Socio Economic Determinants of Community Based Health Insurance The Case of Kilte Awelaelo District, Tigray Regional State

A project Work thesis Submitted to the School of Social Sciences Faculty of Economics

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BY

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In partial Fulfillment of the Requirements for the Degree of Master of Arts in Economics

Advisor: Amare Hagos Adhena (Phd candidate)

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Declaration

I, Hellina Haileselassie, hereby declare that the thesis entitled "**Socio Economic Determinants of Community Based Health Insurance** in Ethiopia Case of Tigray, KilteAwelaelo Woreda"*,* submitted by me to the award of the Degree of **Master of Arts in Economics at IGNOU National Open University**, is original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship of any other university or institution.

Name_____ Signature_____

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Certification

This is to certify that this thesis entitled "**Socio Economic Determinants of Community Based Health Insurance**"*, (A Case study in KilteAwelaelo Woreda, Northern Ethiopia)*" submitted in partial fulfillment of the requirements for the award of the degree of **Master of Arts** in **Economics**, to Department of Economics, IGNOU National Open University, done by **Hellina** ID.No. 109101038 is an authentic work carried out by her under my guidance. The matter embodied in this thesis work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief.

Advisor:

Amare Hagos Adhena (Phd Candidate)

Signature_____

Date_____

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Abbreviations and Acronyms Used in the Thesis

CBHI	Community Based Health Insurance
WHO	World Health Organization
SSA	Sub Saharan Africa
NHA	National Health Account
HSFR	Health Sector Financing Reform
HEW	Health Extension Worker
HDA	Health Development Army
HSDP	Health Sector Development Program
SDPRP	Ethiopian Sustainable Development and Poverty Reduction Program
FMOH	Federal Minister of Health
RHB	Regional Health Bureau
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
ML	Maximum Likelihood
HF	Health Facility
EIC	Ethiopian Insurance Corporation
PHCU	Primary Health Care Unit
HMIS	Health Management Information System
M&E	Monitoring and Evaluation
HCF	Health Care Financing
UNDP	United Nation Development Program
CBHIS	Community Based Health Insurance Schemes
HEP	Health Extension Program

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Abstract

This study analyzes the socio-economic determinants of community based health insurance. For the purpose of this study pilot woreda/district KilteAwelaelo which is located in the eastern Tigray, Northern Ethiopia been analyzed. A logit regression model is employed to analyze the determinants of household head to enroll in CBHI scheme.

The result of the analysis shows that human capital variables such as household head age, education, attend local meeting and participate in PSNP, awareness level regarding the program have a positive impact that household heads would become members/participants of the scheme while accessibility to credit negatively influence for their decision.

Age is significant for household members to enroll in the scheme. At 95% confidence interval its significant level is 0.003. Suggesting that as family heads get older and older they prefer to get secured to risks associated with shortages of finance at time of illness. As the logistic regression shows its R2 is around 91% have got represented by the collected data the rest uncovered issues especially related to the supply side could be summed up to 9-10%. Being beneficiary of credit package on the other hand negatively influence their decision to enroll in the scheme. Since credits are accessed to the community in an interest rate that most of the time beneficiaries of the credit program face hardship while returning their loans with its interest.

Key words: scheme, logit, CBHI, Eastern Tigray, Northern Ethiopia

CHAPTER ONE:

INTRODUCTION

According to WHO (2005) 100 million people every year are driven into poverty due to catastrophic health expenditure. It is imaginable that most reside in resource poor settings such as Sub Saharan Africa (SSA) with very weak modern health care systems and in most cases without any functioning health insurance schemes (WHO, 2003; Carrin et al, 2005). The result is high disease burden as well as a high risky propagating sickness and being absent from productive works.

In Sub-Saharan Africa, formal and well-functioning health insurance schemes generally exist for few people who are employed in formal sectors. For the majority, health care is accessed and/or covered from own source of money which is mostly sourced from existing funds or assets, this mostly leads to least use of health care services.

Community Based Health Insurance Schemes (CBHISs) are promising alternatives for a cost sharing health care system which hopefully also leads to better utilization of health care services, reduce illness related income shocks and eventually lead to a sustainable and fully functioning universal health care system. (Working paper, CBHI schemes in Africa)

The source of finance used to supplement the Health sector in Ethiopia are from government sources, out of pocket payments at the time of service, from external donors and charity activities, as well as from insurance sources. Based on the 2007 national health account around 7.14 USD were spending per person. Compared to the world health organization standard which estimated around 34 USD per person per annum is much higher than the national health accounts. Thus spending for health expenditure were so low and the expenditure were accounted from different sections and sectors accordingly around 31% from government, 37 % from donor/development organizations and direct from user fees are 30 %. (Health insurance in Ethiopia, Jan. 2009) From this we can understand that payment rates that is paid directly by users at the time of service is un

affordable, especially for the poorest of the poor which also inhibits beneficiaries from visiting health facilities.

Thus this health financing system as well as other reasons has an inverse impact on health service utilization rate which currently accounts only to 0.36. This low utilization rate will have an impact on the overall health status of the community as well as health conditions of working force on development activities would become minimal.

Currently Ethiopia is introducing two types of health insurance systems: one is Social health insurance engaged to encompass/participate formal sector of the economy. The second one is Community Based Health Insurance mainly focuses in informal sector of the economy. Both are insurance types what differs is the premium collection methods, the type of participants that involve and largely in case of CBHI continuous and rigorous awareness creation and behavior change activities are highly demanded. While SHI, since it involves formal/employed sector of the economy, once policies are issued premium collection would be directly deducted from salary of beneficiaries.

Community based health insurance (CBHI) mechanisms seek to protect low income households from health related risks through mutual risk sharing at the community level. On the other hand it enables health facilities to mobilize resources and enhance financial burdens. The main characteristics of CBHI are the followings: voluntary membership, non-profit objective, link to a health care provider (often a hospital in the area), and risk pooling relying on mutual aid/solidarity. (HSFR project documents)

1.1 Statement of the problem

The need for health insurance arises because of the poor condition of the public health service delivery mechanism in many poor countries, primarily due to the low resource mobilization capacity of governments in these countries (Preker et al, 2004). Consequently, there is excessive reliance on private sector health care. For example, in India, private spending accounted for more

than 80% of all health care expenditure during 1999-2001 and most of this expenditure was in the form of out-of-pocket payments (WHO, 2004).

According to WHO, it has been declared that there should be access to adequate health care for all at an affordable price. To attain this, the World Health Organization has called for all health systems to move towards universal coverage. A crucial aspect of achieving this goal is to develop strong financial risk pooling mechanisms, particularly in countries where ability to pay limits access to care. Risk pooling mechanisms help ensure that the level of prepayment is increased and that user fees and other out-of-pocket payments are reduced, thereby reducing households' vulnerability to the cost of health care.

Many high and middle income countries have achieved near-universal coverage using risk pooling models such as tax-based financing, social health insurance schemes, as well as public-private partnerships in insurance. These models help users to avoid or minimize risk of financial problems that hold back people from using timely health care services during illness. Currently those models are practiced in some low-income countries; however, the number of beneficiaries and the service coverage remain limited.

In Ethiopia the importance of introducing health insurance schemes is getting higher attention and the Federal Minister of Health is working intensively for its implementation. To achieve this program pilot woreda/districts are under implementation in four regional states each containing three pilot Woreda's.

In developing countries the majority of the people from poor families cover costs for health care out of pocket. As a result many fell into debt which aggravate sever poverty conditions.
This paper will try to identify the major determining factors to enroll at CBHI, it will also notify the degree of their share in enabling the household heads to decide whether to enroll or not, taking KilteAwelaelo woreda as pilot woreda.

There could be many reasons for their absenteeism in enrollment at CBHI. Among these is traditional and cultural background that is highly dependent on traditional curatives/reluctant to

conventional medicine. New to health insurance concepts and that community being reluctant to new initiations and ideas. As well as willingness to pay has a major role as determining factors to enroll at CBHI.

Concerning factors which influence community house hold's decision to enroll at CBHI are knowledge about CBHI/their level of awareness, willingness to pay (number of working age adults and education level), health status of the family, health care expenditure, distance to health facilities, perception at current health facility (utilization of modern health facility), members/participation at PSNP, participation at health package programs.

1.2 Research Objectives

The general objective of this study is:- to identify the major determinants of demand for enrolling at CBHI scheme. Specifically, this research intends:

- to investigate factors determining demand for CBHI
- to examine community perception towards new idea of CBHI
- to identify influence of location of health facilities in enrolling in health insurance.

1.3 Research Questions

This study is intended to answer the following research questions:

1. What are the factors that determine community household heads demand to enroll at CBHI?
2. Level of out of pocket payments of participants? Is the community current level of awareness/behavioral change influenced them to be a member of CBHI?

1.4 Limitation and scope of the study

This study mainly introduces the startup of Community Based Health Insurance in Ethiopia. Mention the major determining factors for choice of community based health insurance. As well as the types of health insurance that currently Ethiopia is implementing in the country. The area

is undiscovered and research analyses were not done since the program is new to Ethiopia. Thus one of the limitations of this study is the sibling/new of the program and difficult to make thorough analysis like the economic burdens as a result of non-members of CBHI and level of perception/behavioral changes of the community since this is a long run effect at community level.

While identifying the major determinants, the response of the beneficiaries and non-beneficiaries could be contrary to the expected results due to low scientific utilization of health service and due to less knowledge about CBHI.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Definition and Concept of Health Insurance

2.1.1 Concept of Health insurance

Health insurance can be defined as a way to distribute the financial risk associated with the variation of individuals' health care expenditures by pooling costs over time through pre-payment and over people by risk pooling (OECD, 2004;).

Community based health insurance is a non-profit scheme organized in order to improve financial access to health care services and to protect its members against the financial risks associated with illness. It operates based on solidarity and mutual aid values with its institutional arrangements designed to maximize its key functions of revenue collection, risk pooling and purchasing of health care services. (CBHI, training manual)

If universal healthcare coverage is to be financed through insurance, the risk pool needs the following characteristics: i) compulsory contributions to the risk pool (otherwise the rich and healthy will opt out); ii) the risk pool has to have large numbers of people, as pools with a small number cannot spread risk sufficiently and are too small to handle large health costs; and iii) where there is large number of poor, pooled funds will generally be subsidized from government revenue (WHO 2010).

