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COMMUNITY HEALTH FUND (CHF) IN TANZANIA: PREDICTORS OF AND BARRIERS TO ENROLMENT

By

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DECLARATION

This research is my original work, produced with normal supervisory assistance from my supervisor. All the relevant sources of knowledge that I have used during the course of writing this dissertation have been fully credited and acknowledged. Also, this dissertation has not been submitted for any academic or examination purpose at any other university.

Dereck Chitama **Date**

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Executive summary

BACKGROUND

Most low-income countries have not been able to fulfill the health care needs of the poor, and especially the rural population. Budgetary and other resource constraints in the health sector have been the major causes of this failure. Tanzania, like any other poor country is faced with challenges in health care financing, such that it cannot provide adequate cushion against health care costs for the majority of its population. One response to this situation was the health care financing reforms which among others saw the introduction of voluntary Community Health Fund (CHF) in 1996. The aim of the CHF was to mobilize resources through collection of prepayments from households on a voluntary basis to fund primary health care for people in the informal sector operating in rural areas. However, CHF membership (enrollment) has been reported to be below the targeted coverage of 85% of the population living in rural areas. The percentage of households joining CHF has been ranging from 4% to 18% in various districts. This low enrolment prompted the need to study the predictors of and barriers to enrolment in CHF.

OBJECTIVES

The main objective of this study is to investigate the association between the predictors of willingness to enrol and the actual CHF enrolment. In addition, the barriers to enrolment in CHF in the Tanzanian context are explored. Linked to this main objective are specific objectives which aimed to examine the relationship between individual/household characteristics and the enrolment in CHF. Secondly, the study intended to explore the barriers to enrolment in CHF and to make policy recommendations for improving CHF design and strategies to increase enrolment.

METHODS

This study used mixed method design specifically concurrent nested strategy in answering the questions. The mixed methods were quantitative and qualitative methods. The quantitative method was used as the predominant method, with the qualitative method embedded within that. The reason for this combination was to have a broader perspective of the CHF enrolment issue and hopefully respond to a number of different questions. Stratified random sampling procedures were used to sample the respondents. The sample size surveyed was 572 households. Both primary and secondary data were used and they were collected

using administered questionnaires and focus group discussions. Data analysis involved both quantitative and qualitative methods where binary logit regression model was used to analyze the predictors of enrolment and Miles and Huberman's qualitative approach was used to analyse the barriers to enrolment. All the analyses were done with the aid of computer software.

RESULTS

In the logit regression analysis, six of the hypothesized independent variables were significant with respect to the likelihood of enroling in CHF. The significant independent variables included members of micro credit/insurance/voluntary organizations, religion, household size, distance from the facility, illness rate and wealth (quintileB1). All the significant variables had the expected positive sign except QuintileB1 which had a negative sign. The insignificant variables included age, gender, education, marital status, type of facility, asset index A and B, quintile A (1-5) and quintile B (2-5). In addition, the logit regression analysis revealed there is adverse selection and social exclusion of the poorest in CHF. Social exclusion of the poorest translates to inequitable CHF in Tanzania. The qualitative analysis revealed the following as barriers to enrolment; shortage of competent technical staff, poor governance in health facilities, lack of client centered services, unreliable services, unaffordable premium, inflexible payment modalities, limited knowledge about CHF, health status, wait-and-see attitude, negligence, Patriarchal interests in the household and in some areas CHF was stopped to operate.

CONCLUSION

The current setting and design of CHF carries significant inherent weaknesses that contribute to low enrolment. It is therefore recommended the improvement of the quality of health care services in the health centers and dispensaries, redesigning of the CHF and CHF sensitization campaigns so as to attract more people to enrol into CHF. Redesigning of CHF will help to address the problems of social exclusion of the poor as well as adverse selection.

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List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
CBHF	Community Based Health Financing
CBHI	Community Based Health Insurance
CCM[1]	" Chama cha Mapinduzi"
CHF	Community Health Fund
CMS	Cooperative Medical System
CSSC	Christian Social Service Commission
DHS	Demographic and Health Survey
ELCT	Evangelical Lutheran Church of Tanzania
FBOs	Faith Based Organizations
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GOT	Government of Tanzania
HIV	Human Immunodeficiency Virus
IMR	Infant Mortality Rate
US$	United States Dollar
MCHA	Maternal and Child Health Aider
MDGs	Millennium Development Goals
MMHO	Maliando Mutual Health Organization
MoF	Ministry of Finance

[1] CCM is a Swahili acronym for the ruling political party in Tanzania

MoH	Ministry of Health
MVC	Most Vulnerable Children
MSD	Medical Store Department
NBS	National Bureau of Statistics
NGOs	Non-Governmental Organizations
NHIF	National Health Insurance Fund
NSSF	National Social Security Fund
PCA	Principal Component Analysis
PHNB	Public Health Nurse B
PRSP	Poverty Reduction Strategy Paper
RAWG	Research and Analysis Working Group
SHIB	Social Health Insurance Benefit
STIs	Sexual Transmitted Infections
Tshs[2]	Tanzanian Shillings
UMASIDA[3]	"Umoja wa Matibabu Sekta Isiyo Rasmi Dar es salaam"
UN	United Nations
UNDP	United Nations Development Programme
URT	United Republic of Tanzania
VCT	Voluntary Counseling and Testing
VIBINDO[4]	"Viwanda na Biashara Ndogondogo"
VIMHIPRO	Vibindo Micro Health Insurance Programme
WHO	World Health Organization

[2] US $1= Tshs 1,250.00 as at 15/12/2006

[3] UMASIDA is a Swahili acronym; in English it means Mutual Health Scheme for people in the informal sector.

