The impact of community based health insurance in health service utilization in Tigray; (Case of kilte Awlaelo woreda)

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We here by certify that we have read this thesis prepared under our direction and recommend that it be accepted as fulfilling the thesis requirement.

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Declaration

This is to certify that this Msc. thesis entitled&The impact of community based health insurance in health service utilization in Tigray; case of kilte Awlaelo woreda" submitted in partial fulfillment of the award of degree of Master of science in Economics to the college of Business and Economics, Mekelle University, through the Department of Economics done by Mr **Gebremeskel Tesfay** is an authentic work carried out by his under our guidance. The matter embodied in this project work has not been submitted earlier for award of any Degree or Diploma to the best of our knowledge and belief.

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LIST OF ACRONYMS & ABBREVIATIONS

AIID	Amsterdam institute of for international development
CBHI	Community Based Health Insurance
CDC	center of diseases control
CREHS	community regulated expansion of health system
HCCI	Health care cost institute
HH	household
KA	kilte Awlaelo woreda
IFGD	indirect focus group discussion
OOP	Out of Pocket
OLS	ordinary least square
UKaid	United kingdom aid
UNHCR	united nation higher commition for refugees
WHO	world health organization
KH HDSS	kilte-awlaelo Health and Demographic Surveillance System.

Exclusion in utilization

Pregnant women, individuals with diseases medicated for free (exempted), HIV AIDS, opportunistic diseases for HIV, TB, family planning and disabled (war)

Abstract

Health insurance is among the solutions promoted in developing countries since 1990s to improve access to health care services because it avoids direct payments of fees by patients and spread the financial risk among all the insured.

Community based health insurance is an emerging and promising concept which addresses health care challenges faced in particular by the rural poor and workers of informal sector. Moving away from out of pocket (OOP) payments for health care at the time of use to prepayment through health insurance is an important step towards financial hardships associated with paying for health services.

Ethiopia is a low income country with more of health spending out of pocket payment by households. Community based health insurance was introduced in Ethiopia in 2010.It covers only the rural community and informal sectors. This paper evaluates the impact of community based health insurance on health service utilization by providing financial protection in woreda kilteawlaelo for these rural community and informal sector workers. The insurance coverage increased access to public facility services. The insured are also better protected from large financial burden due to health expenditures than the uninsured .The study suggests that more attention needs to be paid to expanding insurance coverage and setting an appropriate benefit.

CHAPTER ONE

Introduction

1.1 Background of the study

The states in most developing countries have not been able to fulfill health care needs of their poor population. Shrinking budgetary support for health care services, inefficiency in public health provision, an unacceptable low quality of public health and the resultant imposition of user charges are reflective of the states in ability to meet health care needs of the poor (World Bank, 1993)

There are several possible ways to classify health insurance schemes either introduced by health facilities, members based organizations, local communities or cooperatives, according to, kind of benefits provided, degree of risk pooling, circumstances of their creation, fund ownership and management and the distinction whether the schemes focus on coverage for high-cost, low frequency events or on low cost, high frequency events. Similar characteristics of these schemes are; voluntary membership, nonprofit character, prepayment of contribution in to a fund and entitlement to specified benefits, important role of the community in the design and running of the scheme and institutional relationship to one or several health care providers (p. Jutting, 2003)

Neither the state nor the market is effective in providing health insurance to low income people in rural and informal sectors. The formal providers are often at an informational disadvantage and face high transaction costs. On both these counts health insurance schemes rooted in local organization potentially score better than alternate health insurance arrangements. In rural and informal sectors where supply of health services is expected to be weak, both financing and provision aspects need to be tacked simultaneously. Most of the CBHI schemes have either been initiated by the health providers. i,e missionary hospitals, or tend to be set around the providers themselves (Atim, 1998: Musau 1999). Thus the potential benefit of the schemes is seen not just in terms of mobilization of resources but also in the improvement and organization of health care services. (Jutting, 2003)

Proponents argue that CBHI schemes are a potential instrument of protection from the impoverishing effects of health expenditures for low income populations. It is argued that CBHI

schemes are effective in reaching a large number of poor people who would otherwise have no financial protection against the cost of illness (Dror and jacquier, 1999) other available studies however, are less optimistic. Communities structures may not necessary reflect the views of the wider population, critical decisions may not take in to account the interest of the poorest, and they may be excluded from decision makings (Gilson etal, 2000). It is further more argued that the risk pool is often too small, that adverse selection problems arise and the schemes are heavily dependent on subsidies that financial and managerial difficulties arise and that the overall sustainability, seems not to be assured (Atim, 1998, Bennett, creese and monash, 1998: criel,1998)

More than half of health expenditure in poor countries is covered by out -of –pocket (oop) payments incurred by households. (Aregawi, 2012)

Increased expenditure caused by the need to cope with injury and illness has been identified as one of the main factors responsible for driving vulnerable households further in to poverty. (Aregawi, 2012, WHO, 2000).

Due to the limited ability of publicity health systems in developing countries to provide adequate access to health care and the shortcoming of informal coping strategies to provide financial protection against health shocks, a large number of community based health financing schemes have been established in several low and middle income countries. (Aregawi, 2012)

CBHI schemes are nonprofit initiatives built upon the principles of social solidarity and designed to provide financial protection against the impoverishing effects of health expenditure for households in the informal sector (Aregawi, 2012)

Matching the roll-out of these schemes, theoretical and especially empirical studies which examine their impact on outcomes such as utilization of health care financial protection, resource mobilization and social exclusion have flourished. Community based health insurance(CBHI) is among solutions designed in least developed countries since 1990s to improve health care service utilization through sharing the financial burden of cost of illness. The community based health insurance becomes new findings and concepts, which address health care challenges faced in particular by the poor. (WHO,2000)

This health security is deliberately being recognized as integral and mechanical tool to any poverty reduction strategy.it has been argued that CBHI schemes are effective in reaching a large number of poor people who would otherwise have no financial protection against the cost of

health care services.(WHO,2000)

Given the fact that people may be willing to spend more money on security access to health care than they can actually pay as user fees at the time of illness and that the healthy carry the financial burden of illness together with the sick via the insurance scheme, additional resources may be mobilized for health care provision, utilization of health facilities will probability increase desirable effect if one considers currently prevailing underutilization in developing countries (Johannes p, Jutting,2003,muller, cham, jaffar, and Green wood,1990)

These insurance schemes can be an important tool for protecting low income populations from falling in to poverty as a result of their health expenditure effectively reaching poorer households who would otherwise have no way to cope with this risk. CBHI schemes do have some disadvantages compared with traditional insurance mechanisms, however, including for their small size, limited technical and managerial skills and the quality and accessibility of service providers. Their small risk pools and dependence on subsidies also cause some concern for the sustainability of CBHI schemes.

Certainly the occurrence of illness is unpredictable. But individuals are not only uncertain about the timing of their future health care consumption, they are also uncertain about the form and consequently the cost of that consumption. Such uncertainties lead to welfare losses and therefore individuals seek insurance. Welfare is then increased by the spreading of risks. It has also been argued that insurance may increase welfare by releasing the consumer from concerns over health care prices and income constraints at the time of consumption when it is likely that the costs directly associated with decision making, even without such considerations, will in any Case be high .(Fuchs, 1979).

In considering the welfare losses associated with risk bearing Arrow (1963) shows that risk adverse individuals will demand full coverage if insurance is available at actuarially fair prices. In fact Arrow goes further by arguing that even if the insurer is risk averse and loads the premium to cover his risk (i.e. the premium is set at a higher rate than the actuarially fair value) the insurance will still be purchased, provided that the loading is not perceived by the individual to be too unfair. Arrow continues by discussing the conditions under which an individual will prefer a deductible or coinsurance scheme. The former is better suited to cover high loading and the latter to coverage of any uncertainty associated with the risk insured against.(Henderson 1987,Economics of health care).

In most circumstances then the demand for health care should lead to a demand for health insurance. If utility is positively linked to income and the cost of health care is seen as a deductible from that income, the risk averse individual is likely to purchase more insurance as the risks increase. Indeed it is also argued that, *ceteris paribus,* events which have a low probability of occurrence but a high associated loss, such as hospital care, are more likely to be insured against than events which have a high risk of occurrence but low loss, such as check-ups (Hershey *et al.*,1984; Phelps, 1983).

In addition, despite being better positioned to reach poor rural households than most market based insurance mechanisms, they are still often unable to the poorest groups because of the costs of premiums (Johannes jutting, 2009)

Based on this, Ethiopian government recently introduced the CBHI scheme in four regional states of the country.(Amhara,Tigray,Oromia and SNNP), as a pilot study. Each regional state contains three selected administration districts (called woredas).

These selected woredas has been chosen for the pilot scheme based on criteria such as the district administrations declared commitment to the scheme, geographical proximity to health facilities, quality of health care services and management information system and the implementation of cost recovery and local revenue retention program.(Egiziabher et el,2009).

CBHI design and findings of the regional feasibility study was presented To Tigray regional health bureau, by USAID/ health sector financing reform project in January 2010.preparatory activities were undertaken in all pilot woredas like establishing regional steering committee and launching CBHI schemes, establishing woreda health insurance steering committee., establishing kebelle health insurance initiative committee in all 69 villages (kebelles),recruiting and deployed woreda coordinators , preparing training manuals and conducting training of trainers, conducting training for woreda health insurance.

Design of CBHI schemes was also developed. Membership was also determined at kebelle level and the target was universal access. CBHI sections were established in each kebelle of the pilot woredas. Mobilization was undertaken for voluntary membership.

Before the implementation of the programme in kilte awlaelo district,the community have attended any CBHI related meetings/trainings. Officials have made public meetings and trainings for awareness creation. They discussed with the community about the usefulness of the program, how it will be implemented, what services are included in the program, what amount of money

costs for registration fee, amount of annual premium payments, and the time to renew. Any household interested to enroll in the program pays 137 birr .Of which 5 birr is registration fee and the remaining 132 birr is premium payments per annum. The community agreed on the time of renewal to be on January after the period of harvesting, because it is on that time the community will get birr easily for premium payments.

After all discussion, officials develop temporary committee in each kebelle . The role of the committee was creating awareness to the rest of the community who were not took part in CBHI public meetings and trainings and to select indigents (poorest of poor) in the keblle. Selected indigents will get free membership on CBHI program and the cost is incurred by kilteawlaelo district administration and Tigray regional state. Automatically they will get membership cards. Every renewal time the government incurred total cost to the CBHI account for the indigents. Indigents are expected to pay transport and other related costs. But still there will be a problem if indigents get ill and do not have any birr for additional costs beyond medical service .Or they may have some amount of money but it may not be availability of transportation access due to different reasons. The community is still have a great contribution to reach indigents to the government health institutions who have agreed with CBHI officials to give free service for those who have member identification cards .The community uses manpower to reach the indigent to the health institution.

The success of health insurance depends first and foremost on the effective and sustained demand for the insurance scheme. In the absence of real world experience, economists gauge WTP for health insurance by means of the so-called contingent valuation approach. This approach elicits directly what an individual would be willing to pay for a potential non-market or public good.

No one is enforced to be a member in CBHI program. It is only based on interest. Local administrations play a great role in enrolling people in the program. Any household can enroll in to the program in its renewable time. Households also have the wright to get out of the program and cancel their membership and new entrances are allowed at any time .new birth in the household is also allowed to be a member based on the previous premium payments of the household .new births name and photograph will be attached in the program membership cards.

People also know that his premium payment is used to recover health services costs until the fixed time to renew usually a year, if not the household will be out of the membership and no service will be delivered from CBHI. Premium payments will not be payback even no member household uses health service it is a precautionary motive for the uncertain future in relation to health status. But it is not like a bank saving. Neither the principal nor interest is paid back.

Based on the statistics of CBHI scheme of kilte awlaelo woreda there are 3404 indigents. Total house hold leaders are presently 24224; of this only 7576 households are currently insured.