A health shock adds health expenditures to the burden of the poor precisely at the time when they can afford it the least. One of the ways that poor communities manage health risks, in combination with publicly financed health care services, are community-based health insurance schemes (CBHISs). These are small scale, voluntary health insurance programs, organized and managed in a participatory manner. They are designed to be simple and affordable, and to draw on resources of social solidarity and cohesion to overcome problems of small risk pools, moral hazard, fraud, exclusion and cost-escalation. (Steven R.Tabor, 2005)

Community-Based Health Insurance Scheme (CBHIs) is any program managed and operated by a community-based organization, other than government or a private for-profit company, that provides risk-pooling to cover the costs (or some part thereof) of health care services. Beneficiaries are associated with, or involved in the management of community-based schemes, at least in the choice of the health services it covers. It is voluntary in nature, formed on the basis of an ethnic of mutual aid, and covers a variety of benefit packages. CBHIs can be initiated by health facilities, NGOs, trade unions, local communities, local governments or cooperatives and can be owned and run by any of these organizations (Jutting 2003). They may be organized around geographic entities (villages, cities), professional bodies (i.e. cooperatives or trade unions) or around health care facilities. They tend to be pro-poor since they strengthen the demand for health care in poor rural areas, and enable low-income communities to articulate their own healthcare needs.

In many developing countries, formal insurance is viewed as the province of the rich (Steven R.Tabor, 2005). Informal insurance, by contrast, is already is part of their daily lives. Many low income households actively participate in welfare associations such as burial societies, rotating credit societies, cooperatives or other reciprocal exchange systems. One of the innovative features of CBHIs is that it introduces a complex financial concept---health insurance---as an extension to an already familiar form of informal social interaction.

CBHIs are called by many different names, including: micro-insurance, community health finance organizations, mutual health insurance schemes, pre-payment insurance organizations, voluntary informal sector health insurance, mutual health organizations/ associations, community health finance organizations, and community self-financing health organizations. There is little to distinguish one from another, except that some terms are more commonly used in one part of the world than another.

Community Based Health Insurance's are well-placed to harness information, monitor behavior and enforce contracts which are either too difficult or costly for the government or any private insurance agency. They reach a clientele that is different from that served by market-based insurers. Typically, CBHI clients have fewer assets; their incomes are lower; and their income

flows often fluctuate considerably throughout the year than those served by commercial or Government-provided health insurance. (Steven R.Tabor, 2005)

CBHIs face constraints related to their small size, limited access to management and technical insurance skills, and by the quality and accessibility of local health care service providers. CBHIs do fail, and when this occurs it is often due to weaknesses in management, financing, or a combination of the two. In addition, the poorest groups are unlikely to become members of CBHIs because they are generally unable to afford the premiums.

2.1.2 Overview of Health Sector in Ethiopia

The low health status of Ethiopia is associated with preventable infectious ailments and nutritional deficiencies. In 2005, the maternal mortality rate was 600 per 100,000 live births, infant mortality rate was 77 per 1,000 and the under-five mortality rate was 123 per 1000. Malaria, acute respiratory infection, and helminthiasis are the major causes of outpatient visits at the health institutions, while nutritional disorders are major problems affecting the population. (Piloting CBHI, June 2008)

The public sector still remains the major provider of health services, accounting for about 67% of the total health services, followed by the private which provided 31% of the services and facilities owned by business enterprises accounts for remaining 2%. Urban households have a significant advantage in terms of geographic access to health facilities that are disproportionately located in urban areas. In order to expand health coverage and improve the delivery of primary health care service to the rural population, the Government has introduced an innovative health service delivery system through the implementation of the Health Extension Program (HEP). During the last 15 years the government has made concrete progress in terms of construction of new health facilities, as well as in upgrading, expanding and equipping existing health facilities. The resulting health service delivery in Ethiopia is a four-tier system, which includes (i) A Primary Health Care Unit (PHCU) – comprising one health center and five satellite health posts – which is planned to serve 25,000 people, (ii) A District Hospital expected to serve 250,000 people, (iii) A

Zonal Hospital, to serve 1,000,000 people and (iv) A specialized hospital. (Piloting CBHI, June 2008)

The government has engaged in major efforts to improve the health situation of the country. Important steps have been taken in the decentralization of the health care system: the FMOH and the RHBs are largely engaged in policy matters and technical support, while the woreda health offices play the pivotal role of managing and coordinating the operations of the primary health care services at the woreda levels. (Piloting CBHI, June 2008)

According to the National Health Accounts for 2007/2008, per capita health expenditure has increased to US$16.1. In terms of sources of financing the health sector, bilateral and multilateral donors have become the largest financing source, accounting for 39% of total health expenditure, followed by households (out-of-pocket spending) 37% and the Government 21%. The current level of Ethiopia's health expenditure per capita (US$16.1) is far below the financing requirement of US $34 per capita that has been recommended by the Commission for Macro economy and Health as being necessary to cover essential health interventions. This calls for substantial increases of the present levels of health expenditure as well as improving efficiency of resource utilization. (Piloting CBHI, June 2008)

In 2008, the Government health care financing strategy was further elaborated with the adoption of a two-pronged health insurance strategy, based on social health insurance and community based health insurance. (Piloting CBHI, June 2008)

Development of Health Insurance in Ethiopia

The coverage with formal and informal insurance is minimal. Specifically informal health insurance or community Based Health insurance has not been implemented till recent. While the formal sector that is state owned enterprises cover up to 50% of medical expenses of their employees. Ethiopian insurance corporation (EIC) was the only commercial establishment providing health insurance as optional extension to life insurance policy. The benefit package for the health component usually doesn't exceed US 1,000 per year. For instance in 1995 the number

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of policies sold were 900 covering 10,869 people (representing only 0.03% of the total population). The total premium for these policies was 767, 606 birr (about 108,113 US) and the amount claimed that year was 570,482 birr (about 80,350 US). (Damen Hailemariam: 1996)

The Current Practice of Health Insurance in Ethiopia

The practice of health insurance coverage in Ethiopia is limited. Private sector insurance in health is underdeveloped and covers only a small proportion of the population through the Ethiopian Insurance Corporation (EIC) and recently through a few private insurance companies. Beneficiaries of health insurance schemes are a few private organizations and public enterprises. According to NHA III, private health insurance accounts for only 1.1 % of the total health expenditure. (Health Insurance Strategy: FMOH Planning and Program Director; May 2009)

Civil servants are also entitled to receive limited health care benefits (50% of the costs, in the case of inpatient care at public facilities). This provision has been improved recently by the Federal Civil Servants Proclamation No. 515/2007 that entitles all permanent civil servants to medical services in public health facilities free of charge at the point of service. The proclamation further states that this benefit is to be partially funded by monthly contributions from employees. The same law also allows civil servants to obtain medical services for their spouses and children who are minors from public health facilities at a 50 percent discount.

Such experiences of health system that is like the enhancement of out of pocket payments, highly donor based health service and government tax based allocations couldn't be sustainably continue with the existing system of health financing. Thus such kind of situation radically needs for the introduction of health insurance strategy.

2.2 Rationale for a Health Insurance Strategy - Ethiopia

The high priority accorded to health by the government is reflected in the different macroeconomic and social development policy documents. Health has been one of the important components of the recently completed Ethiopian Sustainable Development and Poverty Reduction Program (SDPRP) and the new five-year poverty reduction paper known as the Plan for

Accelerated and Sustained Development to End Poverty (PASDEP) for 2005/06-2009/10. (Health Insurance Strategy: May 2009)

The Health Sector Development Program (HSDP) is designed in line with the broader development direction of the country and its health sector policy. The health sector policy gives primary focus to prevention and primary care for the neediest segments of the population, and to address the predominant public health problems in the country. The major program components are: Health Service Delivery and Quality of Care; Health Facility Construction, Extension, Equipping and Access; Human Resource Development; Pharmaceutical Services; Information, Education and Communication; HMIS and M&E; and Health Care Financing. (Health Insurance Strategy; May 2009)

It is clearly stated in the PASDEP that the focus of the program's health component will be on improving maternal health, reducing child mortality, and combating HIV/AIDS, malaria, TB and other diseases with the ultimate goal of improving the health status of the Ethiopian people and achieving the Millennium Development Goals. To achieve these goals, 13,635 Health Posts, and 3,200 health centers will be constructed and 30,000 HEWs and 5,000 health officers will be trained and deployed during the program period. (Health Insurance Strategy; May 2009)

Overall, the government is putting its maximum effort into improving the health status of its citizens. The various interventions have resulted in remarkable achievements, mainly from the supply side, by both improving physical access to health care and quality in health service delivery. The revenue retention and utilization by health centers and hospitals, and other ongoing HCF reform measures being implemented in the largest regions of the country are showing noticeable contribution to improving financing, which will eventually improve the quality of health care services.

However, there are still tasks remaining to be accomplished to further improve access and quality in health service delivery. On the demand side, at the household and individual levels, the health extension program is promoting health service- seeking behavior. However, due to the cost sharing principle of the health policy, households are requested to pay user fees (out-of-pocket) at

the time of sickness, creating barriers to access the health services, when not catastrophic. While the current level of user fees is far below the actual cost of service delivery, its revision (after quality improvements) to better reflect cost of the service is inevitable. Accordingly, user fee revision is included in the HCF strategy as well as in the HCF proclamations and regulations ratified by the regions. One consequences of raising user fees, even with improved quality of service, is that the sick will face higher financial barriers to obtaining the needed health service. Therefore, there is a need for a complementary policy to spread the increased financial risk over the general population. Development of health insurance schemes are the outcome of such a policy.

As stated earlier, there is a large financing gap when comparing current level of expenditure on health and the amount required delivering essential health services. Raising the total spending on health substantially requires using a mix of alternative and complementary financing mechanisms. The traditional health financing mechanisms, such as public financing through the general tax system, and mobilizing greater resources from development partners and from alternative sources, needs to be strengthened and maintained. Introducing health insurance will facilitate the mobilization of additional resources to the health sector. More importantly, substantially pooling risks between the poor and the better off, as well as the sick and healthy, will enhance equity in health service delivery. In addition, as a health insurance scheme removes or substantially reduces the cash requirement at the point of service, members will be encouraged to seek services when needed. This will ultimately increase the demand for health care and utilization of services.

