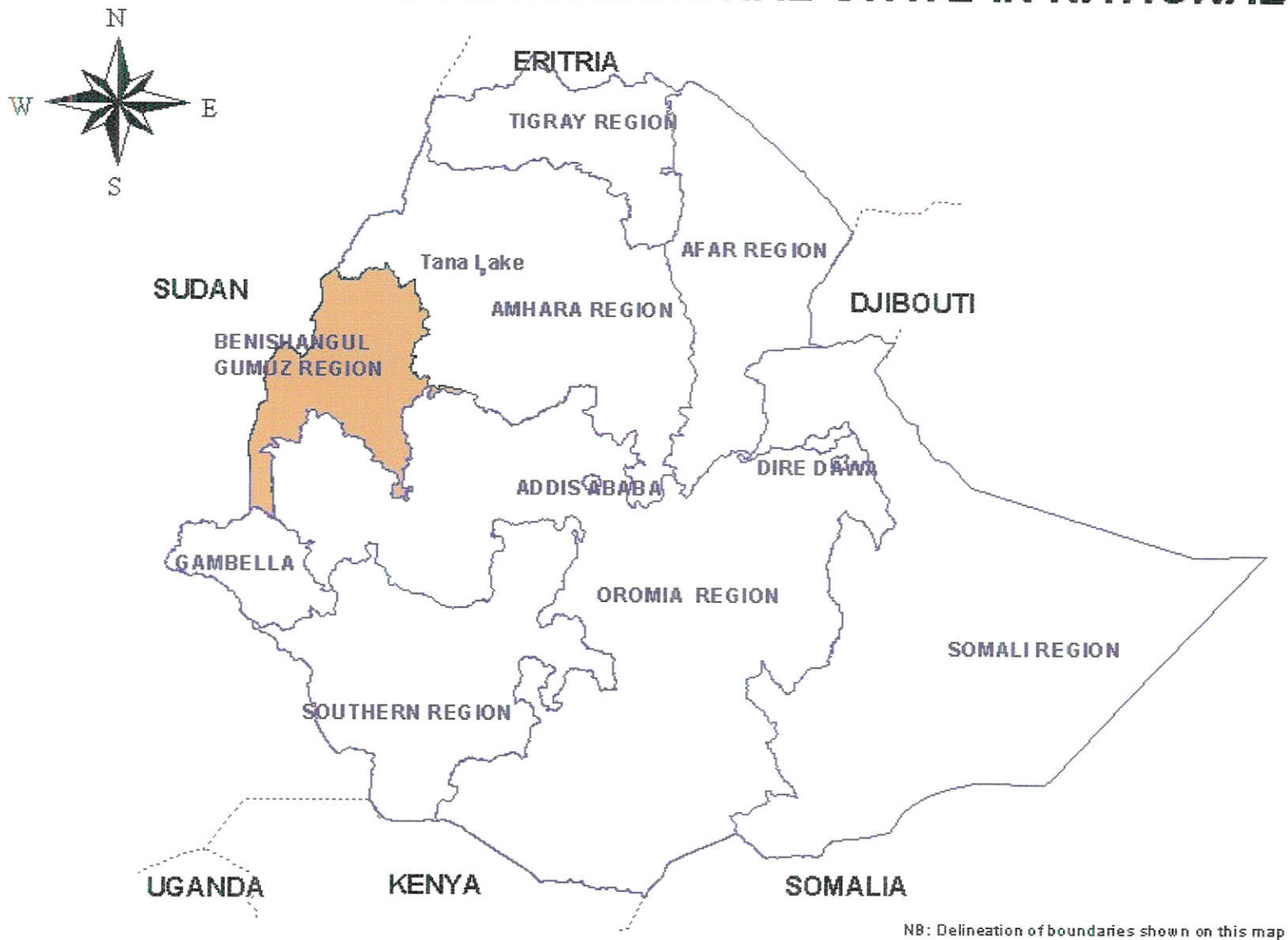
34 : Child Vaccinated

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	yes	573	91.8	92.9	92.9
	no	44	7.1	7.1	100.0
	Total	617	98.9	100.0	
Missing	**System**	7	1.1		
Total		624	100.0		

35: idea on family planning

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
	yes	466	74.7	74.7	74.7
	no	158	25.3	25.3	100.0
	Total	624	100.0	100.0	