[4] VIBINDO is a Swahili acronym, in English it is an umbrella organization of informal sector operators based in the Dar Es Salaam.

CHAPTER ONE

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

Most low-income countries have not been able to fulfill the health care needs of the poor, and especially the rural population (Bennett et al 1998; Jutting, 2003). Budgetary and other resource constraints in the health sector have been the major cause of this failure. Tanzania, like any other poor country is faced with challenges in health care financing, such that it can not provide protection against health care costs for majority of its population. In response to this situation, Tanzania took the forms of health care financing reforms which among others[5] saw the introduction of voluntary Community Health Fund (CHF) in 1996. The aim of the CHF was to mobilize resources through collection of prepayments from households on a voluntary basis to fund primary health care for people in the informal sector operating in the rural areas. The piloting of CHF began in 1996 in the Igunga district. After two years of successful operation in Igunga district it was rolled out to other nine districts. In 2001, the Community Health Fund Act was passed establishing CHF as official health financing policy for mobilizing funds at district or community level. Currently, about 69 out of 121 districts in mainland Tanzania have established and implemented CHF.

The advantages of community based health financing (CBHF)[6] over market based health insurance schemes can not be overemphasised. According to Bennett (1998) community based health financing has the advantages of cross subsidizing financial and health risk among the sick and healthy, rich and poor. Most important is the ability to reach low-income people in rural areas and those working in the informal sector (Abel-Smith and Dua, 1998). Also, it reduces the out of pocket expenditure by members and offers the potential for eventually achieving universal coverage and high cross-subsidization between high and low income household through future linking of the schemes to the

[5] More detail of other health care financing reforms is explained in the next chapter.

[6] According Bennett et al (1998), Hsiao (2001) CBHF is an umbrella term covering a range of health financing instruments with a number of similarities. CHF is one the financing instrument referred under CBHF. Therefore, the advantages of CBHF also apply to CHF. It is for this reason in the rest of this report the terms CBHF and CHF are used interchangeably.

formal sector. McIntyre (2007) defined universal health insurance coverage as system that provides all citizens with adequate health care, regardless of their employment status or any other factor. Universal coverage is one of the ultimate goals of health sector reforms in Tanzania.

Despite the above advantages, the proponents of community based health financing have been questioning its sustainability. This is because schemes of this kind are always difficult to sell where majority of people are poor and can not afford the premium. Hence the issues of efficiency and effectiveness of the scheme become important criteria for attracting people to join. According to McIntyre (1997) one of the criteria for evaluating the efficiency of the health financing mechanism is the level of funding that can be generated and the potential for this revenue to increase support of expanding health service provision. In other words the financial performance of the scheme is considered sufficient if it can raise enough revenue from the contributions of the targeted population. Therefore, the level of revenue generated from CHF largely depends on the extent of penetration to cover a wide spectrum of the targeted population.

Other things held constant the higher the enrolment the higher the volume of prepaid contributions. The higher the volume of prepaid contributions the more one can avoid financial consequences of treatment cost because both financial and health risk cross subsidization tends to work well. According to Wiesmann and Jütting (2000) the main factors that determine viability and membership are related to scheme design and management, behaviour of health care provider, household and individual characteristics. However, individuals or household's enrolment in CBHF is influenced by several predictors. Individuals could be willing to enrol but due to certain barriers, they may decide otherwise. Recognising that CBHF is a step toward universal health insurance coverage, there is much enthusiasm to study the predictor and barriers of enrolment in health insurance for people in the informal sector in Tanzania.

1.2 Problem Statement

Enrolment in health insurance schemes in low income countries remains low (Bennett et al. 1998; Atim, 1998). This is reflected in community based health insurance failing to

reach a satisfactory level of participation among targeted population. In Tanzania, CHF membership (enrolment) has been reported to be below the targeted coverage of 85% of the population living in rural area (see Chee, 2002; Shaw, 2002; Musau, 2004). The percentage of households joining CHF has been ranging from 4% to 18% in various districts. This trend suggests that there is slow up take in membership and high drop out of CHF members notwithstanding few isolated successes in some districts.

Low enrolment leads to a small risk pool. The extent of risk pooling depends on the size of the pool which refers to the number of contributing members and beneficiaries. For this reason, the efficiency and viability of CHF in terms of covering the financial consequences of illness in the long run becomes questionable when there is low enrolment. Theoretically, CBHF are effective solution considered for financial accessibility of health care for people in the informal sector and can cover majority of poor people (Criel at al. 2004 ., Hsiao, 2001). However, for Tanzania it is not the case. There is lower enrolment in CHF than expected and drop out is high. This trend of low enrolment cannot be ignored as it has impact on health care access and utilization for majority of Tanzanians living in rural areas. Moreover, it may deter the income protection objective identified in the Tanzania poverty reduction strategy paper (URT, 2005) and Tanzania Development Vision 2025 (GOT, Undated). Also, this trend may prevent the attainment of the health sector related MDGs of reducing the under- five child mortality by two third between 1990 and 2015 , reducing by three quarter the maternal mortality ratio between 1990 and 2015 and to combat the spread of HIV/AIDS, Malaria and other diseases by 2015. This is because medical impoverishment due to significant health care cost will continue to affect majority of the rural people.