There is financial agreement between insurance and health care service providers. Members are expected to present in health care providers with membership ID card and will get service without any payment. Membership is renewed every year of January by providing 132 birr premiums. Statistically, 22247 members have got health care service by incurring around birr 968,449.6 and low and middle income group has benefited from this. (KA CBHI office report, 2014)

An additional potential impact of health insurance is increased utilization among non-participants members because (spillover effects), in some case when insurance is made available, participating facilities are upgraded. We might also expect individuals to have better health if the quality of the health care they receive is improved.

Health insurance is also expected to provide financial protection because it reduces the financial risk associated with falling ill. Financial risk in the absence of health insurance is equal to the out-of-pocket expenditures because of illness. Additional financial risk includes lost income due to the inability to work. (Wagstaff and Moreno-Serra, 2007).

If a member of a household is aged 18 or more than this, each individual is expected to pay additional payment of 30 birr. Let a single household has three individuals aged 18, each of them will pay 30 birr and a total of ninety birr.

1.2. Statement of the problem

Health status is uncertain in the sense that it is unpredictable. Health care is then consumed irregularly. As individuals it is not possible to state precisely and with certainty what our health status will be in ten years' time, next year, or even next week. Various actions can be taken as a response to the uncertainty regarding future health status. (Henderson,1987, p.38).

The probability of future ill-health may be reduced through adopting a particular pattern of consumption now—jogging, eating a good diet, refraining from smoking, moderating drinking, etc.—although the extent of the contribution of these to improved health status in future is also uncertain. Such actions, in so far as they are effective, will reduce both ill-health and thereby the costs of health care in the future. Thus the individual can be involved in the production side as well as the consumption side.(Henderson , 1987,p.38).

Other actions may be taken now to reduce the financial loss to be suffered if health status falls. Saving can mitigate the impact of loss of earnings as a result of not being able to work, or to allow the costs of health care to be more readily met. Again action can be delayed until illness arises and then health care can be purchased when it is required out of current income and wealth holdings or future income through borrowing. (Henderson, 1987,p.38)

The other major alternative to these actions is insurance whereby some of the costs of ill-health can be pooled across a group of individuals. Insurance in practice will inevitably be 'actuarially unfair'. (Actuarially fair insurance involves the payment of a premium of *m* to cover a 1 in *x* chance of an insured event costing *mx* occurring.) It is 'unfair' partly because of the need for insurance companies to 'load' premiums to cover administrative costs. Actuarially unfair insurance can exist, however, because individuals are commonly risk averse when faced with the relevant uncertain outcomes and/or because they simply misperceive the probabilities and/or their losses if the uncertain outcomes do occur. .(Henderson,1987,p.38).

In practice it is important to note that it is only those aspects for which money is able to compensate that can be deemed truly insurable. There is here an important consideration in the chain of health, health care and health insurance. Health insurance like health care is tradeable while, health is not. But further, ill-health *per se* cannot be insured against except in so far as it is possible to compensate an individual financially for a loss of health status. There are limits to the extent that this is possible. Thus, for example, individuals cannot insure themselves for the loss

of utility associated with losing their life since they cannot be financially compensated for their own death. (Henderson, 1987,p.39).

Insurance arises largely as a result of the unpredictability of ill-health, rather than the unpredictability of the effectiveness of health care, or because of the irregularity of consumption. Thus insurance normally covers the financial costs of care regardless of its effectiveness—except in circumstances where ineffectiveness is a function of negligence. In effect this means that uncertainty regarding the effectiveness of treatment is not normally covered by insurance. (Henderson, 1987,39).

In Arrow's classic article on uncertainty and the welfare economics of health care (Arrow, 1963, p. 959) he concentrated in his discussion of insurance on the costs of medical care, suggesting that these 'act as a random deduction from…income, and it is the expected value of the utility of income after medical costs that we are concerned with' although he does add that if illness is a source of dissatisfaction 'it should enter into the utility function as a separate variable'. The formulation by Evans (1984, pp. 30, 31) of ill-health loss is also relevant. (Henderson, 1987,p.39).

Only if care of a specific and well defined amount were instantly and perfectly efficacious in relieving illness could one represent the consequences of illness for wellbeing by the dollar cost of care. In general, the money equivalent loss…of an illness will exceed any consequent [change in] health spending by some amount which allows for pain and suffering, anxiety, lost wages and/or leisure, and a risk premium for uncertainty of outcome. (Henderson, 1987,p.39).

Providing health care for poor people who work in informal sector or live in rural areas is considered as one of the most difficult challenges that many developing countries are facing (Preker &Carrin2004). Despite remarkable efforts in controlling these challenges by many development agents and states, they remain as severe barrier to economic growth (Saches and WHO, 2001) since illness does not only affect the welfare but also increases risks of impoverishment. This is because of high cost associated with health problems, especially in the absence of any form of health insurance. Subsequently, households may decide to leave illness untreated or opt for use of poor quality health care or even self –administration medication (Ataguba et al.2008), it is argued that more than 150 million people face catastrophic health expenditures each year and most of them fall in to poverty worldwide because of out of pocket

health payments (Kawaba et al., Ascitedin Sksena et al. 2011). This is an indication that health problems and associated costs are main causes that drive people in to poverty, especially in developing countries where the health care payment is still made out of pocket. The world bank reports 1993 and 1995(as sited in WHO 2002) reveal that illness, death, and injuries stand as the main causes that health problems can hold back any effort made by poor people to improve their standards of living, reason why poverty reduction policies should incorporate health facilities improvement, since health problems and poverty are much related. Poverty is also argued to be among root causes of many health problems, such that poor people can neither afford modern medical care nor decent living conditions (Sebatware Rutekereza, 2011)

For the last several years, like in any sub Saharan African countries, poverty has been the main issue of Ethiopian people. They could not get enough food, shelter, access to education, good governance, security, peace and improved health care services. Financial burdens of health care services have also been additional problems which make life uncomfortable .They deliberately handled by different barriers and struggle of colonialism.(Aregawi,2012)

In terms of modern health care and health indicators it ranks low even as compared to other low income countries. For instance, the 2010 human development report ranks Ethiopia 157th on the human development index among 169 countries and territories. Based on UNDP, 2010report life expectancy is about 56 years, infant mortality rate of 71.2 per 1000live births, an under five mortality of 112 per 1000 and a maternal death of 470 per100,000 live births(world bank,2011)

Based on Ethiopian ministry of health report (2006) between 60 and 80% of illness occur due to preventable disease. This shows people have lack of knowledge to eliminate these easily preventable diseases. To improve the health status and to increase to modern health care services, for the last several years, the government has focused on issues like providing health extension services at the village level, expanding health care facilities; health post, health center, hospitals and medical colleges throughout the country. At each village (kebelle) the government has deployed two health extension workers to introduce health packages and health components which helps to reduce 60-80% of preventable diseases. In relation to MDGs, health extension workers have given higher responsibility. The public budget allocation for health is below the

level required to supply adequate health care services, even though the government sign different efforts for health service betterment. public health spending per capita for the year 2007-2008was USD2.23 which is considerably lower than the USD 15.41 per capita required to achieve the health targets of millennium development goals.

Unfortunately, the government has ignored the demand side constraints much too low health service utilization and health status. Having supply side, people with low and middle income group were not getting the access to modern health care services. People sever due to lack of OOP (out of pocket payments). They are enforced to follow other choices, either to take self-administered local medicines or simply waiting the last date of their alive.

To better address the problem, community based health insurance schemes (CBHI) are therefore considered to be potential instruments mitigating the impoverishment effects associated with health expenditure, especially in developing countries. The effectiveness of community based health insurance resides in the facts that it can reach a big number of poor people who would not have been able to insure themselves against health problems and associated cost (Dror and Aacquireas cited in jutting 2004, Sebatware Rutekereza,2011)

By pooling illness risks, unpredictable medical expenditures are therefore reassigned to premiums. This will result in increasing access to health problems on poor households and improve the access to quality health care. Consequently, good health status resulting from access to health will improve productivity, which in turn will increase income leading to good living conditions for insured households. (Asfaw and Jutting,2007)

In order to address this unfulfilled demand side problems and increase health care service utilization through sharing the financial burden of health care provision, Ethiopia has introduced two health insurance programs. These are a mandatory health insurance scheme catering to formal sector workers and a voluntary community based health insurance (CBHI) for the rural population and urban informal sector workers. This CBHI is an emerging and promising concept, which can address health care challenges faced in particular by the poor. Insured members no longer have to search or find for credit or sell assets. They can also recover more quickly from their illness since there are no delays in seeking care. Considering the fact that people in rural areas rely mainly on their labor productivity and on other assets, like livestock for income

generation, a serious decline of income can be prevented as productive assets are protected and people can return to work sooner. Income level is stabilized and may even counting the same throughout the year be increased and in return consumption level will be more stable and positively health service utilization and financial Burdon for cost of illness. Existing studies on CBHI schemes face the important limitations that most of them are not based on household date and this study held on households will narrow the gap.

Publicity funded health care, in its current form, is an inadequate mechanism for reaching the poor in many countries, in part because the country has limited health budgets.

Health insurance schemes are supposed to reduce unforeseeable or unaffordable health care costs through calculable and regularly paid premiums in contrast to the history of social health insurance in most developed countries, where health insurance schemes were first introduced for formal sector employees in urban areas, recently emerging health insurance schemes have taken the form of local initiatives of a rather small size that are often community based with voluntary membership. They have either been initiated by health facilities member based organizations, local communities or cooperatives and can be owned and run by any of these organizations (Atim, 1998, Criel, 1998)

Studies indicate that the uptake of any type of insurance in developing countries is low, thus an important element of impact of insurance is its rate of enrollment (Gine, 2007). However, the enrolment in voluntary health schemes is subject to the problem of selection bias through adverse selection. The practice of more unhealthy people joining health insurance, and cream skimming a practice by insurers enrolling only the healthy people and conveniently excluding the high risk population group consisting of aged, poor, and women from the insurance program (World bank development report 1993) .

Adverse selection arises when a systematic information exists between insurers and consumers about individual health risk. People who insure themselves are those who are increasingly certain that they will need health insurance (high risk individuals) and hence they buy more insurance (world bank development report1993, jack, 1999) adverse selection introduces unobservable heterogeneity upon selection in to the insurance between the insured and the noninsured in regards to the factors that can affect important health outcome and

utilization measurements(Morrison et al.2007)

Agricultural activities are the main income source for the community of kilteawlaelo woreda, for a long time seeds production dominated. A few years ago, due to the government efforts, farmers have started to diversify by producing vegetables, fruits and food crops by implementing extension programs like improved seeds, chemical fertilizers and pesticides. Some households have also livestock for additional source of income.

Even though the government is trying to eradicate poverty using different packages, poverty is still wide spread, notably among these rural households. Daily income of less than two dollar is a common situation for the community. Less employment opportunities low level of productivity mainly due to shortage of rainfall are other problems settled on which aggravates the health problem of the community due to food shortage and malnutrition. People are exposed to a variety of illness and health risks such as TB, diabetes, blood pressure (HDSS, 2012). Furthermore, access to health care is constrained by financial constraints and the limited number of health facilities accessible to the population. The later point poses a very important problem for the rural poor.

When facing an illness, they have to rely on selling of assets (such as livestock if they have) or looking for credits to pay treatment fees. Sometimes, they can totally ignore to get health care services. Households face health risks, and when health shocks occur, they have a severe impact on people's livelihoods. High cost of treatment is often exacerbated by reduced income due to ill health.

When the government introduces CBHI to the community, he tried to insure and protect the enrolment in voluntary health insurance not to be subject to the problem of selection bias through adverse selection. Each and every household is discussed on the concepts and the benefits get from being membership. No systematic information exists between insurers and consumers. Without any discrimination, any household volunteer to be a member is only asked to pay the prescribed premium. And the probability of excluding the high risk population group consisting of women, aged, poor, and indecencies from being insured is very low.