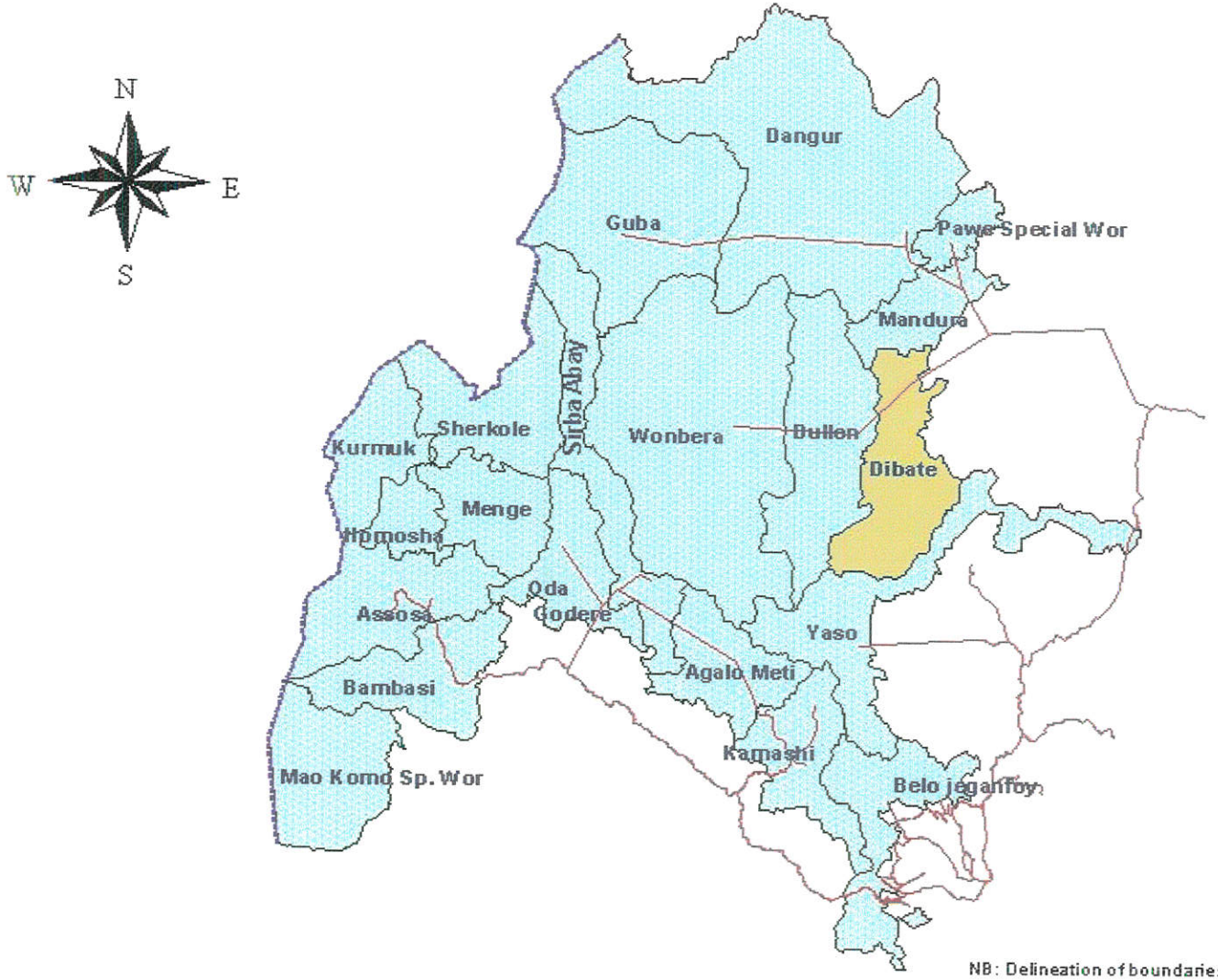
BENISHANGUL GUMUZ REGIONAL STATE IN NATIONAL SETTING



NB: Delineation of boundaries shown on this map must not considered Authoratitive.