The socio-economic features of Ethiopia include a predominantly rural/agricultural and informal economy, with emerging and growing formal private and public sectors. Clearly, the health insurance system envisaged for the country needs to be compatible with the socio-economic situation. Accordingly, mandatory social health insurance will be established for the citizens in the formal sector; whereas community based health insurance is considered to be more feasible and appropriate for the large majority of Ethiopians in the rural farming and livestock rearing economy as well as for the majority of urban people in the informal sector. While it is suggested that the formal and the informal sectors will be covered under separate health insurance schemes, ultimately, when the socio economic conditions are more favorable and public awareness is

adequately enhanced, these separate schemes are expected to develop into a nation-wide health insurance scheme to ensure universal coverage. The Social Health Insurance and the Community Based Health Insurance schemes are considered to be important vehicles for achieving universal health service coverage in Ethiopia.

In Ethiopia, health insurance will be introduced as part of the broader health care financing mechanisms. Thus, its implementation will be complementary to the public, external assistance, private organization, household and other financing sources, as outlined in the health care financing strategy of the Government. At pilot program level CBHI is implementing in four regional states among which Tigray regional state is among them.

2.1.3 Health Insurance and pilot program in Tigray

One of the objectives of the health care financing strategy of the health sector development plan is to design and implement social health insurance for employees in the formal sector and to pilot test community-based health insurance. The plan to pilot-test CBHI is based on the following: an understanding of the macroeconomic constraints on public financing and SHI; to provide alternative health finance mechanisms to address the low utilization rates of health services; to protect household income in the health sector, to build internal capacity for the extension of health insurance coverage in the informal and rural sectors. (Piloting CBHI, June 2008)

Prior to the start of this thesis only three district/woreda sample pilots were selected in which one district is the focus of this study. Currently the pilot district/woreda were enhanced to 18 woreda/district with the aim of pilot expansion that is to pilot in these district and from four regional states then to expand all over the nation.

2.2 The Health Care System

The healthcare system in Ethiopia is characterized by severe long-lasting financial and human resource shortages, a weak healthcare system infrastructure and decades without a strong national health policy (Wamai 2009). Hence, Ethiopia has one of the worst health outcomes in the world.

Under-5 mortality and maternal mortality rates are very high - 166 per 1,000 live birth and 850 per 100,000, respectively (WHO 2009b).

In recent years the new democratic government of Ethiopia has undertaken important steps to improve the population's health status and to make healthcare more efficient and accessible for everybody. A new health policy resulted in some improvements in population's health indicators such as immunization coverage and a slight decline in malnutrition rates (Wamai 2009). A new healthcare financing strategy, introduced parallel to this policy, led to critical changes in the financing structure of healthcare facilities and significant increase in governmental health expenditure. Since 2006 the Protection of Basic Services Program (PBS), a cooperation of 12 bi- and multinational development organizations, further complemented government's spending on basic healthcare at *woreda* level (Pereira 2009).

Nevertheless, per capita public spending for health remains far below the average for Sub-Saharan Africa. Insufficient health infrastructure with few health facilities, insufficient equipment and a shortage of health workers, plus strong bias towards curative services and little involvement from the private sector and NGOs are just a few of the persisting problems (Wamai 2009). The condition is further exacerbated by the rapid population growth with an annual growth rate of 2.7 per cent from 2005-2010 (UNDP 2009). User fees at healthcare facilities thus remain an important feature to generate resources for the heavily under-funded health sector. The Ministry of Health is currently considering raising and expanding charges further to generate additional funds for healthcare facilities. (Inka Barnett, Bekele Tefera)

Ethiopia has its health care flaws and challenges, but what it seems to have captured is an appreciation for simplicity. Ethiopia's health care system is very easy to understand, even though implementation and results are not easily achievable.

On the community level, health extension workers (HEWs) primarily help expectant and new mothers, newborns, and children. They are trained to diagnose and treat pneumonia, malnutrition, malaria, and diarrhea. They perform antenatal care and prevention and even deliver babies. And they also provide follow-up care for new mothers.

In addition to health extension workers each community also has a health development army (HDA). These women are a volunteer unit that receives information, help, and health care services from the Health Extension Workers (HEWs) and spread the word throughout the community to benefit from the services of the health posts.

2.2.1 Health service utilization

According to MoH (Fact sheet) - Total outpatient utilization of government health facilities in Ethiopia suggests that, on average, there are about 0.25 visits per person per year. A household survey on health care utilization found that only 10 percent of persons reporting illness actually obtained treatment for their conditions from any health facility, government or private. Utilization by the rural population (9.5 percent), as compared to 14 percent in urban areas, is lower than the national average. The findings further show that the four most important determinants of whether treatment is sought are:

- the cost of treatment;

- the distance from, or the absence of, the health care facility;

- the quality of the facility:

- Educational status of the patients, or the mothers in the case of children.

2.2.2 Health Care Financing in Ethiopia

Magnitude and sources of financing

The Ethiopian government has been making budgetary allocation since 1949. For the fiscal year 1989/99 the share of health expenditure to the total public expenditure amounted to about 6.5%. With this, the overall public per capital health expenditure was only 13.6 birr (about 1.8 US dollar per year). International assistance (bilateral and multilateral) also plays a crucial role the financing of health service projects (Damen Hailemariam).

Private expenses are the most important sources of health expenditure in the country. For instance, the private share of total expenditure on health in 2000 was estimated to be about 62% (Damen Hailemariam). With regard to cost recovery in public facilities, Ethiopia is among those countries where some national system of fee is present but enforcement is minimal or non-effective. Revenue from user charges in 1986 is amounted to birr 19million that was 16% of the government recurrent expenditure. Non-government providers seemed to have higher cost recovery rate than public facilities.

In a facility based survey that was done on 31 sampled NGO health institutions, 16.1% had 91-100% cost recovery capacity. 6.5% had 81%-90% recovery capacity, and 77.4 % had 70% recovery capacity, while average revenue from user fees as a percentage of recurrent hospital expenditures were about 23% in public rural and 32% in public urban hospitals in 1984/85. (Damen Hailemariam; Addis Abeba 1998)

2.2.3.1 The New Health Care Financing Strategy

The government of Ethiopia has adopted health care financing strategy to overcome problems of health financing problems. Thus this strategy calls for increased cost recovery in government sponsored health services and increased reliance on private sectors like NGO. The goal of this strategy is

- To identify and obtain resources which can be dedicated to preventive, promote, curative, and rehabilitative health services for the people.
- To increase efficiency in the use of available resources;
- To increase absolute resource to the health sector; and
- To promote sustainability of the health care financing and improve the quality and coverage of health services.

2.3 Factors Determining Demand for Health Insurance

Literatures of different countries' experience show that among the determining factors for choice of purchase of health insurance is: - high prevalence of illness/high expenditure of health service/. Among the studies in India Health care expenditure is another important variable affecting health insurance purchase (Kronick and Gilmer 1999) that is relationship among demand for purchase of health insurance is positively related to high health service expenditures experiencing a family with frequent expending more and visit of health facility frequently. Some other socio economic factors like age, education, have also been found to be important factors affecting for purchase of health insurance. (Ramesh Bhat, July 2006)

As can be seen from literatures and practical works at Tigray, KilteAwelaelo district which is pilot implementing Woreda, awareness creation activities has been done and in those Villages/kebele with better awareness level have better involvement in the purchase of health insurance whereas in those kebeles with low awareness/knowledge level have the experience of low purchasing/enrolling in risk pooling mechanism. Thus level of awareness/information regarding health insurance benefit is also another determinant for households to choose to participate in health insurance scheme. (Unpublished Report – 2013)

Literatures also add up Socio-economic status like educational status of the head of the household, whether a household participates in a social security program called the productive safety net program (*PSNP*) which targets chronically food insecure households. The demographic profile of households includes the gender of the household head, household size, proportion of male and female household members in different age groups and religion of the household head. In addition, a household's health status, past illnesses, health care use and health care expenditure in determining enrolment have a great role to determine demand for CBHI stated by (Anagaw Derseh, Robert Sparrow, Zelalem Yilma, Getnet Alemu, Arjun S. Bedi, 2013)

In India knowledge and awareness about health insurance could be important factor for health insurance purchase decisions. Very few studies have tried to analyze reasons for low penetration of health insurance in India (Wadhawan 1987, Ellis 2000, Bhat and Mavalankar 2001).

Social Protection/Health insurance

Social health protection is an **important tool to reduce poverty and inequality**. Healthier workers are more productive; labor supply increases when morbidity and mortality rates are lower. Conversely, the lack of access to medically necessary health care has significant social and economic repercussions, often driving people into poverty and out of the workforce.

An effective Social Health Protection system provides universal access to health care that is affordable, available and offers financial protection in times of illness, injury and maternity. Key issues relate to gaps in coverage and financial protection. Thus, in many countries out-of-pocket expenditure constitutes a large share of national health expenditure. Frequently, this forces people to choose between paying for care and paying for other family and business necessities, especially when private expenditure reaches catastrophic levels of more than 40 per cent of household income net of subsistence. (ILO ----- Social Health Protection)

Social health protection is designed to alleviate the burden caused by ill health and reduce the indirect costs of disease and disability, such as lost years of income due to short and long-term disability, care of family members, lower productivity, and the impaired education and social development of children. Better health enables persons to work and generate income, and as such has the potential to break the cycle of ill health and poverty. (ILO ------- Social Health Protection)

The lack of access to health care has a significant social and economic impact. Aside from effects on health and poverty, the close link between health, labor market and income generation affects economic growth and development. This is due to the fact that healthier workers have higher productivity, and labor supply increases if morbidity and mortality rates are lower. (ILO Social Health Protection)

CHAPTER THREE:

Dataset and Methodology

3.1 Overview of the study Area

3.1.1 Setting and demographics

Tigray is located in the northern part of Ethiopia. It covers an area of approximately 54,572 square kilometers. Its capital, Mekelle, is located at the distance of 777 km away from Addis Ababa, the capital of Ethiopia. According to the CSA projection for July 2008, the total population of the region is 4 million, of which about 50% are female.

Kilte-awlaelo is situated in about 825 km away from Addis Ababa (capital of the country) and 48 km to the north of Mekelle (the capital of Tigray). The district comprises 18 administrative sub districts 'Tibias'. According to (WHO, 2012), the total population of the district as projected for 2012 is 119,772 (of which 51.2% are female). According to the district Office of Health (Who), the number of households in the rural *Tabias* of the district is estimated to be 25,719 (who, 2013). According to the Woreda Health Office there are five health centers and 16 health posts which are ready to provide primary health service to the surrounding 'Tabia/Kebele' of which the cluster population is around 5000 (source: Woreda health office, 2012). At district level there is one hospital. Since the district is near to the capital city of Tigray Regional state, referral systems were used at Mekelle Hospital and Ayder referral hospital.