Community based health insurance has also an important role that people will get an experience how participation of the people solves different problems of the community and will create close relationship to one or several health care providers . When people become a member, they will be very sensitive for any even easy unhealthy conditions. They want to have

medical checkup and then increases the utilization level of all service providers in addition to increasing level of income. Community based organizations are better placed to monitor members effectively and has the power to place people in one line. They reduce adverse selection by grouping together with varying levels of risk and insuring them as a group. Their lower retail costs (compared with schemes that insure individual members) allow insurance to be provided more cheaply. CBHI may also improve the quality of health care services.

Community based health insurance provides free health services to its members. For any type of illness, members are requested to get freely health care services by paying premiums excluding transportation and other self-administration costs. These costs are out of pocket payments of individuals. CBHI helps members to think themselves as protected from any risk of illness. They are highly interested to check up from its start for any unhealthy conditions. This increases health care service utilization.

For the facts doing by the community based health insurance, the community is showing interests to be interests. There were individuals who have been suffering from chronic and other diseases due to lack of finance. And now due to the insurance they get free health care services and now they are healthy members and can take any tasks easily than ever.

There are also conditions which hinder people from being a member in the community based health insurance. Lack of detail knowledge, skill, lack of clear plan of CBHI schemes presented to the community are some of the reasons. Factors which hinder or expand the community to be a member are points to be explained under this study.

1.3. Objective of the study

The main objective of the study is to understand and clarify the impact of community based health insurance in modern health care service utilization by reducing, financial burden on members.

The specific objectives are also

- To identify the factors which motivates or hinders the house holds to participate in kilteawlaelo woreda CBHI scheme
- To understand the promotional measures provided by the CBHI for better access to modern health facility to its members
- To identify the health care service utilization among members and nonmembers of CBHI
- To understand the role of CBHI in reduction of financial burdens of illness fees of members

1.4. Hypothesis of the study

Community based health insurance has a positive impact on modern health service utilization and in promoting health care services. In addition, CBHI also reduces the financial burden of individuals out of pocket payments through sharing the financial burden of health care. Econometrically,

- H_1 CBHI has increased health care service utilization
- H_2 CBHI has reduced financial burden of members for cost of illness

1.5. Significance of the study

Of all the districts (woredas) in the region, kilteawlaelo district is one of the selected districts as a pilot for community based health insurance. Although this woreda implement the program since mid-2011, there was no study done on this topic. Hence, this research is expected to put a ground for the study area to improve CBHI. This study will also create awareness for CBHI workers which hinder CBHI as footsteps for health service utilization. This will also give CBHI workers additional value in their effort to incorporate membership needs of clients when developing strategic frame work.

Other significance lies on equipping the researcher with necessary skills and technique to undertake research, on its way, enabling the researcher to fulfill the requirement of Master's degree in Economics. The findings of this research help CBHI agency and other similar institutes to better diagnose the space for betterment in their operation. Finally, this research serves as a window to identify the impact of CBHI in health care service utilizations. This study will also be significant in reducing the gap of existing studies on CBHI schemes face the important limitation that most of them are not based on household data and neglecting the effects on the members.

1.6. Scope and limitation of the study

Since CBHI is much broader issue it is a challenging task to see all regions and activities of the program even though it is implemented as a pilot in thirteen woredas at country level. Therefore to make it manageable this study is geographically limited to Tigray region eastern zone Kilte Awlaelo district(woreda) this research focuses to measure the impact of community based health insurance in terms of health service utilization. This study will have limited time and money availability, lack of availability of the sample. Shortage of access to the respondents and the amount of time the respondents can spare will also be limited .these limitations can highly influence not to successfully done the study. Since pregnant women are freely getting any health care service during delivery period, this time is not included in this study.

Chapter Two

Literature review

2.1. Concept of CBHI

Providing health care for poor people who work in informal sector or live in rural areas is considered as one of the most difficult challenges that many developing countries are facing (Preker & carrin, 2004) despite remarkable efforts in controlling these challenges by development agents and states, they remain as sever barrier to economic growth since illness does not only affect the welfare but also increases risks of impoverishment. This is because of high cost associated with health problems, especially in the absence of any form of health insurance. Subsequently, households may decide to leave illness untreated or opt for use of poor quality health care or even self -administration medication (Alguba et al, 2008). It is argued that more than 150 million people face catastrophic health expenditure each year and most of them fall in to poverty worldwide because of out of pocket health payment. This is an indication that health problems and associated costs are main causes that drive people in to poverty especially in developing countries where the health care payment is still made out of pocket. (Sebatware Rutekereza, 2011).

Health insurance is among the solutions promoted in developing countries since the 1990s to improve access to health care services because it avoids direct payment of fees by patients and spreads the financial risk among all the insured. Many mutual health insurance organizations have been developed in sub-Saharan Africa, and over the past several years some African countries have setup national health insurance systems. However in these countries that elect to give an important role to health insurance, it remains to be much tied whether such insurance really reaches those who are most vulnerable in terms of access to services: the poor. In fact lack of funds creates problems at two levels, when it comes time to pay premium, and when the insured need to use health care services. (Morestin &Valery Ridde,2009)

Health insurance schemes can be national, community or private. They can be mandatory or voluntary. Mandatory schemes are usually national, in which there is a legal obligation for people to pay in to them and are based on the principle of social solidarity. Contributions are community rated (i.e based on an average expected cost of health service). Community based

health insurance schemes are usually run by community based or nongovernmental organizations (NGOs), and may also be referred to as mutual health insurance, micro-insurance or community health funds. Community based health insurance schemes often have high administrative cost and revenue collection costs. (UNHCR, 2012)

Historically, social health insurance originated in developed countries as work related insurance programs and the coverage has been gradually expanded to the nonworking parts of the population (Saltzman, 2004).In recent years, social health insurance is being introduced in parts of the developing world as an alternative to tax financing and out of pocket payments, Social health insurance organized through NGOs and often involving other elements such as micro credit. These initiatives are generally weak in terms of efficiency and sustainability but have provided a means of development for government supported extensions to enable greater population coverage.(Alkenbrack,2008)

Social health insurance is schemes are generally understood as health insurance schemes provided by government to its citizens, especially, to low and middle income populations. Recently, apart from governments, several non-government organizations at the community level provide social health insurance in developing countries. Social health insurance pools both the health risks of its members on one hand and the contributions of enterprises, households and government on the other hand and is generally organized by national governments. Most social health insurance schemes combine different sources of funds, with government often contributing on behalf of people who cannot afford to pay themselves. Social health insurance differs from "tax based financing" which typically entitles all citizens (and sometimes residents) to services thereby giving universal coverage. However, social health insurance entitlement is linked to a contribution made by, or on behalf of, specific individuals in the population. (WHO, 2004)

The states in most developing countries have not been able to fulfill health care needs of their population. Shrinking budgetary support for health care services, inefficiency in public health, an unacceptable low quality of public health services, and the resultant imposition of user charges are reflective of the state's inability to meet health care needs of the poor. (World bank, 1993)

In the last decade, the" health care crisis "lead to the emergence of many community based health insurance schemes(CBHI) in different regions of developing countries, particularly in sub-Saharan Africa(Preker,2004Wiesmann &Jutting,2001) the decentralization process unleashed in these countries to empower lower layers of government and the local community further fueled their emergence(Atim,1998:Musau,1999). The success of community based micro credit schemes may have contributed to the emergence of community based health initiatives designed to improve the access through risk and resource sharing. (Dror & Jacquier, 1999). Elsewhere, particularly in regions of Asia and Latin America, community based health initiatives have come about independently and as part of income protections. (World development, 2003)

Helping households to manage the risks they face is important in reducing poverty in developing countries. All households face health risks, and when health shocks occur they have severe impact on people∗s livelihoods. High costs of treatment are often exacerbated by reduced income due to ill health. In some cases, people must also sell productive assets to pay for medical care. An estimated 1.3 million people lack access to effective and affordable health care. Publicly funded health care, in its current form, is an inadequate mechanism for reaching the poor in many countries, in part because most states have limited health budgets. In two thirds of all low income countries, one third of total health expenditure comes directly from patients. Although developing countries bear 93 percent of the world's diseases burden, people in most of these countries still have few options for insuring against health risks. The disease burden is highly concentrated in low income groups, and most households have little disposable income to spend on health care coverage institutional innovation like community based health insurance in recent years have begun to address issues of coping with health risks and financing health care.(2020 vision for food, 2009)

Community based health insurance (CBHI) has demonstrated promising results for poverty reduction. A CBHI scheme is essentially any program run by a community based organization that pools risk to cover health costs. Such schemes are well positioned to monitor behavior and enforce contracts while at the same time reaching clients over looked by many formal insurance schemes. CBHI schemes have the potential to solve many of the problems associated with insuring the poor. They reduce adverse selection by grouping people together with varying levels of risk and insuring them as a group. Their lower retail costs(compared with

schemes that insure individual members) allow insurance to be provided more cheaply. In addition, community based organizations are better placed to monitor members effectively. (2020 vision for food, 2009)

Community based health insurance schemes are deemed as "local initiative which is built on traditional coping mechanisms to provide small scale health insurance products specially designed to meet the needs of low income households. These schemes increase health care services of poor people by offering both preventive and curative health care. It is further argued that community based health insurance help insured people to recover fast as they are not delayed in seeking health care (Juffing, 2004) Given that better health status increases productivity and labour supply, which boost household income level (Hamid et al, 2011), community based health insurance is therefore considered as potential tool in improving standards of living of poor people. (Sebatware Rutekereza, 2011)

Participating in a voluntary health insurance scheme is almost always non-random. Therefore, it is possible that those who choose to buy insurance do so because they have some innate characteristics that make insurance particularly benefited for them. For example, if an individual has a pre-distribution to illness, he or she will most likely have higher out of pocket health expenditures than somebody who does not have that. The former individual is more likely take up insurance so when comparing these two individuals, we may find that the insured individuals still has higher out of pocket expenditures than the un insured individual, because the insured one may need more or higher levels of care than the healthier, uninsured individual.(AIID,2013)

The non- profit principle, the premium calculation independent of individual risk and participatory decision making are clearly distinguish CBHI from commercial health insurance, with which it shares voluntary affiliation. Participatory decision making, community based pooling,(usually) flat membership premiums, and voluntary affiliation distinguish CBHI from other social health insurance, with which it shares the nonprofit character. (World health report, 2010)

2.2 The impact of CBHI

2.2.1 Health service utilization, health care and financial protection

The primary aim of nearly all insurance is protection from large financial losses. After enabling people to utilize health care, health insurance should reduce health expenditure. Ideally, in order to examine financial protection, one would want to examine whether or not consumption levels change in the same way as they do for people with the same socio economic status. (Henderson, 1987)

Health insurance, together with a very good health system, should provide protection from large health expenditures and reduce the impact on the work force due to ill health. However, the main indicator used is much too narrow and is measured in a short-run period. This measure, out of pocket expenditures or payments (OOP), is a standard measure of the financial burden of seeking health care and is measured over a period of a year or less. (UKaid, 2012)

Household financial burden is distinguished from the cost of health care. High cost, health service may not result in any financial burden for a high income household while even relatively small amounts of expenditure for common illness can be financially disastrous for the poor. The household financial burden is measured in terms a household∗s capacity to pay rather than an absolute amount of out of pocket payments. A prepayment scheme can reduce a household∗s financial burden as risks are shared and contributions are pooled across population groups rather than borne exclusively with in an individual household. (WHO, 2006)

However, health insurance does not automatically eliminate catastrophic spending in practice. One has to check which population groups were enrolled, and what are the health services that are covered by the scheme(benefit package).the financial burden of paying for health services is analyzed at the household level, it is measured as a share of out of pocket health payment in a household∗s total capacity to pay. At any given period of time there always are some households that have no spending on health care. (WHO, 2006)

Health care expenditures arise precisely when the family has lost productivity and often income from one or more adult. For example, if a patient is hospitalized, other households members typically must provide meals and other care for the patient and may work less in order to have time to provide this care. The combination of low income and high expenditure can lead families to sell assets or take on debt. Market interest rates are high, so a loan often leads to asset

sales at a later date (SKY, 2009)