Wiesmann and Jütting (2000) argue that the country's economic development is closely linked to health status of its population. Therefore, an efficient and equitable health care system is an important instrument to break up the vicious cycle of poverty and ill health. For this reason, a well functioning CHF has potential contribution to the success of Tanzania health system to achieve a substantial reduction in morbidity, mortality and improvement in life expectancy. In addition, it can contribute greatly to the on going poverty reduction initiatives through the protection of rural people from the medical poverty trap. This calls for the need to strengthen the CHF by attracting more people to enrol.

The main strength of community financing schemes is the degree of outreach penetration achieved through community participation and their contribution to financial protection against illness (Arhin-Tenkorang, 2001). This means as greater numbers of the community join the scheme, the volume of revenue that can be mobilized also increases. Having a greater number of members also decreases the problem of adverse selection. Given the above scenario, if community health fund aims at improving the access to health care of the rural majority, then health policy makers need to sort out the problem of low enrolment into CHF. One strategy is to understand the predictors of and barriers to enrolment. From this understanding one can develop proper strategies to address this problem of low enrolment. De Allegri et al. (2006) argued that having the economic analysis of the extent to which the predictors affect the insurance demand only provides a partial answer to the question. To have a complete answer to the problem of low enrolment, one needs to complement the economic analysis of the determinants of insurance demand with the exploration of the barriers to enrolment. This calls for a study which complements the analysis of the predictors of the CHF member's enrolment with exploration of barriers to enrolment into CHF.

While CHF has been running since 1996, this is first formal and systematic study which complements the analysis of the predictors with barriers to enrolment in Tanzania. Over the years, several studies and evaluation reports (Ministry of Health[MoH], 1999a; 1999b; URT, 2003; Musau, 2004; Shaw, 2002; 2005 Community Health Fund Fact Sheet no.3; MoH, 2006) pointed out the reasons for low enrolment. Little has been done to understand the predictors of enrolment and not much has been studied at household

level to explain why those able and likely to enrol have not been enroling. Clearly, the understanding of the predictors of CHF enrolment in terms of their cause and effect and understanding of the barriers to enrolment CHF in Tanzanian context has been missing. This study aims at filling this gap by shedding light on how various factors are related to and affect CHF enrolment on one side and on the other, exploring the barriers to CHF enrolment. It answered the following questions.

i. What are the relationships between the predictors of enrolment and households' willingness to enrol in CHF?
ii. What are the barriers to enrolment in CHF
iii. How do the barriers to enrolment affect decisions of households to enrol in CHF?

1.3 Aim and Objectives

1.3.1 Aim

The aim of this study is to reveal the association between the predictors of willingness to enrol into CHF and the actual enrolment. In addition, the barriers to enrolment in CHF in Tanzanian context will be explored.

1.3.2 Subsidiary objectives

Subsidiary objectives were

i. To analyse the relationship between individual and household characteristics on the one hand and the enrolment to CHF on the other.
ii. To explore the barriers to enrolment into CHF in Tanzania
iii. To make policy recommendations for improving CHF design and strategies to increase enrolment.

1.4 Justification of the Study

In the context of UN's Millennium Development Goals (MDGs)[7] , WHO (2000)[8] goals, Tanzania Development Vision 2025[9] , CCM -2005 election manifesto[10] and National Strategy for Growth and Reduction of Poverty[11] , this study is clearly important for Tanzania where resources for health care are under pressure and therefore compromising the efficiency and equity of health care provision. Undoubtedly, shortage of resources threatens the achievement of the above mentioned goals. CHF is one way of mobilizing resources. However, in order to function properly the CHF must recruit a large number of people so as to increase its revenue collection. This study will shed light on how individual, household characteristics and community characteristics influence the enrolment pattern of CHF. It will also explain how various factors influence households' willingness to enrol. Understanding how predictors influence enrolment and the barriers to enrolment are important in designing strategies to increase enrolment of members. Increasing CHF members leads to increased revenue collection adding to resources from other sources.

7 Leaders from every country agreed on a vision for the future world. This vision took the shape of eight Millennium Development Goals. The goals are providing countries around the world a framework for development and time-bound targets by which progress can be measured. Among the goals, the health related goals are to reduce the under- five child mortality by two third between 1990 and 2015,to reduce by three quarter the maternal mortality ratio between 1990 and 2015 and to combat the spread of HIV/AIDS, Malaria and other diseases by 2015 (UNDP,2006)

8 The WHO (2000) report proposes good health, responsiveness to expectation of the population and fairness in the health care financial contribution to be considered as central goal of any health system (WHO, 2000).

9 One of the targets of 2025 vision is High quality lively hood. Among the strategies to attain this is access to quality primary health care for all, access to quality reproductive health service for all individuals and reduction of infant and maternal mortality rate. All these need increased mobilization of resources into health sector (GOT, Undated).

10 The ruling party (CCM) election manifesto clearly states by 2010 it will make health insurance to cover majority of Tanzanian and health care provision will be improved (CCM, 2005).

11 According to URT (2005) one of the major clusters of desired outcome for poverty reduction is improving quality of life and social well being of people in Tanzania. Therefore, a social protection is necessary to address vulnerability and provide for social security, health insurance and specific vulnerable groups like orphans, people living with HIV/AIDS, disabilities and the elderly.