PPB: BGBoFED_GIS/RIS

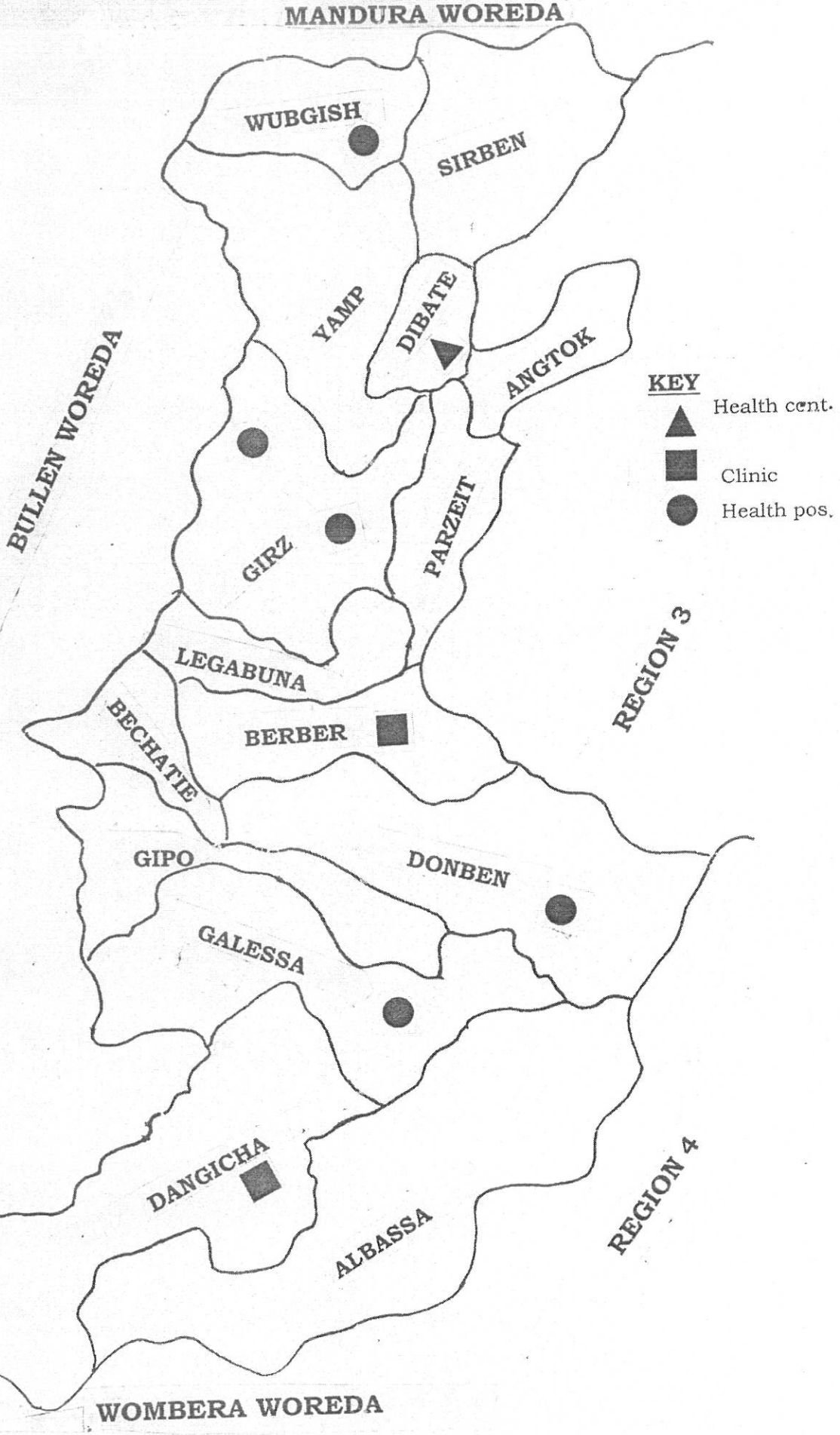
DIBATE WOREDA IN REGIONAL SETTING



NB: Delineation of boundaries shown on this map must not considederd Authoratitive.

PPB: BG BoFED_GIS/RS

WOREDA MAP
MANDURA WOREDA



DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in any other university. All the resources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Taye Genetu

Signature: _____

Date: 11-04-2007

Confirmed by Advisor:

Name: Dr. Manohor Rao ,

Signature: _____

Date: 11-04-2007

Place: Addis Ababa University