If insurance is effective, we expect insured families to be less likely to take on new loans due to health care costs and less likely to sell land and other assets. If uninsured households sell productive asset or with draw children from school to help pay for care, the result is that a short term health shock can lower long term productivity and worsen long term poverty. Conversely, if health insurance can prevent large out of pocket expenditures, it may promote the accumulation of productive physical and human capital. (SKY, 2009)

Health insurance increases access and utilization because of lowers the price of health care. Individuals will have better health if they are utilizing preventive and curative health care when needed and in a timely manner. There is a positive impact of health insurance in low and middle income countries on access and utilization. (AIID, 2013)

An additional potential impact of health insurance is increased utilization among non - participant members because, in some case when insurance is made available, participating facilities are upgraded. We might also expect individuals to have better health if the quality of the health care they receive is improved. (AIID, 2013)

CBHI can remove, to some extent, the financial barrier of access to care. We, therefore, expect that the insured will use more services than the uninsured. An increase in use of services will occur in public facilities.(WHO,2006)

Community based health insurance(CBHI) is not for profit type of health insurance that has been used by poor people to protect themselves against the financial risk of illness. In CBHI schemes, members regularly pay small premiums in to a collective fund, which is then used to pay for health costs if they require services. Based on the concepts of mutual aid and social solidarity, many CBHI schemes are designed for people that live and work in the rural and informal sectors who are unable to get adequate public, private, or employer sponsored health insurance. (CREHS, 2009)

Health insurance is expected to provide financial protection because it reduces the financial risk associated with falling ill. Financial risk in the absence of health insurance is equal to the out of pocket expenditure because of illness. Additional financial risk includes lost income due to the inability to work. There is little rigorous empirical evidence measuring the impact of health insurance in its ability to provide financial protection. (AIID, 2013)

CBHI schemes do not cover all costs of health services. In most countries where

insurance schemes are available, there will also be several co-existing health financing mechanisms. Recourses for health services come from many sources including but not limited to: general budgetary support (e.g, Doners to the central government), individual out of pocket payment (user fees), grants and payments by civil society organizations and international agencies. Individuals and communities may also make no-financial contributions by freely giving their labour in the construction of a health facility, or health workers and volunteers work benevolently. (UNHCR, 2012)

According giz,2012 report the survey in Nepal found that the overall utilization rate for health services among members of a CBHI scheme is higher than among non- members, regardless of whether it is a public or private scheme. These findings indicate that CBHI schemes do in fact offer financial protection to their members, which enables them to use health service more often than members. The survey also found that the quality of health care provided to CBHI members, mainly in the public health facilities, is in line with the capacity and infrastructure of the health facility. There is no positive discrimination in facilities towards CBHI members. To make the premium affordable to the poor, CBHI schemes offer subsidized premiums9 for the ultra-poor, marginalized, helpless and disabled beneficiaries. (giz, 2012)

A study took by WHO broadly examine that the impact the impact of health insurance schemes in low and middle income countries in Africa and Asia on various domains. It is the strong evidence that CBHI can improve financial protection and enhance service utilization patterns. (WHO, 2012)

In Ethiopian context, a study done by Anagaw, 2012 shows that 74 percent of the studies (26 out of 35) find positive and statistically significant CBHI membership effect on health care utilization. The study also shows that the schemes have registered strong evidence (88 percent of the case) in prevailing catastrophic health expenditure.

2.2.2 Health status

Several variables, including mortality rates and self -perceived health status have been used as a measure of health status. Some of the earlier studies examining the impact of insurance on health status including those of Franks et al. (1993) and Card et al. (2004) who show that health insurance have a positive impact on health outcomes. (AIID, 2013)

2.2.3 Willingness to pay for health insurance

The success of health insurance depends on first and foremost on the effective and sustained demand for the insurance scheme. Asfaw and von Braun (2005) estimated the WTP for a community based health insurance scheme in Ethiopia to be US $0.60 per month, pointing out that although this amount seems small" if universal coverage of insurance is assumed it is possible to generate around 631 million birr (US $75 million) per annum, an amount much higher than the maximum amount of money used as a recurrent budget by the health sector of the country". The impact of health insurance show positive effects on access and utilization. (AIID, 2013)

In Kilte Awlaelo district, from the very beginning, people have attended so many meetings and great deals were done. People discussed on benefit package, services, payment periods and the premiums. The community defined indigents and become a member of CBHI without having payments. There is no mandatory membership and households become a member only when they are believed the idea of CBHI and its objective. No one is enforced to be a member and pay the premium. Even a household can break its membership in the middle when renewing starts in January.(IFGD from 18 members from the community, 2014)

2.2.4 Health seeking behavior

Health insurance can increase health seeking behavior by reducing the cost of care following a health shock. More important for effective treatment is that households are seeking qualified health care in a timely manner. Insurance may increase care following a major health shock, but may also increase routine and preventive care in general, having zero copy at public facilities may increase use of public health centers even in households without a major health shock.(SKY,2009)

From theoretical perspective, being covered by insurance can be expected to affect individual behavior through several district mechanisms. First, individuals may feel safer with insurance and thus take on more risk in the presence of insurance, a problem commonly referred to as the moral hazard problem. Second, insurance may change the choices individuals make once health problem arise. From the perspective of rational decision maker, insurance makes formal treatment modalities, and thus induces a shift towards increased service utilization. Last , individuals may want to use the insurance to recover parts of the insurance premium already

paid, a behavior which is inconsistent with models of rational choice.(Primary Health care Research &Development,2011)

2.3 Health care as Economic commodity and information

Health itself is not tradable in the sense that it cannot, strictly, be bought or sold in a market: it can be no more than characteristics of commodity. Thus health is a characteristic of health care. Seat belts, fire extinguishers, whole meal bread, etc.; but health is not exchangeable. Health can only be value in use and not in exchange. Health is not a commodity but health care is (Henderson, 1988).

The apparently simple relationship of wanting health and demanding health care becomes more complex, largely because of problems of lack of information. Translating a want for health in to the consumption of treatment involves inter alia a demand for information about various aspects of existing health status, of improved health status, of treatment availability, of effectiveness, etc. if follows that the demand for health involves uncertainty which makes the informational characteristics and not just the treatment characteristics, important. (Henderson, 1988)

The uncertainty generated by ignorance about health status, availability and effectiveness of treatment, etc. makes decision making about the consumption of treatment difficult, especially as there may be substantial anxiety about making a wrong decision which could have serious adverse (ill health) out comes. Consequently, the consumption of health care especially for life threatening conditions may also include the characteristics of being able to pass the burden of decision making to the clinician. (Henderson, 1988)

The final consequence of the status of the world that the consumer is interested in relate, of course, to improved health. To obtain this, he may demand information, for example, on his current status, treatments available and their effectiveness in his uncertain state and given the uncertain outcomes. The patient may in turn demand that the doctor acts as a decision making agent(and not just decision aiding).The patient may do this because of fear of getting it wrong and then having to bear the burden of knowing he made a wrong choice.(Henderson,1988)

The extent to which these health bearing, information bearing and decision delegating characteristics of health care are present will vary depending on a number of factors including the specific health care commodity being examined, and perhaps the personalities of the doctor

and the patient involved. Most people have relatively low; so also is the decision delegating characteristic. (Henderson, 1988)

The provision by the supplier to the consumer of information on existing health status, availability and effectiveness of treatments, place the doctor in the position of not only acting as supplier but also markedly influencing directly the utility function of the consumer. (Henderson, 1988)

Health care is clearly a heterogeneous commodity; it is also an intermediate commodity in the sense that is not consumed for itself. The fact that it is both heterogeneous and intermediate in practice may reduce the extent to which heterogeneity matters. This is because while there are clear difference between a simple headache and a brain tumour, it is not always so clear at all stages of the consumption process that these are not the diagnoses, nor that the headache might not be a symptom of some more dreadful condition. (Henderson, 1988)

2.4 Health care information, and insurance

Health status is uncertain in the sense that it is unpredictable. Health care is then consumed irregularly. As individuals it is not possible to state precisely and with certainty what our health status will be in ten years' time, regarding future health status .(Henderson, 1998)

The probability of future ill health may be reduced through adopting a particular pattern of consumption now-jogging, eating a food diet, refraining from smoking, moderating drinking, etc. although the extent of the combination of these to improved health status in future is also uncertain. Such actions in so far as they are effective, will reduce both ill health and there by the cost of health care in the future. (Henderson, 1988)

Other actions may be taken now to reduce the financial loss to be suffered if health status falls saving can mitigate the impact of loss of earnings as a result of not being able to work, or to allow the costs of health care to be more readily met. Again action can be delayed until illness arises and then health care can be purchased when it is required out of current income and wealth holdings or future income through borrowing. (Henderson, 1988)

The other major alternative to these actions is insurance where by some of the costs of ill health can be pooled across a group of individuals. In practice it is important to note that it is only those aspects for which money is able to compensate that can be deemed truly insurable. There is here an important consideration in the chain of health, health care and health insurance.

Health insurance like health care is tradeable. But health is not. But farther, ill health per se cannot be insured against for a loss of health status. There are limits to the extent that this is possible. Thus, for example, individuals cannot insure themselves for the loss of utility associated with losing their life since they cannot financially compensated for their own death. (Henderson, 1988)

Insurance arises largely as a result of the unpredictability of ill health, rather than the unpredictability of the effectiveness of health care, or because of the irregularity of consumption. Thus insurance normally covers the financial costs of care regardless of its effectiveness except in circumstances where ineffectiveness is a function of negligence. In effect this means that uncertainty regarding the effectiveness of treatments is not normally covered by insurance. (Henderson, 1988)

A major conceptual advance in the analysis of the demand for health care has been the recognition that the fundamental demand by the consumer is for health and not health care per se. the demand for health care is a derived demand. A similar proposition holds for the demand for health insurance. However, it may also be argued that for certain purposes the demand for health is also I a derived demand. Health is demanded not just for its own sake but also to enable individuals, For example, to participate in the labour market. (Henderson, 1988)

2.5 Utilization and welfare

One argument that is commonly advanced is that, if the insurance coverage is complete. (i.e. comprehensive for all risks with all expenses) then there will be no incentive for individuals consumption to be restricted by willingness, let alone ability, to pay. In other words fully comprehensive insurance will mean that, at the point of consumption, the price to the individual patient consumer of purchasing health care is zero. (Henderson, 1988)

2.6 Determinants of health care utilization

Multiple forces determine how much health care people use, the types of health care they use, and the timing of that care. Some forces encourage more utilization; others deter it. For example antibiotics ,CBHI schemes and public health initiatives have dramatically reduced the need for people to receive health care for many infections disease, even though over use can also increase antibiotic resistant strains. However, other factors, such as increase in the prevalence of

chronic disease, may have contributed to increase in overall utilization. (CDC, 2003)

Need for care also affects utilization, but need is not always easily determined without expert input. Many people do not know when the need care and what the optimal time to seek care is, and many conditions are not easily diagnosed or treated. If all people could obtain unlimited health care, perceived need by both patient and provider might be the only determinant of health care utilization, but unfortunately barriers to needed care, such as availability or supply of services, ability to pay, or discrimination, have an impact on utilization overall. (CDC, 2003)

The following Factors may increase health services utilization.1) increase in supply (ambulatory surgery centers, assisted living residences) 2) insurances 3)growing population) growing elderly population. The following factors may also decrease health service utilization 1) decrease supply (hospital closures, large number of physicians retiring)2)public health(sanitation advances)3) discovery(implementation of treatments that cure or eliminate diseases and 4) better understanding of the risk factors of diseases and prevention programs, cholesterol-lowering drugs.(CDC,2003)

2.7 Payment modalities and difficulties

To enroll in an insurance program requires paying a premium. The combined premiums constitute the funds up on which the insurance draws in order to compensate members who use insured health care services. However, the lack of money to pay the premium is the main reason why some people do not become insured. Payment modalities can also present problems. If the annual premium must be paid in a lump sum,(instead of payments spread out over the year),households find it more difficult to pay. Another element is the time at which the payment is due, because the incomes of workers in the informal or agricultural sectors vary over the course of a year. (Morestin &Ridde, 2009)

There are measures to promote health insurance membership among the poor.