Currently, the Ministry of Health is planning to extend the Community based health insurance into urban and peri- urban areas with the aim of enrolment of at least 15% of urban and peri-urban population by 2010 (MoH, 2006). The experience and knowledge gained from this study will form a point of departure for community based health insurance into urban and peri- urban areas which is currently under way. The study also will shed light to the long term goal of Universal health insurance coverage decision making and planning.

1.5 Limitations and assumptions of the study

1.5.1 Limitations

By any means this study could not be exhaustive in terms of study areas where two out of 69 districts were studied and researching all the predictors of and barriers to enrolment into CHF. Therefore, the scope of the study is a limitation. This was due to resource constrains and time limit. The funding did not allow for a wide area of the study and time limit did not allow for extended field work time. Staying longer in the field would add more cost to the study. It is the expectation of the researcher that the finding of this study will give an indication of the evidence of the predictors of and barriers to enrolment into CHF in Tanzania.

1.5.2 Assumptions

In terms of CHF design in Tanzania, there is no separation between the fund (financing) and the service provider. The facility (health centre or dispensary) is the custodian of the fund and is the provider of the service or the facilities are both the purchaser and provider of health care services. Given the above scenario it is fair to assume in this study that CHF and health care provision are intimately related. The performance or non performance of one part will have impact on the activities of the other part. Therefore, in this study in some instances the performance or non performance of one part is used to explain the behavior of the other part.

CHAPTER TWO

2 THE TANZANIAN CONTEXT

2.1 Introduction

In this chapter, the Tanzanian context is explained. The context gives the details of the environment where both social and economic forces operate. These forces are expected to have impact on the CHF success. Additionally, this background provides the basis for understanding the results and interpretations made in this research. It is therefore important to describe these forces at the outset.

2.2 The Population

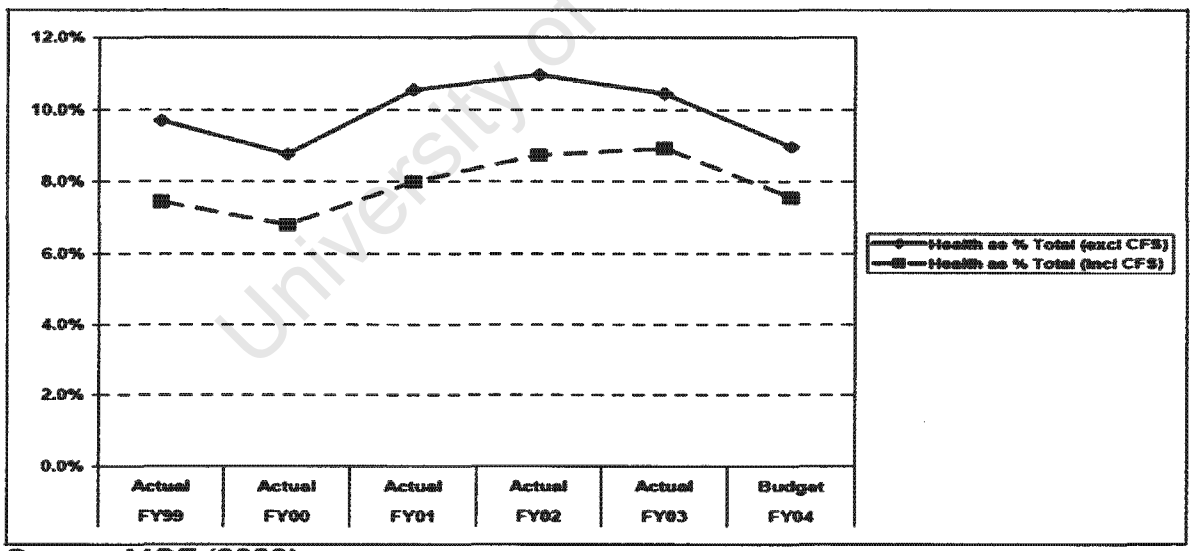
According to the Tanzanian government (GOT, 2004) the Tanzanian mainland population is 34.4 millions. The urban- rural distribution of population is approximately 23.1% and 76.9% respectively. The country is sparsely populated and majority of people live in the rural areas. The population growth rate is 2.9%. Since, CHF target rural population, it is anticipated that the majority of the people are expected to benefiting from it.

2.3 Economy

Tanzania has a mixed economy in which agriculture dominates (GOT, 2004). Agriculture comprises of crops cultivation, forestry, animal husbandry, fishery and game hunting. According to GOT (2004), agriculture contributes the largest share to the gross domestic product. There has been a modest improvement in economic growth, the economy has diversified and household consumption has increased (GOT, 2002). The National Health Accounts (2002) show that Gross Domestic Product (GDP) per capita was US$ 630. There has been a modest increase in GDP in 2003 at 5.7% and 6.7% in 2004 according to the constant 1992 prices (GOT, 2004). The growth of GDP could be due to the Government efforts to achieve sustainable economic growth and reduce poverty through macro economic reforms which the country adopted in 1990s.