3.2 Data Source

Data was collected both from primary and secondary data. Primary data was collected from purposely selected 'Tabias/kebeles'. Secondary data mainly from HSFR project and internet were used to support the study. Primary data was collected from a 'Tabias/kebeles' and were supported by the local administrators and health extension workers.

To mention the sampled woreda, there are 18 kebeles with in which CBHI being implemented in these kebeles and with different enrollment rates? All over the woreda/district CBHI is being implemented and random selection of kebeles were undertaken.

Around 120 sample size was used for analysis. These include beneficiaries of CBHI and non-beneficiaries. Six selected 'Tabias/kebeles' was used for data collection. The primary data was collected by preparing a structured questionnaire.

The data set comprises information on various backgrounds of households on health specific perceptions and practices. Household's level of participation on different development activities, health service utilization history, awareness on new idea of health insurance program, background of family size in terms of working/productive age and underage groups are among the major data inputs.

The major data input for the study is as mentioned from one of the three pilot woreda/districts in the region. To analyze the socio-economic variables of the study, data manipulation and analysis was made using descriptive statistics analysis and econometrics analysis mainly logistic regression model.

Figure 1: Map of Tigray, Eastern Zone and KilteAwelaelo woreda

3.3 Method of Data Analysis

   3.3.1 Descriptive Statistics

Descriptive statistics give a clear picture of the characteristics of CBHI participants and non-participants. By applying descriptive statistics, one can describe, compare, and contrast different categories of sample unit (participant and non-participant households) with respect to the desired characteristics. In this study, descriptive statistics, such as mean, percentages, frequency of occurrence were used, along with econometric models, to analyze the collected data.

3.3.2 Logistic regression model

Logistic regression model was used to identify the determinants of CBHI participation. In different studies participation at economic activities responses to the questions such as whether a household participates or not could be "yes" or "no", a typical case of qualitative dichotomous variable. Ferder et al (1985) pointed out that the most commonly used qualitative response models are the logit model, which corresponds to a logistic distribution function, and the Probit model. These models specify a functional relation between the probability of participating in CBHI and various explanatory variables. Hence, factors (independent variables) that affect households' participation in CBHI can be expressed both quantitatively and qualitatively.

Logit model is simpler in estimation than Probit model (Aldrich and Nelson, 1984). Drawing upon Gujarati (1988) and Aldrich and Nelson (1984) the logit distribution function for the participation in CBHI is specified as:

$$P_i = \frac{1}{1 + e^{-Z_i}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where P_i is the probability of enroll/participating in CBHI

   Z_i is a function of n-explanatory variables(x) and expressed as:

$$Z_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_{in} X_n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where:

β_0 is the intercept

$\beta_0, \beta_2 \ldots \beta_n$ are coefficients of the equation in the model

$$P_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_{in} X_n)}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

If P_i is the probability of participating/enrolling in CBHI scheme, then (1- Pi) the probability of not enrolled/participate in CBHI scheme can be written as:

$$1 - P_i = \frac{1}{1 + e^{-Z_i}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Therefore, taking the ratio of the probability of participating to non-participation can be written as:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Now $\dfrac{P_i}{1 - P_i}$ is simply the odds ratio in favor of participating in CBHI scheme.

It is the ratio of the probability that the household head will participate in CBHI scheme to the probability that he will not participate. Finally taking natural log of equation 5 we get:

$$L_i = \ln \frac{P_i}{1 - P_i} = Z_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_n X_{in} \quad \text{--(6)}$$

Where, Li is log of the odds ratio, which is linear not only in X, but also in the parameters. Thus, if the stochastic disturbance term (Ui) is introduced, the logit model becomes:

$$Z_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots - \beta_{in} X_n + U_i \text{ --------(7)}$$

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In this study, the above econometric model was used to analyze the data. The model was estimated using the iterative maximum likelihood estimation procedure. This estimation procedure yields unbiased, efficient and consistent parameter estimates.

3.3.3 Parameter estimation

Estimation of the values of the unknown parameters B_o and B_i's is required in order to fit the logistic regression model. Unlike the linear regression which uses the least square estimation (OLS) method, this model estimates the parameters using the Maximum Likelihood (ML) method (Maddala, 1992, Gujarati, 1988). Due to the non-linearity of the logistics regression model, an iterative algorithm is necessary for parameter estimation. Maddala (1992) pointed out that of ML is a very general method of estimation that is applicable to a large variety of problems. In many cases, it is convenient to maximize the logarithm of the likelihood function rather than the likelihood function itself and the same results are obtained.

It is necessary to check for the existence of higher multi-collinerarity among the continuous variables like Working age group and age of household heads and verify the degree of association among discrete variables before taking the selected variables into the logit model. The reason for this is that the existence of higher multi-colliniarity results in substantially higher standard error (or low t-static) and non-significant coefficient. Moreover, condition index is computed and if the value is greater than or equal to 20, it is possible to expect that there could be a potential problem. However, our results show very low level of value indicating that there is no serious multi-collinearity problem in our parameter estimation.

3.3.4 Hypotheses of the thesis

In line with the theme of the thesis, the following research hypothesis are outlined which are going to be evaluated by making use of econometric analysis.

- Factors like working age group, family size, utilization of modern health facility, and members' participation at PSNP, participation at health package programs have a positive relation with demand for health insurance, while Distance to health facilities negatively related to demand for health insurance.

- Level of unproductiveness and being absent from schooling will be high for household members not enrolled at CBHI scheme.

Since the current level of enrollment is at medium level. The inhibiting factors will be identified from the research. In addition the level of health service gaps which are already perceived negatively by the community would get focus at national and regional levels. In addition this study will create awareness among those who don't have the concept and initiation of the program at national level and will create an opportunity for more exposure to new studies since it is an area not touched yet.

CHAPTER - FOUR

Results and Discussion

4.1 Descriptive Statistics

4.1.1 Introductory Framework

The preceding sections like literature and methodology have created a foundation for the coming sections which will focuses to make empirical and descriptive analysis. Then here the next part which will mainly dealt with descriptive and econometric section will provide substantial answer to the research questions. The descriptive part will try to clarify taking the sample size of 120 of the pilot woreda/district on demographic characteristics of those participated in the community based health insurance scheme as well as those not.

4.1.2 Socioeconomic and demographic background

Of the 120 respondents, 58 percent of them non-participants in CBHI scheme while 42 percent are participants in CBHI scheme.

Table 1: Below shows that from the total respondents 42% of them are female headed households which are participants in CBHI. Whereas 43% of female headed households are non-participants.

Table 1 Statistics of Household characteristics by household group

Variables	Participants					Non participants				
	Mean	Aver.	Max	Min	SD	Mean	Aver.	Max	Min	SD
HH's Head is Female (%)	42					43				
Age of Head		39.3	58	25	8.79		55.02	80	29	12.43
Family Size		5.84	10	2	2.1	4.8	4.5	9	2	2.06
Under Age		2.18	5	0			3.23	7	1	
Working Age		3.66	6	1			1.34	3	1	
Enrollment (%)	42					58				

Source: Own Computation

The above table also signifies that the average age of the household age is 39.3, while maximum age is 58 and minimum 25 in the participants group. In the non-participants group the average age is 55 while the maximum and minimum 80 and 29 respectively.

Male headed household are more sensitive to enroll in CBHI as can be observed from the table. Thus from the collected sample size 58% of male headed households have enrolled in CBHI and 42% of female headed household have enrolled in the scheme. This signifies that female headed households show less percentage in enrollment as compared to male headed households.

The family size of participants is with an average of 5.84 whereas maximum and minimum is 10 and 2 respectively. In the non-participants the average family size is 4.5 whereas the maximum and minimum family size is 9 and 2 respectively. To compare underage and working age in the participants and non-participants group underage have an average size of 2.18 and maximum number of underage is 5 while none the minimum under age. In the non-participants the average under age is 3.23 and maximum of 7 and minimum of underage is 1. Working age is high in the participants group with 6 and average of 3.66 while in the non-participants 3 is the maximum and an average of 1.3. Which this shows working age has a positive effect to enroll as can be

observed from the table above that there is high working age in participants in CBHI than in the non-participants.

Table 2 Marital Status by household group

Marital Status	Participants N	%	Non participants N	%	Total N	%
Single	0	0	1	1	1	1
Married	36	72	37	53	73	61
Divorced	8	16	22	31	30	25
Widowed	6	12	10	14	16	13
No. of observatio	**50**	**100**	**70**	**100**	**120**	**100**

Source: Own Computation

As to see the effect of marital status the above table shows almost similar weights among participants and non-participants. Among the participants 72% are married where as 52% are in the same group.

Table 3 Family Size Interval Vs. Sex Composition

Source: Own Computation

This table signifies family size interval as grouped with each respective household's sex. Thus in the family size interval of greater than seven is the highest family size interval with 27% out of the total share. In addition a family size of 4-5 also has the next greater share in this sample with a total of 27 household and 23% of the total share. Family size with 5-6 also has the minimum household head and share of 7% out of the total family size.

Table 4: Family Size Share Vs. Underage and Working age group

FS Interval	Head Count		FS(Total)	Share_%	Cumulativ %tage
	Under age	Wrking age			
<=2	10	10	20	3	3
2-3	41	28	69	11	15
3-4	43	37	80	13	28
4-5	86	49	135	22	50
5-6	16	32	48	8	58
X>7	139	121	260	42	100
	335	277	612	100	

Source: Own Computation

The above table signifies that underage and working age group of the sample size. The total underage group is summed to be around 335 and working age group around 277. It is easy to observe also that underage is high in category of family size with seven and more as well as working age which is 335 (56%) and 277 (45%) respectively.

Table 5: Sex Composition of working age Vs. Underage

Class Inerval	Wrking age F	Wrking age M	Under age F	Under age M	Total F	Total M	F+M	Share
<=2	1		1		2	0	2	1
2-3	8	2	7	1	15	3	18	6
3-4	12	12	8	4	20	16	36	12
4-5	20	4	5	6	25	10	35	12
5-6	14	16	4	8	18	24	42	14
X>7	11	83	5	60	16	143	159	54
Total	66	117	30	79	96	196	292	100

Source: Own Computation

The above table is to show the count of composition under the category of working age group and underage group within the sample size. There is large count in the family size class interval from 4-5 of the female groups while 83 in the class interval greater than 7 of the male groups. Underage is high in the class interval of 3-4 with female and 60 in the age interval greater than seven.