2.7.1. Premium subsidized 100 percent

The poor are insured without having to pay; their premium is paid by a third body. For example, in RUWANDA when the first health mutual appeared in 1999, there were local initiatives to pay the premiums for the indigent by certain churches or by the other insured members. In the following years, funding agencies began to intervene, but the initiatives

remained circumscribed. In Ghana, the law on national health insurance exempts the poorest from paying the premium. In Tanzania, in the frame work of the Community Health Fund (CHF) that insures the rural population, districts are supposed to pay the premiums of the poorest households. (Morestin & Ridde, 2009)

In kilte Awlaelo district, there are 2595 indigent households freely get insured and their premium is fully subsidized by local and regional governments in the form of funds. Local and regional governments transfer the premium in to the account of the CBHI office of the district. They will get the same service like any insured household to pay the premium OOP. (Kilte Awlaelo CBHI office, 2014)

There is always an assessment in terms of indigents. Indigents in the last year may not always be indigents. If their income level increases and build the capacity to pay the premium, this household will be replaced by another household who cannot afford the income to pay the premium. This is done based on the community proposal. (Kilte Awlaelo CBHI office, 2014)

2.7.2 Premium partially subsidized

The poor pay part of the premium, and the rest is paid by a third party. In Burkinafaso, Nouna district, in response to the under representation of the poor among the insured, a subsidy of 50 percent of the premium for the poorest household was instituted in 2007. This affects the 20 percent of households that are the poorest, as defined by the community. These households can thus insure themselves by paying only the remaining 50 percent. In Ghana, before the implementation of national health insurance in Dangme west consisted of paying 75 percent of the premiums for the poor, who could then obtain coverage by paying the remaining 25 percent. But even "minimum" premiums that households must still pay are obstacles for the poorest. (Morestin & Riddle, 2009)

2.7.3 Premium varies based on income

Households are defined based on income. Insurance of Bangladish offers four different levels of membership for the same insured services indigents 5 percent, poor 2 percent, middle class 40 percent and well off 50 percent. Premium levels must accurately reflect the levels of wealth in the population. (Morestin & Riddle, 2009)

2.7.4. Premium paid in kind or in work

Small farm workers live in a local economy that often is not very money based. Thus, some insurances in India have accepted to have premiums paid in the form of rice or sorghum; one of them employed a worker once a year, at harvest time, to collect the household∗s payment and sell them at the market. Another possibility is to pay the premium by giving work time to the insurance (for example, in a field from which the harvest is then sold) of course, the work required must be reasonable and should not become an exploitation of already vulnerable households. The "amount" of the payment in kind or in work must be clearly defined to avoid exploitation. (Morestin & Riddle, 2009)

2.7.5 Loans to help pay the premium

This is not directed at households who are permanently without money, but rather to those who are moderately poor and able to pay the premium, although not all at ones. Institutional support (insurances community associations, administrations) is important to facilitate access to loans for moderately poor households. (Morestin & Riddle, 2009)

2.7.6 Payment of the premium at harvest time

Households in the poorest quintile primarily harvest earnings to pay the premium. If a lump sum payment is required, it must at least be after the harvest. (Morestin & Riddle)

When the program starts and for renewing purpose, Premium payment period of CBHI scheme of kilte Awlaelo district is at the end of harvesting period in January. Households decided to enroll to the program for the first time can pay their premium based on their own deccition.(Kilte Awlaelo CBHI office,2014)

2.8 Non- insured health expenses, co-payments and post-payment reimbursement

Health care services utilization depends on numerous factors. Many are outside the control of the insurance companies. However, they have to do with way insurances work, which allows certain financial obstacles to persist. (Morestin &Riddle, 2009)

2.8.1 Non –insured health expense

These remain entirely the responsibility of the insured. According to the insured of SEWA in India, an important obstacle to hospitalization is the cost of transportation to the hospital, often very high for those in rural areas, and covered by SEWA. (Morestin & Riddle, 2009)

In Kilte Awlaelo district, transportation costs, out-patient bedrooms, food drink and other related costs are entirely the responsibility of the insured. Even the kebele where the insured lives may be run out of road facility, insured households are responsible to come in any way to the health institution to get health care delivery. Car accidents and man accidents did not consider in the insurance. (Kilte Awlaelo CBHI office, 2014)

2.8.2 Co-payments

Often, even for insured services, the insurance reimburses only part of the expenses and the remainder (co-payment) must be paid by the insured. (Morestin & Riddle, 2009)

2.8.3 Post –payment reimbursement

Some insurance let the insured pay the costs of services and then reimburse them afterward. Yet lack of money is the greatest obstacle for their members when they require hospitalization. People know that if they borrow the money required, the interest will grow while they are waiting for reimbursement from the insurance, which can take weeks or months. Moreover, there are costs associated with the reimbursement process; to obtain the required supporting documents (transportation to the health facility, payment charged by the doctor to reduce the documents); to submit the reimbursement request (transportation to the insurance office); to deposit the reimbursement cheque (transportation to the bank); and all of this,, without country the hours of work lost for these activities. (Morestin & Riddle, 2009)

2.9 measures to reduce obstacles to service utilization for the poor insured.

According Morestin & Riddle, 2009 there are measures to reduce obstacles to service utilization for the poor insured.

2.9.1. Reduction of, or exemption from, co-payment

One of the solutions to reduce obstacles to service utilization for the poor insured is.co-

payment varies according to the insured∗s income; like indigents, poor, middle class and well off. The insured even the indigent, use many services than do the non-insured. However, comparisons of the insured indifferent socio economic groups are ambivalent. These who are less well-off have higher rates of visits, but lower rates of hospitalization and surgery than those who are better off .Another option would be to exempt the indigent from all co-payments.(Morestin&Riddle,2009)

2.9.2. Financial agreement between insurance and health care provider

CBHI has an agreement with a hospital in the region or in the districts. In case of hospitalization, the insured present the hospital with a letter of guarantee from their mutual, and they are treated without having to pay. If the total cost for services exceeds the maximum ceiling for coverage, the insured will reimburse the coverage to the mutual in several installments. However, despite this measure, the probability of using a hospital is still largely determined by the income of the insured. (Morestin & Riddle,2009)

In kilte Awlaelo district, there is financial agreement between CBHI scheme of the district and health care provider found nearby and even with Ayder referral hospital and Quiha hospital. In case of any illness the insured present the hospital with membership card prepared by the CBHI having stamp and sign of CBHI coordinator, and they are treated without having to pay, but it should be based on the Agreement listed down. The agreement shows, any insured having illness should present in nearby health center and with referral papers to any hospitals who have signed the agreement. If not the individual will pay 50 percent of the total cost incurred for the treatment. But, it is based on the type of illness. If it is urgent and natural disaster insured has to present in the hospital and they will get service without having any payment. (Kilte Awlaelo CBHI office, 2014)

2.9.3. Simplified reimbursement procedures

Up on arrival at the hospital, the insured has the hospital contact. The local CBHI representative, who goes to the hospital within 48 hours and reimburses the insured for costs already incurred. Then on the day the insured is discharged. The CBHI representative reimbursed the reminder of the health expenses and collects himself the required supporting documents. In this way, the insured is reimbursed without delay and without complicated procedures. We note

that the insured who opt for this system are poorer than those who choose to be reimbursed later and the reimbursement at least cost or does not cost any thing.it is surprising that service utilization among the poor insured is sometimes constrained even insurances adopt supportive measures. This does not mean that these measures are in effective, but rather that they act upon only the utilization limiting factors. (Morestin &Riddle, 2009)

In kilte awlaelo district reimbursement is done after a board of CBHI has approved it the board has a meeting program quarterly. For example, if there is no availability of medicine in the store of the health institution, the individual will buy out side and he should provide legal receipts and prescriptions given. The reimbursement will do after the approval of the board which takes time, too. (Kilte Awlaelo CBHI office, 2014)

Chapter Three

Data and methodology

3.1 Description of the study area

Kilte awlaelo woreda is found about 43 km far from Mekelle to the north part of Tigray. The woreda is sub divided to 19 kebelles. Based on 2005 E.C projection, the total population is expected to be 119,772 of which 58,438or 48.8 percent is males. Its land size is 1016.56km.Altitude of the woreda ranges from1900-2100 m above sea level. There are five health centers and 16 health posts constracted by NGO,government budgets and the population. Based on the statistics the index shows 0.042 health post per 1000 population and the 0.134 health center per 1000 population.(kilte awlaelo finance and developmental plan office)

Table 3.1 number of health institutions

no	Thabia	Health center	Health post
1	Gemad	-	1
2	Abrehawe –atsibeha	1	-
3	Mesanu	-	1
4	Negash	1	1
5	Debrebirhan	-	1
6	Mahbereweini	-	1
7	Thaeda naele	-	1
8	Myquiha	1	1
9	Agulae	1	-
10	Hadnet	-	1
11	Genfel	-	1
12	Tsigereda	1	-
13	Tahtay adekesanded	-	1
14	Kihen	-	1
15	Hayelom	-	1
16	Gule	-	1
17	Aynalem	-	1
18	Debretsiyon	-	1
19	Laelay adekesanded	-	1
	Sum	5	16

Source; kilteawlaelo finance and developmental plan office 2014

Its annual rainfall ranges from 150-600 mm and is structured with low lands and highlands. Most of the settlement structure of the people is rural areas and there are growing small towns which did not contain full characteristics of a town. Its annual temperature also ranges from 17 to 20 degree centigrade. The population is agrarian way of life. There are only 543 trader households leaving by trade. There are 65 schools in the woreda of which three are high school.

Table 3.2 Household leader of kilte awlaelo woreda

no	Thabia	Household leader
1	Gemad	945
2	Abrehawe –atsibeha	1029
3	Mesanu	1327
4	Negash	1821
5	Debrebirhan	1031
6	Mahbereweini	1219
7	Thaeda naele	881
8	Myquiha	1658
9	Agulae	1127
10	Hadnet	1318
11	Genfel	1359
12	Tsigereda	1556
13	Tahtay adekesanded	1238
14	Kihen	1102
15	Hayelom	1703
16	Gule	841
17	Aynalem	1665
18	Debretsiyon	1583
19	Laelay adekesanded	819
Sum		**23403**

Source; KA CBHI office, 2014

Kilte awlaelo is one of pilot woredas for community based health insurance schemes selected. CBHI program has been practicing starting from January 2004 E.C and all kebeless are included in this pilot research. (kilte awlaelo finance office)

3.2 source and Methods of data collection

This research uses primary data as well and secondary sources. The primary sources was collected based on structured questionnaires. This method helps me to acquire true evidence. This research is based on quantitative household survey data and qualitative data which will be collected through interviews and through the use of indirect focus group discussion in the (IFGD), KA-CBHI office and institutional documents. The indirect focus group discussion is with purposively selected insured and non-insured households from the intervention districts. Since there is no much difference in the socioeconomic characteristics of the kebelles with in the district in the Ethiopian context, four villages randomly selected from the district. Again 18 households (six members and twelve nonmembers of the CBHI scheme) are selected from all kebelles for indirect discussion based on kebelle administration information. The researcher considers gender, education occupational and age difference among the participants of the indirect focus group discussion are of it. Seven literate and 11 illiterate participants are selected.11 members of FGD are males and the remaining 7 are women. Four individuals are selected from each kebelle and the remaining 2 are from woreda CBHI office.

Participants of the indirect FGDs was elaborated their understanding about health insurance and how they become aware of it.

The conventional survey is primary method used to collect the quantitative types of data for this research a thoroughly designed questionnaire consisting of interrelated questions is developed. Eight enumerators are chosen and they administer the questionnaire under the close supervision of the principal investigator. They have taken an orientation about the purpose and nature of the questionnaire. Most of enumerators are highly experienced on data collection In HDSS (health and demographic surveillance systems) and they have great and cloth relation with the people and administration of the study area.