Notwithstanding the prioritization of health sector within the national poverty reduction strategy (United Republic of Tanzania [URT], 2005) and the Abuja commitments of 15%[12] on budgetary allocation, health sector share of government funding has remained low. According to MoH (2004) government funding of the health sector was on the increase in 2001 year at 8% (excluding consolidated fund services which largely comprises the budget line for public debt) and approximately 10.5% (including consolidated fund services). In 2004, there was a decrease in government funding for the health sector which dropped down to approximately 9 % (excluding consolidated fund services) and 7.5 % (including consolidated fund services). This trend of under-funding had implications for service delivery in terms of quality in public health facilities which depends highly on government funding. It leads to shortage of supplies and human resources in public health facilities. Even those at work were demotivated due to low salaries and bad working conditions. Figure 1 shows the trend of total health expenditure in relation to government budget in more details.

Figure 1 Health Sector Spending as a Proportion of the Total Government Budget, 1999 – 2004



Source: MOF (2003)
Note: CSF – Consolidated Fund Services, which is largely public debt

[12] Declaration made by African head of states at the African summit on HIV/AIDS, Tuberculosis and other related infectious diseases in Abuja, Nigeria on 24-27 April,2001.

Tanzania is among the poorest countries in the world. According to Research and Analysis Working Group [RAWG] (2005) in 2000/01 about 36% of Tanzanians were living below the poverty line. The incidence of poverty in rural areas is 39% of the rural population. This poverty situation is expected to have impact on the CHF enrolment especially when considering ability to pay for the premium.

With regard to income distribution, the common measure of the extent of income inequality is Gini coefficient[13]. RAWG (2005) noted a general increase in Gini coefficient from 0.34 in 1991/92 to 0.35 in 2001/01. According to the World Bank (2001) Gini coefficient in 1993 was 0.38. The top 10% of the population has per capita expenditure of about 30.1% and the bottom 10% had per capita expenditure of 2.8%. This means the rich (the top 10%) who are minority control a bigger share of national income while the majority among the poorest (bottom 10%) in Tanzania control a small percentage of national income. The inequality in urban areas appears to have increased significantly. For example, in Dar es Salaam it increased from 0.30 in 1991/92 to 0.36 in 2000/01. In rural areas, the Gini coefficient remained unchanged at the level of 0.33. This trend suggests that income inequality has been on increase from year to year. Increase in inequality has implications in the distribution of recourses among areas and various sectors within the areas. This has far reaching effects on the health sector especially in rural areas.

2.3.1 Education

According to Government of Tanzania [GOT] (2004) urban residents are more likely to have attended school and have remained in school for longer periods of time compared to rural residents. The median number of years of schooling is 6.1 for urban residents, while rural residents have 2 years on average. Educational attainment by adult household population reflects that 25% of males and 33% of females have never attended school. This means males generally fare better than females where literacy is concerned. Literacy rates in the younger age group (15-24) are 81% for males and 76% for females. In adults (15 years and older) literacy is 78% for males and 62% for females. Education attainment also differs significantly among regions. The level of

[13] According to Wagstaff et al. (1991) the Gini coefficient measures inequality in income. Its value ranges from zero to one, with zero representing perfect equality and one representing perfect inequality.

education is critical to understanding the concept of insurance. This is especially so in cases where the culture of insurance has not been in existence or understood in the given society.

2.4 Health status of the Tanzanian population

The health status can be depicted using the following indicators, infant mortality rate (IMR), under-5 mortality rate, maternal mortality rate, life expectancy at birth and prevalence of major 'killer diseases'. According to RAWG (2005) the infant mortality rate (IMR) in 2004 was 68 per 1000 live births. The under-5 mortality rate is 112 per 1000. Maternal mortality rate is 578 per 100,000 births. The general life expectancy in 2002 was 51 years. Going by sex, life expectancy for men was 50 years while that of women was 52 years. This scenario may be alluded to health sector under funding and other factors external to the health sector. Lower education levels among females is considered to be the cause of high IMR (GOT, 2004). However, compared to previous years (2003 downward), there has been a sharp drop of mortality rates. Much of this decline could be due to improved malaria control.

World Bank (2003) noted malaria, HIV/AIDS, Tuberculosis, diarrhoea contribute to high morbidity and mortality figures in Tanzania. HIV/AIDS prevalence rate is 7% overall and 7.7% in female and 6.3% in male (RWAG, 2005). In general these diseases are unevenly distributed between urban and rural populations, between children and adults and between well-educated and non-educated citizens. The mostly affected are the rural citizens (77% of the total population), children < 15 years (47 % of the population) and uneducated citizens (56% of the total population)

2.5 The structure of the health care market

The government has been the major provider of health services through the public health facilities. The private sector both for profit and not-for-profit is not big in Tanzania. Not-for-profit providers largely include religious organizations. In 1967, there were reforms in the health sector that prohibited the earning of any profit from provision of health care. In 1977, the private for profit were effectively banned from practicing. The ban on private for profit health services continued up to 1991 when the government

reviewed the ban. With time, it had become clear that the government's ability to provide quality health services was being eroded by the unfavorable economic conditions. However, the private for profit providers are concentrated in urban area. In rural areas public facilities are dominant.

2.6 Hospital system

The Tanzanian hospital system comprises of both public and private hospitals. The majority of Tanzanians use the public health facilities due to the fact that private hospitals are expensive. Public hospital system is pyramidal in nature. That is, the consultant referral and national hospitals at the top, secondary in the middle and primary at the bottom. The secondary level consists of regional hospitals, which provide both basic and specialized services. The primary level consists of dispensaries, health centers and district hospitals. There are approximately 5,000 healthcare facilities. The ratio of physicians to patients stands at 1:24,000[14] (National Health Policy, 2003).