Table 6: Enrollment by Family size and Under Age/Working Age Group

Family Size Interval	Member Under age	Member Working age	Member Family Size	Share	Non Member Under age	Non Member Working Age	Non Member Family Size	Share
<=2	1	1	2	0.68	9	9	18	5.63
2-3	8	10	18	6.16	33	18	51	15.94
3-4	12	24	36	12.33	31	13	44	13.75
4-5	11	24	35	11.99	75	25	100	31.25
5-6	12	30	42	14.38	4	2	6	1.88
X>7	65	94	159	54.45	74	27	101	31.56
	109	183	292	100.00	226	94	320	100.00

Source: Own Computation

The above table shows family count by size interval, age groups by underage and working age group as well as enrollment by these groups.

More importantly when we compare the underage and working age share in the two categories of participant and non-participant, working age group is more in the group of CBHI members while underage is more in the non-enrolled family heads. Then this leads to less enrollment as it can be observed from the descriptive analysis in the above table. Thus 33% of the total underage groups are found to be in the category of participant in CBHI while 67% are found in the non-members of CBHI. In the working age group, 66% are in the group of enrolled or beneficiaries of CBHI while 34% of the total working age group are counted in the non-members of CBHI.

Graphically

Chart 1: Participants in the scheme by family size group
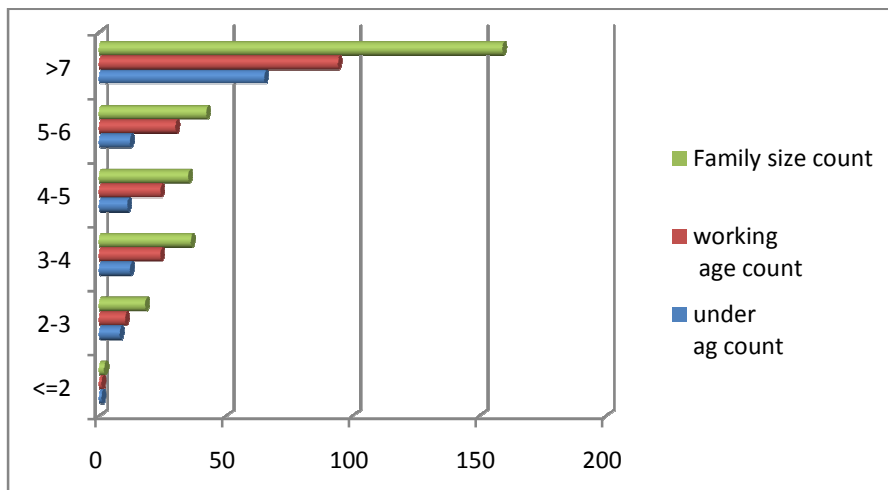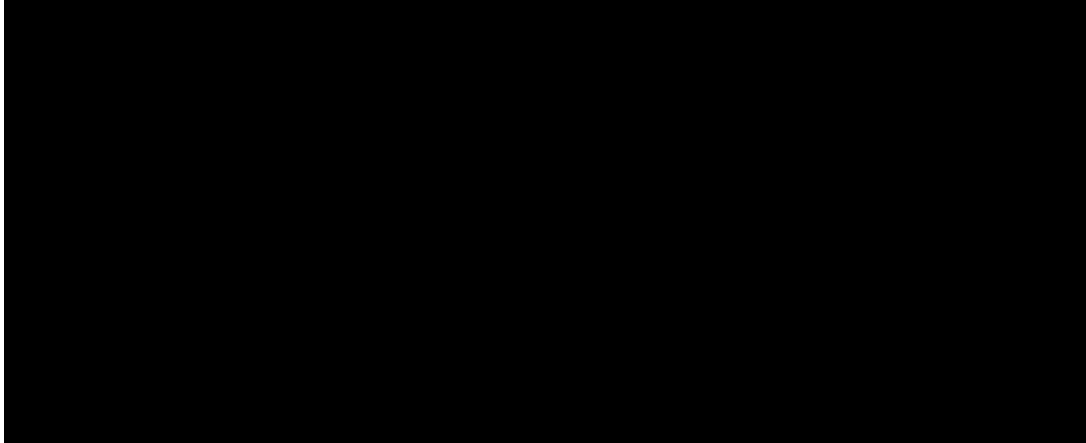
Chart 2 : Non participants by family size group
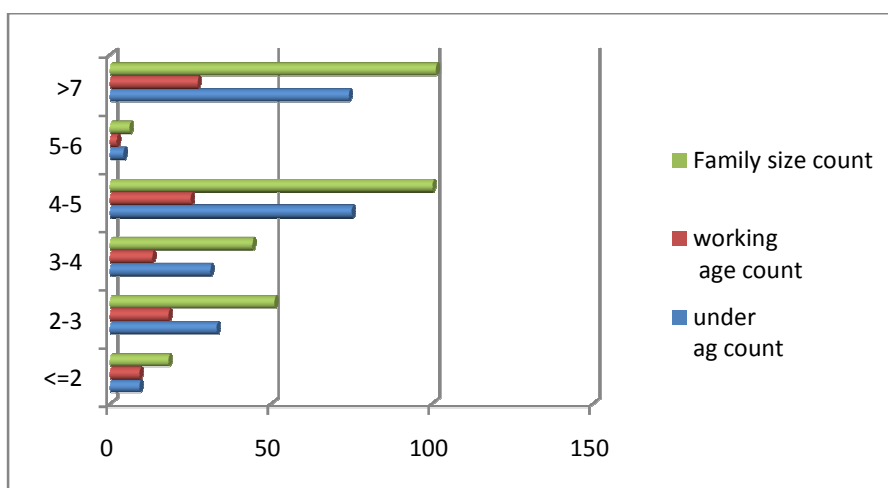
Source: Own Computation

Table 7: Local meeting participation Vs enrollment in CBHI

Source: Own Computation

In Ethiopia and specifically in Tigray different local meeting were used to be undertaken. Such different governmental meetings focus on agriculture, health and political agendas. Thus such meetings that used to be undertaken in kebeles or villages were used also to mobilize the community and create awareness among the community. These local meetings mostly were facilitated by local leaders as well as government employed ones. From total sampled data 98 of the respondents (82%) have been participated in local meetings. Out of the 82% of attending the meeting 49% have enrolled in CBHI scheme. Whereas, 51% did not enroll in the scheme. This shows that local meeting have contributed a lot in bringing the community to the beneficiary of community based health insurance. That is 42% is total enrollment in the sample size. Out of the enrolled ones 48 (96%) of the total participants on meeting have enrolled in CBHI.

Distance: distance is assumed to be one of the explanatory variables that household heads could take in to consideration while deciding to participate in CBHI scheme. Thus as primary health care facilities are within their surrounding there will be more probability of participation in CBHI. For the purpose of this study, dummy specification is adopted coding near as "0", not far "1" and too far "2".

Chart 3: Distance to Health Facility Vs. Enrollment
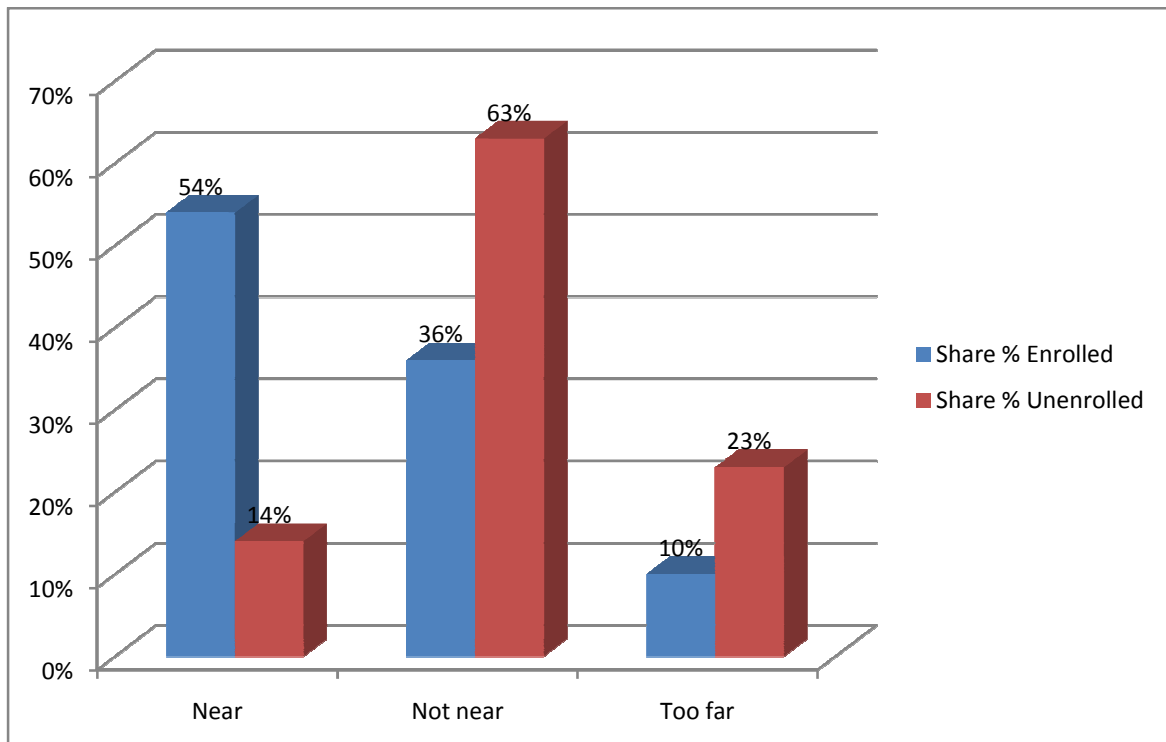
Source: Own Computation

The above chart shows distance to the nearest health facility normally the primary health care that is health center mostly. From the collected 120 sample size 42% are members of the scheme of which 54% have a nearby access to primary health care service, 36% within a moderate distance from their province and 10% reside with the longest distance (4-5) hours on foot journey. In the group of none members 14% reside in the nearby distance to health center while 63% and 23% are located in moderate and too far distance from primary health centers respectively. Thus from the share it can be observed that more are enrolled as households reside nearer to health facilities while high un enrollment is experienced as households live at far and too far distance form health facilities.

Development packages: in the rural livelihood different development packages are available like packages in PSNP, health extension packages and credit package are among the accessible packages for community so as to enhance its economic status. Productive safety net programs

are development programs in which the more participation in the program will initiate community members to become participants in the scheme by their involvement in the safety net program better awareness level would be created in addition, as they are beneficiaries of safety net program they will become economically in a better situation.