3.3 Sample size and Sampling technique

There are several approaches to determine the sample size. These include using a census for small populations, imitating a sample size of similar studies, using published tables, and applying formulas to calculate a sample size.

This study applied a simplified formula provided by Yamane, (1967) to determine the required sample size at 95% confidence level, degree of variability = 0.5% (0.05 level of significance)and level of precision =9%.and

$$n=N/1+N(e)^2$$

where n is sample size, N designates total population and represents level of precision, but this study uses 400 sample size. 400 sample sizes are determined. 120 or 30 percent of this sample are control group of households and the remaining around 70 percent or 280 samples are treatment groups. The sample is distributed equally to randomly selected 4 kebelles and a total of 100 samples are collected in each kebelles. This study uses stratified random sampling technique by insuring that all parts of the population are represented in the sample in order to increase the efficiency and to obtain estimates of known precision for each subdivision. The population is divided in to disjoint subgroups, insured and uninsured strata. From each stratum a sample of of pre specified size is drawn independently in the insured and uninsured strata and a random sample selection scheme is used in each stratum. Based on the data of KA-CBHI office, it is only 30 percent of households are enrolled in the scheme.

3.4 Methods of data analysis and measurement of variables

Assumption of the model

Heckman model requires the following BASIC ASSUMPTION

i. $(\mu, \varepsilon,) \sim N (0\ 0, \sigma_\varepsilon^{\ 2}, \sigma_\mu^{\ 2}; \sigma_{\mu\varepsilon})$, bivariate or joint normal distribution of error term;assume joint Normality of the distribution of the error terms in the participation and outcome equation
ii. (μ, ε) is independent of X and Z; assumes that both error terms are independent of both sets of observables.

The research uses both descriptive and econometric method of data analysis. Descriptive analysis uses for quantitative data found from indirect focused group discussions and other data provided by health institutions and CBHI office data mean frequency and percentage descriptions.

The quantitative data collected from each selected households is analyzed using econometrics tools of STATA .the data is analyzed using Heckman model.

Heckman selection model is a method used for addressing selection bias. In the regression context, self-selection bias occurs when one or more regressors are correlated with the residual term of outcome equation. The residual captures the effects of all omitted and imperfectly measured variables. Thus any regressors that are correlated with the unmeasured or mismeasured factors that are correlated with the the unmeasured or mismeasured factors will end up proxying for them. If a regressor ends up proxying for those factors, we cannot interpret its estimated coefficient as the effect of that regressor per se, since it also captures part of the effect the omitted or mismeasured variables.(Heckman 1979)

According Heckman selection model, if selection into the sample is random we can use outcome equation only. Since this researcher uses random sampling, the researcher can use outcome equation only. To use Heckman, two step method or need to estimate two regressions simultaneously.

The first is to use a probit regression to predict the probability of the outcome equation. The second is either a linear (OLS) or probit regression equation.

The researcher is used STATA test for selection bias. If rho is 0, there is no selection bias and if rho is not zero, there is bias and the researcher should present the estimates from the equation.

The researcher estimate the model using maximum likelihood or two step options. Because two step option is useful if ML will not converge. (Heckman1979)

The pilot scheme has a voluntary nature and the intervention districts contain two types

of households; those who enroll in the CBHI program and those who are in the CBHI is offered and who do not enroll. The outcome equation variable of the regression equation is observed for both dummy variables (in this case for both the insured and uninsured households).

The expected regression analysis of the study is (for both health service utilization and financial burden reduction).the outcome equation is

$$\text{Utilization}(y) = \beta CBHI + \alpha x_1 + \Upsilon x_2 + \text{Ø} x_3 + \mu x_4 + \hbar x_5 + \hat{w} x_6 + \delta x_7 + \varphi x_8 + \psi x_9 + \omega x_{10} + e x_{11} + Ɛi$$

Outcome equation= βCBHI +hhsex+age+hhsize+hhcomposition+educationalstatus+ethinicgroup +marital status + religion +hhincome+ distance+ information + Ɛi

Where the dependent variable (y) stands for the outcome of the interest (health service utilization), CBHI is a dummy variable for CBHI treatment status (CBHI=1 if the household participates in the scheme, 0 otherwise). X_1 stands for sex of household leader of the household leader, x2stands for the age of house hold and x_3 take household size of the household, x_5 stands for educational status of the household leader,x_9 stands for household income,x_{10} stands for distance from health institution and x_{11} stands for information which could potentially affect the outcome of the household and schemes uptake. Demographic characteristics and stage of life like religion, family composition, marital status, ethnic group and distance from health institutions are variables denoted by x_8,x_4,x_7, x_6 respectively .Finally, Ɛi is stochastic error term which captures all unexplained variables that has potentially affect the outcome variable(y) and the Ø, ϒ,α, β,μ,δ,ŵ,ħ , φ, ψ ,e and ω are coefficients(parameters) to be estimated.

3.4.1 The dependent continuous variable (health service utilization)

Health service utilization explains how households use health care service in health service institutions where CBHI schemes are established for decreasing financial risks. utilization is a continuous dependent variable and measured by Heckman selection model(two step) since two step is efficient in measuring coefficients and determining high level data with simple way.

3.4.2 Independent variables

The independent variables expected to have association with food security status were selected based on available literature.

Tabel 3.3 list of independent variables

no	Variable name	dependent	independent
1	sex		independent
2	age		independent
3	Household size		independent
4	Household composition		independent
5	Educational status		independent
6	Ethnic group		independent
7	Marital status		independent
8	religion		independent
9	Income of the household		independent
10	Distance		independent
11	CBHI	Independent in outcome equation	dependent in decision equation
12	information		independent

sex explains whether the household leader is male or female and directly affects the utilization level of the household. Mothers and fathers have difference concentrations in their life. Most of the time, fathers are considered as workers out side home and mothers considered as home workers. Therefore, mothers may be more sensitive with health and health related issues and fathers my not be that much. Whether the household leader is male or male finally affects the household's health service utilization.

Age of the household leader indicates whether he is elder young or classed in the middle class. Age of the household is related with its activity in the community whether he/she accepts new things easily or reactant. So that people∗s age considers the ability to decide in any activity in relation to the household decision. The decision may contain risks and the risk is also in the

load of the household leader. Household leader age ,therefore, can affect whether his/her household enrolled to CBHI or not.

Size of the household also explains whether the household have more members or not and directly affects the health service utilization level of the house hold.a household having more children consumes more and its budget for month is not equal to a house hold with parents only. The same is true for health service. More household size has more opportunity of having more level of utilization.

Household composition also affects health service utilization based on whether all are females, males or remix. There is a difference between male and female in use of health service. Most of the time households are sensitive to illness of males than males.

Educational status of the household leader –this explains whether the household leader has literate or not. This refers to of formal schooling a farm household head completed. Formal education enhances farmers' ability to perceive, interpret, and respond to new events in the context of risk. Education is, thus, hypothesized to increase the probability of farmers' participation in CBHI Program and hence increases household health care utilization.

Ethnic group of the household leader also affects the household level of health care utilization. Because, differ in ethnic group will need additional effort to socialize with residents in terms of culture, language and other values given by the society, but most researchers reject it from use.

Marital status distinguishes between widow, single (never married), divorced/separated, with married or living as a couple as the reference category. A single decision maker in a household and a decision of composition of two people may not be the same. Two people together may have different ideologies. This also affects the family's status of health service utilization.

Religion also affects whether an individual uses health services when he gets illness. There are cultural medicines the community uses when he gets illness and there are believes which restrict people not to use the scientific medicine. So that, a religion of a family highly affects an individual use of health institution.

Income of the household contains all incomes entered in to the account of the household and purposely for all expenditures of the household. This directly affects the power of the household to have better health service utilization. Insurance is existed with the prevalence and

existence of risks on the believe that the current income is not quit enough income. As income increases the need for insurance decreases and income is inversely related with insurance.

Distance of the kebelle from the health institution also affects individuals whether to get health service easily or not. As the health facility furs from the kebelle , individuals will look for additional costs for transportation. And this will also affect the health service utilization, mostly for rural households.

CBHI shows whether the household is a member or not. Since CBHI membership decreases out of pocket costs for illness being a member has a great power to affect the health care use of the household. CBHI is a dummy variable which contains 1if households are participants and 0 otherwise.

Error term

The stochastic error term (Єi). This term contains all variables which are omitted in this model and affects the dependent variable.

We know that heckman selection model states if a survey is done using random sampling technique, we can only use the outcome equation. But for simplicity, when we use STATA, the software remind us to use selection(decision equation).and the selection equation should contain at least one independent variable which did not stated in the outcome equation. So that,
We will use CBHI as dependent variable in the selection equation

Decision equation

$$\text{Utilization} = \beta CBHI + \alpha x_1 + \Upsilon x_2 + Ø x_3 + \mu x_4 + \hbar x_5 + \hat{w} x_6 + \delta x_7 + \varphi x_8 + \psi x_9 + \omega x_{10} + \epsilon x_{11} + ui$$

$$CBHI = \alpha x_1 + \Upsilon x_2 + Ø x_3 + \mu x_4 + \hbar x_5 + \hat{w} x_6 + \delta x_7 + \varphi x_8 + \Omega x_9 + \bar{Y} x_{10} + \epsilon x_{11} + ui$$

Decisionequation=hhsex+age+hhsize+hhcomposition+educationalstatus+ethinicgroup +marital status + religion +hhincome+distance+ information+Ui

Outcome equation

Utilization =βCBHI +αx_1+Υx_2+$\emptyset x_3$+ μx_4+$\hbar x_5$+$\hat{w} x_6$+δx_7+ φx_8 +ψx_9 + ωx_{10} + Ɛi

Outcome equation= βCBHI +hhsex+age+hhsize+hhcomposition+educationalstatus+ethinicgroup +marital status + religion +hhincome+ distance +Ui

Chapter four

Data analysis and discussion

4.1 impact of CBHI on health care utilization

4.1.1 Descriptive analysis based on frequency

Health is the most sensitive element by nature. Any one wants to save his life from any injury that can harm it. People give much concern. Modern health institutions are health care providers which then people attend to treat from injury or illness. So that people develop habit of attending health institutions to examine his health problem and to get health care service to come back to its previous healthy status.

According this survey, households of members of CBHI program has higher opportunity of getting health care services.

Table 4.1 households with ill members

illness |	Freq.	Percent	Cum.
yes |	112	28.00	28.00
no |	288	72.00	100.00
Total |	400	100.00	

Source, field survey 2014

As table 4.1 indicates from a total of 400 household observations, there are only 28 percent or 112 households who have ill members and 72 percent of households do not have illness In the last two year.

Table 4.2 total ill household members

Key			
frequency			
column percentage			
	data		
Ill hh	control	treatment	Total
1	18	23	41
	66.67	27.06	36.61
2	3	27	30
	11.11	31.76	26.79
3	2	16	18
	7.41	18.82	16.07
4	2	7	9
	7.41	8.24	8.04
5	1	5	6
	3.70	5.88	5.36
6	0	4	4
	0.00	4.71	3.57
7	0	2	2
	0.00	2.35	1.79
8	1	1	2
	3.70	1.18	1.79
Total	27	85	112
	100.00	100.00	100.00

Source; field survey data 2014

As indicated on the above table the left hand side column written as total indicates number of households who have ill household members .in the first row of the table 4.2 households have one ill member and 30 households which are 26.79 percent of households

report illness contains 2 ill members each. 51 ill members from the control group and 224 individuals from treatment group report illness and get health care service.

When we come to total household members who get health care service in both of the households (control and treated) are not equal. There are 27 members of the control group get health care service. When we see the number of ill household members of the treated group, 224 members get health care service. Based on the level of use of health service it is still members have highly using health care institutions.