At the national level, the Ministry of Health (MoH) administers and supervises the National Hospitals, Consultant Referral Hospitals, Specialist Hospitals, Training Institutions, Executive Agencies and Regulatory Authorities. The MoH also overseas the health sector in general. At the Regional level, provision of health services is vested in the Regional Administrative Secretariat with technical guidance of Regional Health Management Teams. At the district level, management and administration of health services has been devolved to the district through their respective Council Authorities, Health Service Boards, Facility Committees and Health Management Teams. This includes the district hospital, health centers and dispensaries.

14 Health Services Research and Development Center, Johns Hopkins Bloomberg School of Public Health.

The table 1 provides an overview of health facilities available in Tanzania.

Table 1 Health Facilities in Tanzania

	Number by ownership					
Type of Facility	**Government**	**Parastatal**	**Voluntary**	**Private**	**Other**	**Total**
Specialized	4	0	2	0	0	**6**
Regional Hospital	17	0	0	0	0	**17**
District Hospital	55	2	13	0	0	**70**
Other Hospitals	2	6	56	20	2	**86**
Health Centers	49	6	48	16	0	**479**
Dispensaries	2,450	202	612	665	28	**3,955**
Specialized clinics	75	0	4	22	0	**101**
Nursing Homes	0	0	0	6	0	**6**
Private Laboratories	18	3	9	184	0	**214**
Private x-ray units	5	3	2	16	1	**27**
Total	**3,035**	**22**	**746**	**927**	**31**	**4,961**

Source: Ministry of Health[15]

Table 1 shows the health care facility ownership in Tanzania is mainly dominated by the government. However, in some areas there is no public health facility especially at district and regional level. For example, the table shows there are 55 district hospitals while there more then 100 districts in Tanzania. This means that more than half of the districts in Tanzania do not have a public district hospital. The approach to this problem has been contracting voluntary or religious health facilities to provide services to people. According to Gilson et al. (1994) in Tanzania, 90% of church hospitals are in rural areas initially less favored by other health care providers. The majority of private for profit provisions are concentrated at dispensaries and private laboratories while none at districts, regional and consultancy/specialized levels. This less representation of private for profit provision could be partly due the 1977 ban of private for profit practice in Tanzania, regulations and requirements of establishing a facility at district, region and consultancy/specialized hospital level. Not only that, but also the cost involved in establishing health facility at those levels is extremely high compared to establishing a dispensary.

[15] Downloaded at http://www.moh.go.tz/health%20facilities.php on 21/06/2007

2.6.1 Health sector reforms in Tanzania

According to the Ministry of Health (MoH, 1994) in the mid 1990s, health sector reforms were introduced in Tanzania. The reforms included managerial reforms or decentralization of health services; financial reforms, such as enhancement of user-charges in government hospitals, introduction of health insurance and community health funds and public/private mix reforms such as encouragement of private sector to complement public health services. They also included organizational reforms such as integration of vertical health programmes into the general health services; health research reforms such as establishment of a health research users fund and propagation of demand oriented researches in the health sector. The health sector reforms programme had the following objectives:

i. Improve access, quality and efficiency of primary health (district level) services.
ii. Strengthen and reorient secondary and tertiary service delivery in support of primary health care.
iii. Improve capacity for policy development and analysis, development of guidelines for national implementation, performance monitoring and evaluation, and legislation and regulation of service delivery and health professionals.
iv. Implement a human resource development programme to ensure adequate supply of qualified health staff for management of Primary, secondary and tertiary services.
v. Strengthen the national support systems for personnel management, drugs and supplies, medical equipment and physical infrastructure management, transport management and communication.
vi. Increase the financial sources and improve financial management.
vii. Promote private sector involvement in the delivery of health services.
viii. Within the sector-wide approach, develop and implement a system for donor involvement, co-ordination, monitoring and evaluation.

2.7 Health care financing reforms

According to Kiwara et al. (2006) up to early 1990s health care services were mainly tax financed. Out-of-pocket payments were mainly for those who opted to use private for profit facilities. In the mid 1990s Health care financing reforms were instituted, and the implementation was gradual. It took place at different time periods. The details are explained bellow.

i. Establishment of cost sharing through user fees in public hospitals. User fees were established in 1993 (MoH, 2005). It revised the previous health financing policy of providing health services free to all in the government health facilities. The introduction of user fees in Tanzania went through four phases. The first phase was in 1993 for the referral hospital and some services at regional hospitals. The second phase was in 1994 for the regional hospitals, the third phase was 1995 for the district hospitals. The last phase was for health centers and dispensaries. According to Ministry of Health (MoH, 2005) the objectives of cost sharing included the following; generate additional revenues to bridge the gap in government allocation, improve availability and quality of health services, strengthen the referral system, rationalize utilization of health care services, improve equity and access to health services by pooling financial risk and cross-subsidizing costs and strengthen community voice (users/payers) towards improving service quality and provider's accountability. Though this study did not intend to discuss the impact of user fees, the proponents argue it has impacts on the equity of access and utilization of health services especially for the poor.

ii. Establishment of National Health Insurance Fund (NHIF). NHIF was established by an Act of Parliament No 8 of 1999. The fund commenced its operations in 2001 by members and their respective employers starting to contribute. The objective of the fund included the following; Strengthening of cost sharing in government health facilities by providing an opportunity for formal sector employee to contribute to the fund, providing health insurance to employees in the formal sector especially after the introduction of user fees, allowing free choice of providers to civil servants (previously, they were

restricted to government health facilities, enhancing health equity among formal sector employees and lastly, providing an environment for the growth and participation of the private sector.