Table 8: Participation in Development package program Vs. participation/enrollment

Participation in Development Activities	HH's Sex	Participant			None participant		
		Yes	No	Share %	Yes	No	Share %
Participate PSNP	Female	19	2	38	23	7	33
	Male	24	5	48	24	16	34
Health Package Program	Female	21	0	42	22	8	31
	Male	27	2	54	32	8	46
Take Credit	Female	2	19	4	25	5	36
	Male	3	26	6	9	31	13

Source: Own Computation

The above table shows the impact of development packages on the decision of household to participate or not. Namely these packages are PSNP, Health package program and accessibility of credit to rural community. The development packages are available to concerned parts of the community from different economic sectors. From the above table we can understand that participation in PSNP has a better share as compared to non-participants that is 48% of participants in PSNP of male headed household are members of CBHI. While 34% of PSNP participants didn't enroll in the scheme. Health package program is among the strong packages that every member of the community gets benefited from the package. Accordingly 54% of male headed households' beneficiaries of CBHI are from the health extension program participants. The other component that is available is credit package. Here unlike the other program credit don't positively appreciate the participation in CBHI program. That's 36% of non-participants in CBHI scheme have taken or are beneficiaries of credit program. While in the category of CBHI participant only 6% of male and 4% of female headed households only are beneficiaries of credit

package. This enables to say that as community get access to credit they more devote to return their credit than prioritizing to become beneficiary of CBHI.

Table 9: Comparison of Awareness level among participants and non-participants

Awareness Evaluating Scheme	Sex	Enrolled						None Enrolled					
		Good	share %	Satisfactory	share %	Poor	share%	Good	share %	Satisfactory	share %	Poor	share %
Awareness on Premium level	Female	19	38	2	4	0	0	2	4	3	6	25	50
	Male	25	50	4	8	0	0	7	14	7	14	26	52
Awareness on renewing period	Female	18	36	3	6	0	0	0	0	2	4	28	56
	Male	23	46	6	12	0	0	7	14	7	14	26	52
Awareness on utilization limits	Female	12	24	8	16	1	2	1	2	1	2	28	56
	Male	24	48	5	10	0	0	7	14	7	14	26	52

Source: Own Computation

The above table signifies awareness level of both participants and non-participants. As mentioned earlier awareness creation activities has been undertaken using different channels. Like local gatherings, meeting, and printed materials like leaflets, posters and radio spots. These all were used to reach to the local community and bring a behavioral change. Thus awareness level of both participants and non-participants can imply the below justifications. In the group of participants awareness regarding premium level is 38% and 50% for female and male headed household heads' respectively have better awareness on annual premium level while in the non-participants group 50% and 52% for female and male headed households have poor awareness level. Regarding awareness on renewing period and health facility utilization in the group of participants it is highest in the male headed household 46% and 48% respectively while in the group of none participants 56% and 52% of female and male headed households have poor awareness regarding health facility utilization rights/limits and renewing of membership periods. Thus this could enable to say that none beneficiaries/none participants of CBHI have less

awareness on premium level, renewing period and utilization rights. As a result less community members are currently benefiting as compared to none beneficiaries due to low awareness level of the community.

Table 10: Comparison of Number of visits per year among participants and non participants

Visits per Year	Sex	Participants		Non participants	
		HH	Share %	HH	Share %
1-2 times	Fmale	10	20	0	0
	Male	11	22	1	1
3-4 times	Fmale	6	12	0	0
	Male	9	18	0	0
greater than 4	Fmale	2	4	7	10
	Male	2	4	3	4
Never visit	Fmale	3	6	2	3
	Male	3	6	5	7

Source: Own Computation

The above table shows number of visits to health facility within a year. This is used to know the history of community members regarding their experience in visiting health facilities. From 52 % of enrolled ones 42% have a habit of visiting health facilities one to two times a year. 30% of the participants also visits 3-4 times a year as well as 8% and 12% have greater than four times visits per year and never visit health facilities respectively. While from the non-participants only 14% of the 58% have greater than four times visits a year and 10% of the non-participants group never visits health facilities. Thus from this computation what can be understood is that as more visits are experienced in the past by community there is a tendency to enroll in CBHI though around 14% from the none participants still lie in the highest number of visit and still didn't join the scheme.

Table 11: Coping up mechanisms to Health Problem with in the family

Methods of Coping health problems	Participants		Non participants	
	Yes	Share %	Yes	Share %
Holly water ("Tsaebel")	13	26	46	66
Traditional cures	1	2	0	0
Nothing	36	72	24	34
Total	50	100	70	100

Source: Own Computation

The above table shows list of locally adapted methods of curing systems. Mostly used is holly water (Tsebael), traditional curing custom. Among these from the non-participants 66% use holly water (Tseebael) as compared to participants in community based health insurance which is 26% is much higher. In cases of participants in CBHI 72% don't have a custom of using traditional and holly water curing beliefs but as compared to non-participants which is 34% is much higher and this enables them to participate in the scheme. Thus the non-participants give more attention to locally adapted mechanisms than scientific curing systems while those participants of CBHI have less attention to locally adapted curing systems.

Out of pocket Payments: is as community members need health service both from private and public health facilities they are requested to pay from their own pocket. That is regardless of their financial income and ability to pay, they pay an amount which is equivalent to the service they got.

Out-of-pocket payments for health can cause households to incur catastrophic expenditures, which in turn can push them into poverty. The need to pay out-of-pocket can also mean that households do not seek care when they need it. People who use services may need to cut spending on basic needs such as food, clothing, housing and children's education to meet health costs. Each year, approximately 150 million people experience financial catastrophe, meaning they are obliged to spend on health care more than 40 % of the income available to them after

meeting their basic needs. And 100 million of those people are driven below the poverty line. (WHO fact Sheet 320) http://www.who.int/mediacentre/factsheets/fs320.pdf

Chart 4: Out of pocket payments in participants of CBHI
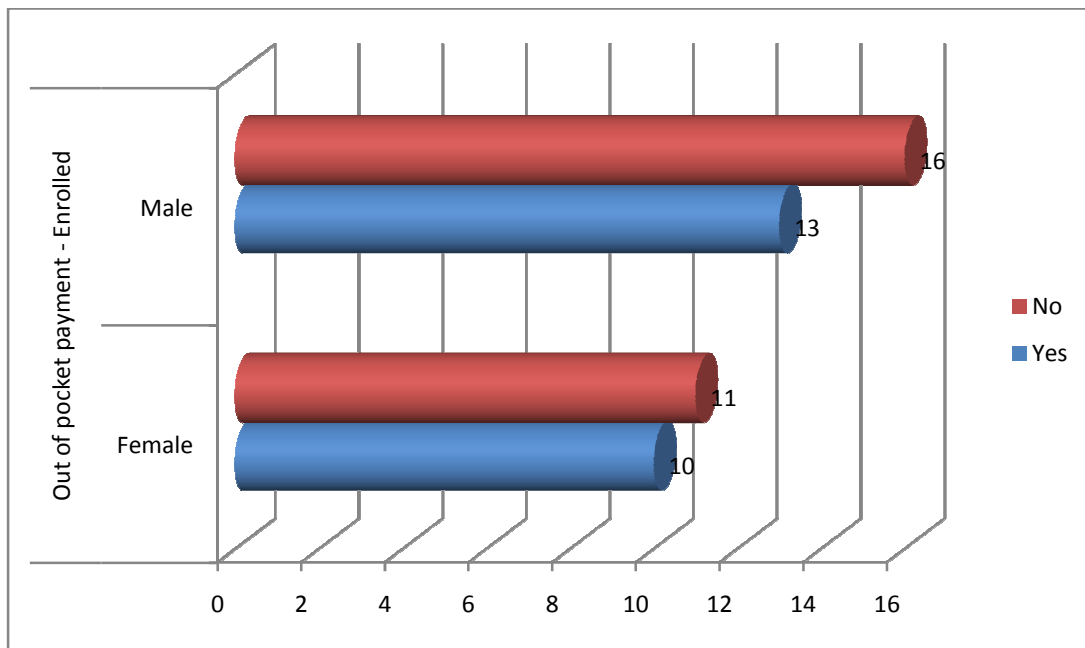
Source: Own Computation

This table allows to describe that members of CBHI that are expected to benefit from the scheme without any payment at the time of service but in some cases members of the scheme pay extra payments in public and private facility. Thus out of pocket payments of male headed households are 26% (13) as in the chart shows and female headed households around 20% (10). This shows that members of CBHI which are expected to get service without any payment at the time of service are now obliged to pay some part of the health service especially drugs. This inhibits members and non-members from enrolling in CBHI scheme since they perceive that still extra payments are requested from health facilities.

Chart 5: Source of Health expenditure for non-participant Households

Share %
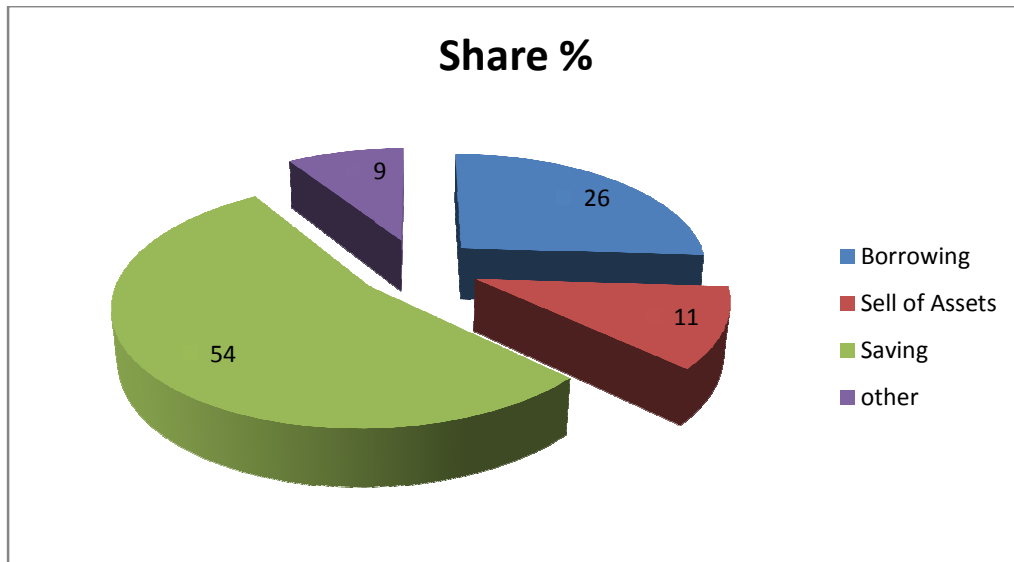
Source: Own Computation

Among the different mechanisms that community used to manage her/his medical and other expenses are own saving, sell off assets as well as borrowing. Thus from the above table respondents of non-participants in CBHI have an experience of covering health expenses from the mentioned lists. From the data collected the majority that is 54% have used to cover their medical expenses from their own saving while 11% of the respondents have an experience of covering their medical expense from selling of assets. In addition 26% have an experience of borrowing from relatives or neighbor so as to cover their catastrophic health expenditure.