Table 4.3 frequency of using health care services of individuals

data		
frequency	control	treatment	Total
1	17	16	33
	62.96	18.82	29.46
2	4	21	25
	14.81	24.71	22.32
3	2	18	20
	7.41	21.18	17.86
4	2	5	7
	7.41	5.88	6.25
5	0	7	7
	0.00	8.24	6.25
6	1	5	6
	3.70	5.88	5.36
7	0	4	4
	0.00	4.71	3.57
8	1	5	6
	3.70	5.88	5.36
9	0	4	4
	0.00	4.71	3.57
Total	27	85	112
	100.00	100.00	100.00

Source, field survey 2014

The above table shows the frequency of individuals using health care institutions for their health care. the left hand column designated by q229 shows how much time individuals get health service by health care providers. There is a great difference between the frequency of individuals getting health care service in the control group and treatment group. 51 ill households of the control group got health care service 53 times.224 members of the treatment group got health care service 301 times.in general both ill members of control and treatment group get health service 354 times. So that being a member increases level health care utilization of individuals

4.2. Econometric analysis (Heckman selection model).

4.2.1 Factors affect households in participating in the CBHI program (Decision equation)

Based on Heckman selection model, when regress the total equation it indicates correlation of ethnic group and household composition with different variables. So, ethnic group and household-compositions are rejected due to correlation. Since decision equation should contain at least one variable which do not included in outcome variable, information is the variable which is included only in decision equation.

4.2.1 House hold income

People get more power to define and use different alternatives if his income is high. Insured people indicate they are not quite sure about the future and want to protect themselves from unexpected occurrence of health shock at any time. If people have enough money or income, they are not interested to become a member in the insurance from the fact that they have the power and resistance for any occurrence of health shock in the future. People with high income will not be a member in the CBHI program. As income of a household increases,the probability of participation in CBHI program decreases. Income and CBHI are inversely related and the sign of the coefficient is negative. Using Heckman selection model, the decision equation indicates as income of a household increases by one unit, the household∗s participation in CBHI program decreases by the coefficient 0.0000472.Income is strongly significant at 5 percent(0.003)but it is not as strong as household size.

Table 4.4 regression function of the selection (decision equation)

prob dummy_CBHI hhlsex hhlage hhsize edustatus maritalstatus hhreligion hhincome distance information

```
Iteration 0:   log likelihood = -244.34572
Iteration 1:   log likelihood =  -128.9736
Iteration 2:   log likelihood = -107.06359
Iteration 3:   log likelihood = -105.84323
Iteration 4:   log likelihood = -105.84153
Iteration 5:   log likelihood = -105.84153

Probit regression                                 Number of obs   =        400
                                                  LR chi2(9)      =     277.01
                                                  Prob > chi2     =     0.0000
Log likelihood = -105.84153                       Pseudo R2       =     0.5668

------------------------------------------------------------------------------
  dummy_CBHI |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      hhlsex |  -.0095897   .2839397    -0.03   0.973    -.5661013    .5469219
      hhlage |  -.0004589   .0029366    -0.16   0.876    -.0062146    .0052967
      hhsize |   .1880505   .0445695     4.22   0.000     .1006958    .2754051
   edustatus |   .1739042   .0862197     2.02   0.044     .0049167    .3428916
maritalstatus |  -.1168173   .1009127    -1.16   0.247    -.3146025    .0809679
  hhreligion |   1.557994   1.523234     1.02   0.306     -1.42749    4.543477
    hhincome |  -.0000472   .0000157    -3.02   0.003    -.0000779   -.0000165
    distance |  -.3443825    .036488    -9.44   0.000    -.4158978   -.2728673
 information |   .4638692    .162511     2.85   0.004     .1453535    .7823849
       _cons |  -1.455678   1.696639    -0.86   0.391    -4.781029    1.869673
------------------------------------------------------------------------------
```

Source, field survey 2014

4.2.2Household size

Increasing or decreasing in size of the household also affects people level of participation in CBHI. The above table indicates household size is positively related with CBHI program participation. Increase in size of the household by one member, the probability of the household participating in CBHI increases by the coefficient 0.1880505. Household size is strongly significant at 5 percent level of significance (0.000).

4.2.3 Educational status of the household leader

Based on the statistics of observation, more than 73 percent of the total observation household leaders are illiterate and 84.64 percent of illiterate household leaders are enrolled in CBHI program. CBHI is also strongly and positively related with membership or enrollment in CBHI program. As educational status of the household leader increases the probability of the household participating in CBHI program also increases. From the regression of decision equation, as educational status of the household leader increases by one unit, the probability of the household enrolling in CBHI program also increases by the coefficient 0.1739.Educational

status is significant at 5 percent significance level (0.044).

4.2.4 Information (knowledge)

The whole kebeles of kilte-awlaelo district are piloted to CBHI program. There were participatory meetings and trainings. These participatory programs help people to have information about the program. But the question is whether they have true information about the objective and procedure of the program or not. Having true information about the program, affect households to enroll in the program. Information is significant at 5 percent confidence interval (0.0004).As households having true information increases, the probability of these households participating in CBHI increases by the coefficient 0.4638.

4.2.5 Distance from health institution

To enroll in CBHI, households consider distance of health institution from home. As distance of health institution from home increases, people opened for additional transportation and other health related costs like bedroom and food, then decrease their interest t enroll in the program. There is negative relationship between distance and enrollment in CBHI. The regression estimates the coefficient of distance as negative to show that there is negative relationship between distance and enrollment. As home of the household distance from the health institution increases by one unit, the probability of the household to enroll in the program decreases by the coefficient 0.3443825. Distance is strongly significant at 5 percent level of significance (0.00).

4.3. Significance Measurement of outcome equation)

4.3.1 Significance Measurement of CBHI on utilization

Utilization is a continuous variable and measured using Heckman selection model to measure extent of household's utilization status during the last to years and three months were CBHI applied its program on the ground. Health care utilization of households can be measured in terms of frequency which explained on 4.1.1using descriptive analysis using the impact of enrollment in CBHI program. Utilization can also be measured by using the best impact assessment model for cross sectional data called Heckman selection model. Heckman's first insight in his 1979 *Econometrica* paper was that this is can be approached as an omitted variables problem. An estimate of the omitted variable would solve this problem and hence solve

the problem of sample selection bias. The unit of measurement is number of individuals who has gone to the health institution.

From the OLS regression function explained under table, there are more variables expected to affect the dependent variable, utilization. The dummy variable CBHI affects level of health care utilization of households. From the 95% confidence interval, 5% percent level of significance, CBHI is strongly significant with coefficient of 1.680442. A household being a member in the CBHI program increases the probability of utilization of the household by the coefficient 1.680442.

4.3.2 Significance measurement of household size on utilization

Unit of measurement for utilization is the number of individuals who has gone to the health institution. From table 4.5, at 95 percent confidence interval and 5 percent level of significance, CBHI is strongly significant with the coefficient 1.68.household size is strongly significant with coefficient of 0.2770769. A household increase by one individual increases the utilization level a household by 0.2770769.

Table 4.5 utilization measurement using Heckman selection model

```
reg utilization hhlsex hhlage hhsize edustatus maritalstatus hhreligion hhincome distance dummy_CBHI in vmills1


      Source |       SS       df       MS              Number of obs =     170
-------------+------------------------------           F( 10,   159) =   14.17
       Model |  309.925785    10  30.9925785            Prob > F      =  0.0000
    Residual |  347.697745   159  2.18677827            R-squared     =  0.4713
-------------+------------------------------           Adj R-squared =  0.4380
       Total |  657.623529   169  3.89126349            Root MSE      =  1.4788

------------------------------------------------------------------------------
  utilization |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
       hhlsex |  -.0242341   .3722639    -0.07   0.948    -.7594538    .7109856
       hhlage |  -.0007876   .0020762    -0.38   0.705     -.004888    .0033128
       hhsize |   .2770769   .0579246     4.78   0.000      .162676    .3914777
    edustatus |   .0177115   .0971978     0.18   0.856    -.1742537    .2096768
maritalstatus |   .0371947     .12917     0.29   0.774    -.2179156     .292305
   hhreligion |  -.1047539   .8708663    -0.12   0.904    -1.824712    1.615204
     hhincome |  -4.72e-07   5.84e-06    -0.08   0.936     -.000012    .0000111
     distance |  -.0421689   .0411115    -1.03   0.307    -.1233639    .0390262
   dummy_CBHI |   1.680442   .3318066     5.06   0.000     1.025126    2.335759
    invmills1 |   .0896189   .2858264     0.31   0.754    -.4748872     .654125
        _cons |   .8713887   1.124542     0.77   0.440    -1.349577    3.092354
------------------------------------------------------------------------------
```

Source; field survey 2014

4.4 Promotional measures provided by CBHI for better access to modern Health facility to its members.

4.4.1 Participatory program

From the beginning, the concept of CBHI has expanded to the community based on different training, public meeting and through woreda and kebele level committee good communication and public awareness activities has done. From the total of 280 observation of control group, it is the only one household who did not know what CBHI is. The rest they do have the information and concept about the CBHI.

The survey indicates 95% of the control group has the concept what CBHI is at least voluntary membership.

4.4.2 Payment period on harvest time

Any newly enrolled or only member to renew the membership consider the period where hh have the chance of getting income for the premium payment. It is during the harvesting time that CBHI officers collect the premium payment of household renewal period starts on the January. The period where farmers collect at least some parts of their seeds and they will have a chance of getting an income for their renewal if members were forced to renew their membership by paying the premium payment, they con enforce to sell capital stock like animals. Selling asset aggravate the presence of poverty unlike the objective and nature of CBHI.

4.4.3 Low level of premium

Before CBHI Starts on the ground, it has been exercising the challenge and opportunity of CBHI for two years. It is after that CBHI comes in practice. There were public meeting in relation the overall concept and objective of CBHI including the level of premium. A household pays 132 birr annually whether uses his coverage or not. If we calculate in month household can pay 137 by saving around 4.57 birr per day. For enrollment period .after once becomes a member. The same household can pay his renewal premium of 135 birr by saving 0.37cents daily.

The survey indicates more than 91% of households do not have the complain that the premium is very high. It is only due to other reason like mismatch with local government and lack of coordination that they are still unenrolled.

4.4.4 Premium subsidy

This is also the best motive that indigent of premium is fully subsidized by the district woreda and regional government. This also decrease the risk of indigent that can be distributed to the community they live around.

Based on KA-CBHI office data, at woreda level there are 2595 households that freely use health care service due to full subsidy of the government. For the indigent a total of birr 342,540 birr is subsidized. Indigents are defined by the community and it is not always given to the same individual income level of indigents are always defined and an indigents today or this year may not belong to this group next year those households create capacity of paying a premium will be out of the group and replaced by other households.

4.4.5 Official Agreement with Health Care Provider

The KA-CBHI office has made an agreement with government health institution (health care provider) including Quiha and Ayder Referral Hospital.

As the survey indicates 92% of the households have got immediate service after being a member. There is no any delay or wasting time to use health care service being a member. Additionally 92% of the treated households agreed that CBHI gives health care cost coverage based on the contract agreement and promises done with the community and health provider.

The health providers also give health care service as any citizen who is not a member get health care service by incurring cost out of pocket payment. 97.5% of the treated households respond that CBHI minimize cost of health care service incurred by households themselves. So that more than 93% of treated group has renewal currently their membership and more than 97.5% has planned to renew their membership even next year.

4.5 Health care service utilization among members and nonmembers

When we see level of utilization, there is a great difference between member and nonmember households.

As indicated on table 4.2 they are only 51 individuals of the control group get health care service and a total of 224 individuals of treatment group get health care service. Comparing the two groups in terms of utilization, there is a big difference in level of utilization due to the CBHI contribution to the individuals enrolled on it. On the other hand, can understand from the survey how much ill household members did not get health care service.

Table 4.6 Households with untreated illness

untreated	Freq.	Percent	Cum.
yes	34	8.50	8.50
no	366	91.50	100.00
Total	400	100.00	

Source; field survey 2014

As indicated on the above table 4.6, out of 400 observations 34 households respond that there are members who develop illness but did not get health care service.