The fund is compulsory to all public sector employees (MoH, 2005). The membership includes principal members their spouses and up to four children and/or legal dependants. Where both man and woman in married couples are workers in the public service, they have equal rights to register four different children or dependants. According to MoH (2005) in 2005 membership was about 248,343 with total beneficiaries of 1,142,378 (over 3% of the population of Tanzania). Slight increase of percentage of membership as percentage of the total population is expected to date.

The contribution rate provided is 6% of the monthly employee's gross. This is met equally between the employer and employee (3% each). Accredited providers are reimbursed through a fixed fee per service. However, the fund administration is expected to gradually move to capitation as the volume of business and the complexity of the benefit package increases (MoH, 2005).

iii. Introduction of Community Health Fund (CHF) in 1996. According to the MoH (2005) Community Health Financing was designed to provide an alternative to paying user-fees for service, especially when the user-fees were introduced to health centers and dispensaries. The scheme was intended to facilitate financial and health risks pooling among healthy and sick people, rich and poor. More details of CHF are explained in subsequent section no. 2.8

iv. Introduction of Drug Revolving Fund. According to MoH (2005) the Drug Revolving Fund was established under the Drug Capitalization Programme. It was intended to support the hospitals with top up funds for the procurement of drugs and other medical supplies. The fund was introduced after the transformation of Medical Stores Department (MSD) into an agency and introduced the cash and carry policy in the procurement of drugs. It was also

realized that the government budget was not enough to cover the total cost of drugs requirement at the hospitals. Therefore, drug revolving fund was introduced to address the problem of shortage of fund for procurement of drugs. As an implementation strategy the MoH opened a separate account to take care of the financing of hospital drugs. The fund charges 50% of the actual cost of the drugs.

The other reforms included decentralization of health system giving financial oversight authority to local councils and communities and private for profit sector was enacted.

2.8 The Community Health Fund in Tanzania (CHF)

In 1996, CHF was introduced by the MoH on pilot basis in Igunga district. In 1998 the MoH rolled out CHF to other nine districts namely Hanang, Rungwe, Kilosa, Mbinga, Nzega, Same, Singida, Songea rural and Songea Urban. It was introduced with the intention of providing an alternative to paying fees for service, after the expansion of cost-sharing beyond the district hospitals to health centers and dispensaries. Therefore, it was a way of reducing both financial and health risk of rural people through cross subsidization among healthy and sick people, rich and poor (MoH, 2005). The design of CHF was also based on the assumption that the essence of strong community involvement is for the community to take responsibility for generating, using and controlling financial resources to run an efficient health services (Shirima, 1998). In 2001 the Community Health Fund Act was passed establishing CHF as official health policy for mobilizing funds at district /community level. According to the act the objectives of the fund are:-

i. Mobilization of financial resources from the community for provision of health care services to its members

ii. Provide quality and affordable health care services through sustainable financial mechanism

iii. To improve health care services management in the community

According to MoH (2005) each District Council has to request approval for the establishment of CHF from the MoH. After approval the Health Sector Reform Secretariat provides sensitization and orientation to the respective district. Prior to

initiating community health financing, each District Council has to have in place a Council Health Services Board and Facility Committees, and has to pass a CHF By-Law. Each district determines the amount of premium to be charged for services and sets the annual premium based upon their own assessment of their population's ability to pay. It not is surprising to find the premium varying from one district to another because the is no standard rate set by the government. Membership to CHF is voluntary and is restricted to paid up households except for exemptions. Households decide whether to join the Fund or to pay user fee for service. Currently, CHF has been rolled out to about 69 districts in Tanzania.

2.8.1 Management and administration of CHF

At the national level there is a unit responsible for CHF located within the MOH. The main task is to guide and coordinate the CHF schemes in the country. It also monitors and evaluates the activities of the fund. At district level there is a district council which provides guidelines that facilitate management of the fund and ensure that the funds are available for health development activities in the district. This includes availability of essential drugs, medical supplies and vaccines. The district council works through the council health service board. The council health service board comprises representatives from the community, NGOs, health providers, District and regional health management teams and the district planner. Members of the council health service board hold office for a period of three years. The council health service board operates in consultation with the district health team to ensure quality health care, professionalism, as well as mobilization and administration of financial resources for the community health fund. It also sets criteria for exemptions, monitors and verifies collection, expenditure and control of funds. Lastly, the board review reports from the local ward level.

Under the council health service board is the Ward Health Committee. Its composition includes representatives from the community, councillors, ward executives, community based organizations, clinical officers and village councils. Members hold office for a period of three years. The task of this committee is to mobilize community members to enrol with the fund, to supervise the collectors of annual subscriptions, monitor levels of

subscriptions and user fees revenue, review fund operations and to initiate community health plans.

2.8.2 CHF Health care providers

The CHF works with public health care facilities only. Where there are no public health care facilities, a special arrangement is made with a local private provider. Only registered private health care facilities enter into service agreement with the Board for provision of service where fee-for-service is the common means of payment. The benefit package varies from district to district. While in some districts the benefit package may include only basic primary care services, in others both primary and selected few secondary services are included. Benefit package is decided at the district level.