Table 12: Comparison of members and non-members absent from job per day

Absent from job/daily labor	Participants				Non participants			
	Female	Male	Total	Share %	Female	Male	Total	Share %
1-5'	2	1	3	6	5	27	32	46
6-10'	0	0	0	0	11	11	22	31
11-20'	0	0	0	0	11	0	11	16
>=21 days	1	0	1	2	1	1	2	3
None	18	28	46	92	2	1	3	4
Total	**21**	**29**	**50**	**100**	**30**	**40**	**70**	**100**

Source: Own Computation

There are many reasons that inhibit human kind from being productive. One of the major is health problem. Such health problems make human labor idle from job. Such absent from job could minimize their income and become unable to afford their daily consumption and over the long run this could lead into poverty. WHO has reported that yearly around 100,000 community member's world-wide goes in to poverty due to catastrophic health expenditure. (WHO- Factsheet 320)

From the above table it shows that non participants have highest number of days being absent from productive works. That is 46% of the non-participant responded that they used to be absent from their job one to five days and 31% have responded that 6 to 10 days they kept idle while 16% and 3% are idle for 11-20 days and more than 21 days respectively.

Thus as community members participate in CBHI they minimize the risk as well as expenses related to illness. Not only this but also as can be seen from the data they are exposed to wastage in terms of time and income in that the number of days being idle from work could be expressed in monetary terms considering amount of money that a daily labor can get per day.

Table 13: Perceived perception on health facility and local administrators/leaders

SN	Description	Non participant No	Non participant Share (%)	Participant No	Participant Share (%)	Total No	Total Share (%)
I	Perception towards genuine service of HF						
	Good	54	77	45	90	99	83
	Satisfactory	8	11	2	4	10	8
	Bad	8	11	3	6	11	9
	Total	70	100	50	100	120	100
II	Perception on local administration						
	Good	42	60	44	88	86	72
	Satisfactory	10	14	3	6	13	11
	Bad	18	26	3	6	21	18
	Total	70	100	50	100	120	100

Source: Own Computation

The above table shows that perception by local communities to wards service provision by health facilities and local leaders. Such perceptions emanate from genuinely providing service to the community. This also depends on timely, honestly and without discrimination providing service to the community. Most of the participants in CBHI have better perception on health facility service that is around 90% as compared to non-participants which is 77%. On the other way bad perception/poor perception created in both groups shows 6% and 11% in participants and non-participants respectively. In the group of non-participants' poor and satisfactory perception were rated 11% which could enable them to have low perception on available service and decide not to enroll in CBHI.

The second perception used to evaluate is community perception on local leaders. That is as community don't get honest and non-discriminating service it creates bad perception on community. As a result the community becomes reluctant to new ideas and changes. Likewise, 26% of non-participants have poor perception on local administration and 14% have a level of satisfactory perception on local leaders this will have a large effect on to become member as

compared to 6% of participants which have satisfactory and bad perception on local administration system.

4.2 Econometrics Analysis

4.2.1 Introduction

In the previous section, it has been attempted to point out household socioeconomic and demographic background of CBHI participants and non-participants. Some of the descriptive analyses in the previous section as well laid the ground for the forthcoming econometric analysis. This section will follow on the determinants of participating in CBHI and its relationship with various socioeconomic characteristics. In this regard logit model is used. Before applying the model, indices and variables' measurement specifications are developed and explained for socioeconomic and demographic variables, payment mechanisms. Then the model is estimated using the econometric software, STATA. By doing so, this section aims to give answers to the other research question and meet the objectives set in chapter one.

4.2.2 Specification and explanation of variables

The variables used in the analysis and their theoretical expectations of these variables on non-participants of CBHI are explained below. These variables were chosen based on the available literature. In order to make the estimation of the model more clear and make it easier for the reader to understand, the variables used are discussed below.

Dependent variable of the model: The dependent variable for logit analysis is dichotomous in nature. It is represented in the model by "1" for those who don't participate in CBHI scheme and "0" for participants in CBHI scheme.

Independent variables: Based on literature review and past experience, the following factors are expected to influence the participation in CBHI scheme.

Age: As one of the independent variables assumed to affect the participation in CBHI scheme that older household heads are expected to participate in the scheme. That is it is expected that as family heads get older they need security in other words health insurance to enable them prevent from highest risk of finance.

Sex: Refers to the sex of the household head. Women headed households are more vulnerable to health problems not least is that the household's economic situation is on their shoulders thus as more burden is in their household they prefer better to be a member. For the purpose of this study, dummy specification is adopted coding male household heads as "1" and female household heads as "0".

Education – This is a dummy variable classified as ability to read and write. If family heads got adult learning that would enable to read and write this would positively affect participation on the scheme. In this regard, literates are coded as "1" and illiterates as "0"; the educational status goes up until 8 years of formal education.

Working age group/Economically active family labor: Households with more active family labor would enable them to participate in CBHI scheme. As a family member is more constituted by high working age group there will be high probability of engaging in labor works.

Credit: This is a dummy variable that takes the value '0' when the household takes loan and '1' otherwise. Credit is available in local micro finance institutions for all community members in the distric/woreda.

Distance to the nearest health center: The participation of family heads in CBHI scheme is also affected by the distance with in which the nearest health center resides. As health a facility is within their likelihood this will motivate their participation in the scheme. Availability of health facility with in their reach will motivate to participate in CBHI.

Participate in PSNP: the participation of family members in productive safety net programs will have a positive effect to participate in the scheme. For the purpose of analysis '0' represents participants in PSNP and '1' for non-participants.

Attend Local Meeting/gathering: different gatherings undertaken in kebeles and woreda/district will have a positive impact to participate in the scheme. As these gathering are effective to disseminate health insurance program to the local community. Those that attend local meeting is designated by '0' and '1' that don't.

Level of awareness: Better awareness level of family heads will positively affect their enrollment in CBHI scheme. Thus the awareness level is examined through three research questions as 'what is the premium level' , 'time of renewing their membership' and 'rights to utilize health facilities'.

Out of pocket payments: this is as beneficiaries or members are obliged to pay for health service from their pocket even though they are members of the scheme. This will negatively affect for their future enrollment as well as for those already enrolled they may not continue their enrollment or there will be drop-outs.

Table 14: Model Output

```
Logistic regression                        Number of obs   =         120
                                           Wald chi2(12)   =       53.56
                                           Prob > chi2     =      0.0000
Log pseudolikelihood = -10.07631           Pseudo R2       =      0.8764
```

member_CBHI	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
hh_s_sex	-.7847699	1.660148	-0.47	0.636	-4.0386	2.46906
age	.3490204	.119034	2.93	0.003	.1157181	.5823227
maritals	.7229497	2.082666	0.35	0.728	-3.359	4.8049
educatio	2.725326	1.875355	1.45	0.146	-.9503032	6.400955
family_s	-.4654478	1.361083	-0.34	0.732	-3.133122	2.202227
under_ag	-.6416908	1.138492	-0.56	0.573	-2.873094	1.589713
working_	-5.027458	1.64655	-3.05	0.002	-8.254637	-1.80028
distance	1.446009	.5837117	2.48	0.013	.301955	2.590063
attend_l	5.770251	2.222545	2.60	0.009	1.414143	10.12636
partici1	4.581436	2.031118	2.26	0.024	.6005191	8.562353
what_is_	6.194339	2.34849	2.64	0.008	1.591383	10.79729
do_you_1	-2.341822	1.152006	-2.03	0.042	-4.599712	-.0839317
_cons	-21.61206	4.776976	-4.52	0.000	-30.97476	-12.24936

```
Note: 0 failures and 5 successes completely determined.

. logistic member_CBHI hh_s_sex age maritals educatio family_s under_ag working_ dist
> ance attend_l partici1 what_is_ do_you_1, vce(robust) coef
```

4.2.3 Result and Discussion

The econometric software STATA is used to estimate parameter coefficients. Out of the 12 proposed variables, seven of them were statistically significant in the model while the rest were not significant at less than 5% probability level. The significant variables are household head age, working age group, distance to HF, attend local meeting, participation in PSNP program, awareness level and credit. To get more insight in the determinants of CBHI participation, the interpretations of the significant and insignificant variables are discussed below.

Household head sex: this variable is found to be insignificant at 5%. Here it shows that there is more probability for male headed household than female headed households to participate in the scheme. As the descriptive analysis show there is no significant difference in their percentage of enrollment. This is contrary to expectation that female headed households face high burdens related to economic and social burdens thus health insurance program could minimize their risk related to health expenses. Thus their demand to enroll could have much outweigh than male headed households.

Age: is expected to have an influence on their decision to enroll. Household head age as the model signify that there is a direct relationship with decision to enroll. That is as family head become older and older their demand to participate in the scheme will get maximized. At 95% confidence interval age variable shows with 0.003 significance. Thus among the expected variables age is one of the variable showing significantly determine the dependent variable that is enrollment in the model. Thus unlike the descriptive part which shows that average age is low in the enrolled group than un-enrolled group.

Family size: this variable is insignificant at 95% Confidence Interval. It is expected that as a family have large family size they would resemble to participate in the scheme. Contrary to the expectation family size does not have direct relation with decision to participate in the scheme. According to the collected data it can be said that family members with high family size are reluctant to join the scheme as compared with less family size group. Literatures signify that similar to the expectation, Ramesh and Nishant (2006) found that number of children in the family variable is also statistically significant to buy more insurance.

Distance to HF: distance to the nearest health facility show a positive relation to influence enrollment in the scheme. Results show that as expected, at 95% CI its significance level is 0.013 and has direct relation with decision to participate in CBHI scheme. As expected distance is among the variables that affect the decision to enroll directly. The nearer the health facility are accessible to the community the more community members are motivated to enroll in the scheme. As the open discussion also show participants in the scheme have mentioned that as they become members of the scheme they don't have costs related to transport and other related costs while

staying for treatment since health facilities reside within their reach. According to the respondents those with medium distance only 36% are enrolled as compared to un-enrolled which is 63%. While too far distanced beneficiaries to health facilities is also too minimum that is 10% are participants as compared to 23% that are un-enrolled in the scheme. Thus distance is as expected among the significant factor which community members consider while deciding to enroll in CBHI scheme and as health facility's accessibility is quite enough within their reach they are more ready to enroll since they will not have supplementary costs related to transport and accommodation costs.