Table 4.7 untreated ill individuals

	data	
untreated	control	treatment	Total
1	18	1	19
	54.55	100.00	55.88
2	9	0	9
	27.27	0.00	26.47
3	2	0	2
	6.06	0.00	5.88
4	1	0	1
	3.03	0.00	2.94
5	2	0	2
	6.06	0.00	5.88
8	1	0	1
	3.03	0.00	2.94
Total	33	1	34
	100.00	100.00	100.00

Source, field survey 2014

As shown in table 4.7, out of 34 household observations, more than 96 percent (33) are from control group. And the remaining is from the treatment group. On the treatment group, there is only a single individual who did not get health care service. But in the control group, there are 64 individual members who develop illness but did not get any health care treatment. As the data indicates the level of utilization of CBHI members is greater than the nonmembers not only because of the untreated members but also even based on the number of treated individuals due to their illness in both groups.

4.6 The role of CBHI in reduction of financial burdens of illness fees of members

When individual households enrolled in to the CBHI program, they are only paying membership premiums yearly. Once pay the premium, households use health care service freely until the renewal period. But it is not allowed to use health care service in health care providers who did not sign any legal agreement with CBHI office. Any member should use service based on the structure of health care facilities. A member should use first in health centers and go to hospital with referral explanation if cannot be treated in the health care. But this rule is not always applied. If accidents happened and needs a direct service in district or referral hospital, CBHI is accountable to total payment fees. Out of this, coming to hospitals without any referrals, account the individual to pay 50 percent of the total expenditure for the time he is getting service. CBHI incurred a total cost of 54877 for all individuals who received health care services in health care providers. The survey indicates the control group pays a total cost of Birr 22,529 OOP (out of pocket payments) ranged from Birr 20 to Birr 3000. An individual household adversely affects his living standard if pays up to Birr 3000 out of pocket. The household will be benefited if becomes a member. Because, the maximum cost incurred for premium payment for the last three years is Birr 548 on average.so that the researcher believes that participating in CBHI program decreases cost of illness payments and people motivate to use more health care service due to less amount of payment for service delivery.

Table 4.8 Household OOP and CBHI

```
. summarize treatedcost controlcost
```

Variable	Obs	Mean	Std. Dev.	Min	Max
treatedcost	85	649.2706	805.1833	20	4000
controlcost	27	834.4074	715.725	50	3000

Source, field survey 2014

The above table indicates that an individual control house hold pays up to 3000 birr. But he were a member in the CBHI program, he has an opportunity of paying up to five hundred birr. This show how an individual affects due to health care out of pocket payments. Those members of CBHI also cost up to 4000 birr which is already incurred by the program. This is due to risk distribution created by the program called CBHI.

Chapter Five

Conclusion and Recommendation

5.1 Conclusion

This research presented the impact of community based health insurance in kilte-awlaelo woreda. The researcher sought to evaluate whether or not Community based health insurance had an impact on health care utilization. Given the burden of diseases and the resource constraints faced in the world today, this type of evaluation is useful.

Based on the survey data the control group appears to utilize less health care than the treatment group. In addition, the data shows that, about 30 percent of the total household enrolled in the scheme. Some individuals more likely to enroll than others.

Utilization is measured and defines being a member in the scheme increases the level of utilization because of decrement in household cost for illness. The evidence shows that even in terms of frequency, Treated groups are highly utilize their health care and are more likely to attend health care providers even for simple sickness. The researcher also fined that community based health insurance enhances financial protection that reduces out of pocket health expenditure. Increased health care utilization has increased awareness and knowledge.

The promotional measures undertaken by community based health insurance also create awareness to the people. According to the survey, from 120 observations of treatment group, only one household says Community based health insurance cannot increase utilization. The remaining 119 households believe that Community based health insurance increases health care utilization. 98 percent of treatment respondents believe that Community based health insurance minimize health care related risks and 98 percent of treatment group respond that Community based health insurance improves health care access and minimizes health related risks.

Health care providers also benefited from the program with financial sources. Let's take premium subsidy alone, in the last two years, Kilteawlaelo community based health insurance provides full subsidy for 2595 indigent households with no probability of getting health care. If all indigents attend health care and uses the budget totally, institutions will get Birr 342,540 which is regarded us new comers to the health care institutions.

In sum, this study fills a gap in the knowledge whether Community based health

insurance membership increases utilization or not and this will create a ground at least to think of it .It is with such knowledge that evidence based policy can be made and implemented for the purpose of having a true impact on the lives of the poor and vulnerable.

5.2 Recommendation

States can improve community risk management to informal sector workers and rural society and reduce poverty by promoting community financing innovations like community financing schemes and stakeholders. Community financing schemes may help overcome some of the challenges facing the poor by reducing costs of illness payments while addressing ,financing and service provision issues.

Capacity building is key. Without necessary skills and knowledge of insurance concepts among both recipients of health care services and those managing these insurance schemes, success is unlikely. People have general concepts about community based health insurance, but most them are unclear about detail concept and procedure of Community based health insurance. They do not have clear information about the environment they live in and what type of opportunities and challenges are there. People not strongly relate risks and Community based health insurance program. People also relate Community based health insurance with woreda and kebelle administration issues. This is one truck people hinder not interestingly participate in the program without considering the fact behind Community based health insurance program.so that strong advertisement should be undertaken through mass medias where rural people have an access.

Partnering with existing organizations, hospitals and health care providers or nonprofits is also important. These partnerships provide important connections to the community and can facilitate a process that best meets people's needs while including as many people as possible in coverage.

There are not few in number that due to community based health insurance financial protection who got normal health states where they have been aggravating their life through health care problems before, since they did not have enough income to pay what were asked for hospitalization fee.

Community based health insurance is not only increases utilization, but also finds out the prevalence and top diseases in the community which helps policy makers.

Policy makers decide how to use their resource to mitigate health care risk; they must

consider numerous policy challenges. CBHI schemes can be an important first step in insuring better access to health care for the poor, but to reduce poverty, broader coverage and scaling up are essential.

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Appendix

Table 1: Household leader by sex			
|----------|			
| frequency |			
| column percentage |			
+----------+			
| data			
hhlsex |	control	treatment |	Total
----------+	----------+	----------	
male |	155	96 |	251
|	55.36	80.00 |	62.75
----------+	----------+	----------	
female |	125	24 |	149
|	44.64	20.00 |	37.25
----------+	----------+	----------	
Total |	280	120 |	400
|	100.00	100.00 |	100.00

Table2. Household's enrolment rate with educational status.			
edustatus |	control	treatnmen |	Total
----------+	----------+	----------	
illiterate |	237	56 |	293
|	84.64	46.67 |	73.25
----------+	----------+	----------	
literate |	2	9 |	11
|	0.71	7.50 |	2.75
----------+	----------+	----------	
first cycle finished |	23	34 |	57
|	8.21	28.33 |	14.25
----------+	----------+	----------	
second cycle finished |	10	14 |	24
|	3.57	11.67 |	6.00
----------+	----------+	----------	
secondary schoolfinis |	7	7 |	14
|	2.50	5.83 |	3.50
----------+	----------+	----------	
Preparatory finished |	1	0 |	1
|	0.36	0.00 |	0.25
----------+	----------+	----------	
Total |	280	120 |	400
|	100.00	100.00 |	100.00

Table 3: Household size and enrollment			
hhsize	control	treatment	Total
1	50	2	52
	17.86	1.67	13.00
2	44	7	51
	15.71	5.83	12.75
3	56	7	63
	20.00	5.83	15.75
4	32	11	43
	11.43	9.17	10.75
5	15	19	34
	5.36	15.83	8.50
6	28	20	48
	10.00	16.67	12.00
7	19	26	45
	6.79	21.67	11.25
8	24	16	40
	8.57	13.33	10.00
9	9	7	16
	3.21	5.83	4.00
10	1	5	6
	0.36	4.17	1.50
11	2	0	2
	0.71	0.00	0.50
Total	280	120	400
	100.00	100.00	100.00

Source; field survey 2014

Table 4: Households enrollment and religion

hhreligion	control	treatnmen	Total
Orthodox	279	117	396
	99.64	97.50	99.00
Muslim	1	3	4
	0.36	2.50	1.00
Total	280	120	400
	100.00	100.00	100.00

maritalsta tus	housholds marital status: control	treatnmen	Total
single	17	5	22
	6.07	4.17	5.50
married	136	95	231
	48.57	79.17	57.75
separated	6	3	9
	2.14	2.50	2.25
divorced	49	9	58
	17.50	7.50	14.50
widowed	65	7	72
	23.21	5.83	18.00
cohabiting	7	1	8
	2.50	0.83	2.00
Total	280	120	400
	100.00	100.00	100.00

Table 5 age description			
hhlage	control	treatment	Total
18	1	0	1
	0.36	0.00	0.25
22	0	1	1
	0.00	0.83	0.25
24	0	1	1
	0.00	0.83	0.25
26	1	1	2
	0.36	0.83	0.50
28	5	1	6
	1.79	0.83	1.50
29	2	0	2
	0.71	0.00	0.50
30	12	4	16
	4.29	3.33	4.00
31	1	0	1
	0.36	0.00	0.25
32	2	4	6
	0.71	3.33	1.50
33	4	1	5
	1.43	0.83	1.25
34	2	0	2
	0.71	0.00	0.50
35	9	4	13
	3.21	3.33	3.25
36	6	1	7
	2.14	0.83	1.75
37	2	2	4
	0.71	1.67	1.00

38	16	7	23
	5.71	5.83	5.75
39	1	2	3
	0.36	1.67	0.75
40	19	8	27
	6.79	6.67	6.75
41	2	3	5
	0.71	2.50	1.25
42	6	6	12
	2.14	5.00	3.00
43	5	3	8
	1.79	2.50	2.00
44	0	3	3
	0.00	2.50	0.75
45	13	7	20
	4.64	5.83	5.00
46	7	4	11
	2.50	3.33	2.75
47	4	1	5
	1.43	0.83	1.25
48	4	7	11
	1.43	5.83	2.75
49	3	3	6
	1.07	2.50	1.50
50	18	8	26
	6.43	6.67	6.50
51	3	1	4
	1.07	0.83	1.00
52	1	3	4
	0.36	2.50	1.00

53	1	0	1
	0.36	0.00	0.25
54	4	1	5
	1.43	0.83	1.25
55	9	3	12
	3.21	2.50	3.00
56	6	3	9
	2.14	2.50	2.25
57	3	0	3
	1.07	0.00	0.75
58	1	2	3
	0.36	1.67	0.75
59	2	0	2
	0.71	0.00	0.50
60	25	2	27
	8.93	1.67	6.75
61	2	0	2
	0.71	0.00	0.50
62	4	1	5
	1.43	0.83	1.25
63	3	0	3
	1.07	0.00	0.75
64	6	1	7
	2.14	0.83	1.75
65	11	3	14
	3.93	2.50	3.50
66	4	5	9
	1.43	4.17	2.25
67	2	0	2
	0.71	0.00	0.50

68	3	1	4
	1.07	0.83	1.00
69	1	0	1
	0.36	0.00	0.25
70	14	2	16
	5.00	1.67	4.00
71	2	1	3
	0.71	0.83	0.75
72	2	1	3
	0.71	0.83	0.75
73	3	2	5
	1.07	1.67	1.25
75	5	1	6
	1.79	0.83	1.50
76	2	1	3
	0.71	0.83	0.75
77	1	0	1
	0.36	0.00	0.25
78	3	0	3
	1.07	0.00	0.75
80	9	1	10
	3.21	0.83	2.50
81	0	1	1
	0.00	0.83	0.25
82	1	0	1
	0.36	0.00	0.25
85	1	1	2
	0.36	0.83	0.50
90	0	1	1
	0.00	0.83	0.25

92	1	0	1
	0.36	0.00	0.25
Total	280	120	400
	100.00	100.00	100.00

Source, field survey, 2014