Participate in PSNP program: productive safety net programs have a significant role to influence household heads to enroll in the scheme. At 95% confidence interval its significant level is 0.024. As Table 8: show 48% of male headed households have a share in the enrolled group which have also participation in PSNP as compared to 34% in the non-participants. This is mostly due to primarily as the development programs also been used for sensitization and awareness creation so as to enroll in the scheme. According to Anagaw Derseh, . . . (2013) "Continuous education on health issues including about the recently introduced community based health insurance scheme is provided to those people who are covered under PSNP. Moreover, during the distribution of PSNP payments, the participants are asked if they would like to register for CBHI and those who volunteer pay immediately and join". This enhances their awareness level on the benefit of CBHI scheme in addition creates an opportunity that enable them to participate in the scheme.

Credit: shows that the variable significantly affects community members on the decision to participation in CBHI scheme negatively at 95% confidence interval with significant level of 0.042. This is to mean that as community members participate in credit packages their enrollment in CBHI scheme would be low. Similar result to descriptive is observed in the model that credit packages available to the community could enable them to give priority to repay their credit than becoming to participate in CBHI scheme. Thus credit package is inversely related to the demand to participate in CBHI scheme.

Awareness level/perception on the scheme: this is significant with 0.008 at 95% confidence interval. Awareness level of beneficiaries is among the most vital factor for household heads to

participate in CBHI scheme. Awareness level related to level of premium, benefit packages as well as limit to the level where they can get health services are among the awareness level that mostly enable to decide to enroll in the scheme. Different traditional customs were experienced at community level to minimize health risks. Such customs need thorough awareness creation activites as well as sensitization to enable community members perceive the new idea as beneficiary to their family. Then this requires both the supply and demand side for need of health facility. That is supply side is to mean the perception towards current health facility accessibility and quality. As community members perceive better on the current level health facilities they could tend to enroll in the scheme. This can be shown in table 8: that around 88% enrolled have 'good' awareness on the premium level while 18% of the un-enrolled only have the same level of awareness. Table 12: also show that as perceptions on the current health facility is better their decision to enroll also get enhanced. Numerically, around 90% of the enrolled have 'good' awareness on current health facility while only 77% have the same perception and fall under the un-enrolled group.

Chapter Five

Conclusion and Recommendation

5.1 Conclusion

Among the major strategies that health sector has on its five year plan is health insurance. Thus introduction of health insurance strategy to the Ethiopia economy has been categorized in to two that is social health insurance and community based health insurance. In the community based health insurance there are many factors that can influence while implementing the program. Among the major one is the demand side that is to the beneficiary's side.

Since the launching of the program in twelve pilot woreda/districts over the country sensitization and scheme establishment were vital. Post that, registrations and contract agreements with public health facilities were among the necessities to launch the scheme. As the schemes were mainly established to avoid catastrophic health expenditures which is a burden for almost all the community members but the participation of the community were not as needed likewise beneficiaries couldn't enhance above 50% specifically in the pilot woreda.

It is observed that of the total sample size taken only 42% have enrolled in the scheme while 58% are non-participants. From the participants 46% of them have still an out of pocket payment this will create a negative impact on enrollment. Regarding awareness almost their awareness level in the importance, utilization of health facility limit is in all cases shows poor that is not above 50%.

Of 42% members of the scheme 54% have a nearby access to primary health care service, 36% within a moderate distance from their province and 10% reside with the longest distance (4-5) hours on foot journey. In the group of none members 14% reside in the nearby distance to health center while 63% and 23% are located in moderate and too far distance from primary health centers respectively. Thus from the share it can be observed that more are enrolled as households are nearer to health facilities while high un enrollment is experienced as households live at far and too far distance form health facilities. From this it can be said that accessibility of health facilities

is vital for the introduction of health insurance program in that beneficiaries need both the accessibility and quality of health facility with a reasonable distance.

Out of pocket payment is another factor that members couldn't resist since CBHI program is launched to minimize catastrophic out of pocket payments. Of the 42% participants around 26% male and 20% female headed households were exposed to out of pocket payments at time of service. This shows that members of CBHI which are expected to get service without any payment at the time of service are now obliged to pay some part of the health service especially drugs. This inhibits members and non-members from renewing their membership or enrolling in CBHI scheme since they perceive that still extra payments are requested.

Out of the enrolled, 48 (96%) of the total participants in different meeting have enrolled in CBHI. This shows that local meetings have a large contribution in creating awareness as well as enabling the community to internalize new ideas and become beneficiaries. Thus local meeting has positive relation on enrollment and shows local meetings has also brought an increase in enrollment. but mostly they may not give enough focus to CBHI programs or may not have enough awareness regarding CBHI. In such cases the messages to be disseminated may not be as to the level that is needed to be understood by local community. In cases where meeting are undertaken but CBHI program gets minimum time that couldn't substantially disseminate vital CBHI messages. In addition awareness creating personnel's capacity, weight given as an agenda is limited and considered as simple information or the timing given for sensitization is so limited compared to its importance. Even its effectiveness of the local meetings is questioned as to its contribution in bringing the non-members to enroll in the scheme. Numerically 51% of the local meeting participants are in the category of none enrolled.

The other component that is available is credit package. Here unlike the other program credit don't positively appreciate the participation in CBHI program at P = 0.042 with 95% C.I. That's 36% of non-participants in CBHI scheme have taken or are beneficiaries of credit program. While in the category of participants in CBHI scheme 6% of male headed households only are beneficiaries of credit package.

5.2 Recommendation

In this thesis it is tried to observe the determining factors for CBHI. As it is listed many have been drawn as significant like house head age, distance, participation in development package like PSNP, past experience on health facility utilization/visit as well as credit which affects negatively are among the factors that enable household head to participate in the scheme. In this study these variable were taken to focus more on the demand side likewise supply side factors which didn't get coverage in this paper also affect for their decision to participate.

The initiation of this program is from the gap that appear as community devote high cost for health service at the time of service and obliged to pay out of pocket payments this could as a result cut their demand to visit health facility. According to WHO most low income countries, people pay high proportion of their health costs directly to health care providers out of their own pockets, in 47 low-income countries, out of pocket payments represent more than half of the total health expenditures and the remainder is funded by government.

As this is the prime goal for the start-up of the program in 12-pilot woreda and still expanding to observe its effect. Challenges that appear during the pilot period calls for more attention at all levels of governmental executives. The primary focus is on the level of awareness of the community. Past experiences that adapted in the community need to be minimized by continuous and thorough behavioral change sensitization activities. A continuous sensitization need to be institutionalized at all levels of governmental hierarchies that are from federal/central to regional states and further district and kebele administrations has to own and lead the program.

As this is to enhance the already available demand in to a modern status, supply side also need high focus by regional and federal states. Supply side is to refer to the availability of health facilities quality and quantity wise. Community members need to access the facility within reasonable distance and of good quality.

Over all it can be said that genuine service provision at local government as well as health facilities could create a better perception towards new idea – CBHI would facilitate for enhanced

enrollment/participation. In addition to accessibility of good quality, best functioning of CBHI scheme would also enhance the participation.

Finally, further research is required to identify and analyze determining factors to participate in CBHI scheme. Moreover, studies have to intensively study both demand and supply side determinants that could enable to direct and design directives. In addition to this, all levels of local administration should take responsibility on to lead the program at all levels with better awareness level that could enable to disseminate up to the grass root level.

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This Questionnaire is designed to collect data for the research theme of Socio-economic determinants of Community based Health Insurance Case of KilteAwelaelo, Tigray

1. Personal information

    1.1. Respondent (hh head) 's sex   a) Female   b) Male

    1.2. Age of household head   a) 25-35 b) =36-46, c) 47-57 3(d) 57 and above

    1.3. Marital status   a. Single   b. Married   c. Divorced   d. Widowed

    1.4. Educational Background   a) Illiterate   b) Literate

    1.5. Do you have any dependent under your support?   a. yes   b. no

    1.6. Family size   a)1-2 b) 3-5 c) 6-8   d)9-12

    1.7. Number of Child age   ____

    1.8. Number of Working age ____

    1.9. Distance of the house from the nearest health centre   a) near   b. not far   c. too far

2. Participation in development programs/activities

    2.1. Do you attend in any local meetings/gatherings?   a) Yes   b) No

    2.2. Do you participate in health package programs?   a) Yes   b) No

    2.3. Do you participate in PSNP programs?   a) Yes   b) No

    2.4. Do you take/participate in credit package   a) Yes   b) No

3. Awareness Level

    3.1. What is premium level   a) good   b) Satisfactory   c) poor

    3.2. When do you renew your membership   a) good   b) Satisfactory   c) poor

    3.3. Health facility utilization mechanism   a) good   b) Satisfactory   c) poor

    3.4. How often do you visit health facility health Seeking behavior a) 1-2 times b) 3-4 times
        c) more than four times   d) Not yet

4. Enrollment condition

    4.1. Do you have an experience in visiting public health facilities?   a) Yes   b) No

    4.2. If 'yes' do you think the payment for health services is affordable?   a) Yes   b) No

4.3. If 'No' how do you cop up health problems within the family?   a) Using traditional customs such as Tsebel and others   b). Using traditional medicines c) Do not use any curing methods

4.4. Are you a member of CBHI? a) Yes   (0)   b) No (1)   … if 'yes'

4.5. Did you become a member of CBHI after facing high health expenditures?   a. Yes   b. No

4.6. Did you become a member of CBHI knowing the importance in your household?a. Yes   b. No

4.7. Do you face out of pocket payments even if you are a member of CBHI?   a. Yes   b. No

4.8. If your answer to Q-4.4 is 'No' from what source do you cover health expense in case of health problems?   a. borrowing   b. selling of assets   c. savings

4.9. If your answer to Q-4.4 is 'No', In case of health problems for how long do you appear idle from work or schooling? a. 1-5 days   b. 6-10days   c. 11-20days   d. more than a month

4.10.   What is your perception towards genuine service provision of current health facilities?

        a) Good   b) satisfactory   c) poor

4.11.   What is your perception towards genuine service provision by kebele leaders?

        a) Good   b) satisfactory   c) poor

4.12.   What do you feel about the benefits of CBHI in the livelihood of your family?

_____

_____

_____

_____

_____