2.8.3 CHF financing mechanisms

Three financing mechanisms are applied under CHF. They include user fees, household prepayments and a matching grant from the central government. Non-members pay user fees at the point of service while members make prepayments for the cost their illness. A matching grant of 1:1 ratio is applied on the member's contribution collection. Revenue collected from all the three sources is deposited in the CHF account managed by the District Health Board. The community through its ward health committee can use the generated funds to increase access to standard package of health and medical services. However, there is a debate on the financial sustainability of these schemes once the central government fails to fulfill its promise on providing the matching grant. Hence increasing enrolment is vital if the CHF is to perform to the expectations of its members. This study did not intend to study all the three financing mechanisms under the CHF in Tanzania. It focused on the prepaid financing mechanism where the household[16] voluntarily purchases a health card at a flat rate. The card entitles the household to the services defined in the standard benefit package through out the year.

[16] The CHF Act.2001 defines a household as a nuclear family including father, mother and children less than 18 years of age.

The contribution level is determined by the council in consultation with the members of the community. Currently, the contribution level ranges between Tshs 5000.00[17] to 15,000.00 per year in various districts. This amount can be varied from time to time by the council in consultation with members of the local community.

2.8.4 Exemption and waivers in the CHF

In order to ensure access to health care by the poor and vulnerable populations, exemption and waiver mechanisms have been built into the CHF. According to the CHF Act 2001, the power to exempt any person is vested in the local ward health committee which receives recommendations from the village council and forwards this recommendation to the District health board for approval. The exempted person will be issued the CHF card. The exempting authority shall seek alternatives of compensating the foregone income due to exemption. In most cases district council are asked to pay contributions for exempted members.

2.8.5 The contribution of CHF to Health care financing reforms in Tanzania

The contribution of the CHF to health care financing in Tanzania can be assessed in terms of the reform objectives. The study by Chee et al. (2002) in Hanang provides a valuable insight into the contribution of the CHF in financial resource mobilization. The CHF makes a significant contribution to the overall district health budget. According to MoH (1999a) in Igunga district, revenues generated by the CHF (plus user fees) could have funded up to 49% of the non-salary health sector expenditures in 1997 and 39% in 1998. Shaw (2002) noted that actual use of the CHF premiums between 1996-98 in Igunga shows that 45% went to improving health care infrastructure, 29 % to drugs, 9% to medical supplies and equipment, 6.5% to rehabilitation, and 4.5% to transport fuel. Therefore, it is true that the CHF has a significant contribution to the health care financing reform.

[17] Exchange rate was $1.00 to Tshs 1,250 as at 15/12/2006

2.8.6 Other Insurance schemes in Tanzania

Other health insurance schemes operating in Tanzania include the following

i. Micro-Insurance schemes run by informal groups and churches. Examples are "UMASIDA" and "VIBINDO". "UMASIDA" is a Swahili word acronym of "Umoja wa Matibabu Sekta Isiyo Rasmi Dar es salaam" meaning a mutual health scheme for people in the informal sector in Dar es Salaam. According to Kiwara (2005) members come from various informal sector groupings like small scale market retailers, Tinsmith, Cobblers, Stone crushers and food vendors. The scheme is led by a Board of Directors. It has been in operation for 10 years and operates in Dar es Salaam and Arusha. The premium paid by members is Tshs 1500.00 per month or Tshs 18,000.00 per year and membership is on family[18] basis. Currently, beneficiaries are estimated to be 6,000 people. The benefits package includes maternal and child health, treatment of regular diseases like malaria, pneumonia and diarrhea, surgical needs, STIs and VCT. The health service providers includes own unit, government facilities and contracted private providers.

   According to Kikuwi (2005) "VIBINDO" is an umbrella organization of informal sector operators in Dar es Salaam. It was established and registered as an NGO in 1995. "VIBINDO" runs its own micro health insurance scheme known as Vibindo Micro Health Insurance Program (VIMHIPRO). The premium rate is Tshs 25 per day per person. It can be paid monthly or yearly. Membership is on individual basis. However, a member is allowed to pay premiums for his/her dependents. Therefore, the financial ability of the member determines how many dependents can be included in the scheme. Benefit package include primary health care, reproductive health care services to both sex, ambulatory services, referral services, minor surgery and hospitalization. Currently, the number of beneficiaries is 1102 peoples and health service providers include contracted private providers and government facilities.

[18] In UMASIDA the family is defined as husband and wife, four children under 18yrs and two grandparents.

ii. Private health insurance. Currently, there are very few private health insurances companies operating in Tanzania. The majority of the private health insurances started operation after the introduction of The National Health Insurance Fund and the introduction of free market economy in Tanzania. Most of them serve people employed in the private companies, foreigners and diplomats. Examples of private health insurance companies include Medical Express(T) Ltd, Against All Risks (AAR) and Strategies Insurance

iii. Social Health Insurance Benefit (SHIB).The scheme covers employees in the private sector, and non-pensionable government and parastatal employees. In Tanzania it is under the National Social Security Fund (NSSF). According to Kiwara et al. (2006) the scheme is financed out of the contribution of 20% of gross salary from both employer and employee. Members are able to access both inpatient and outpatient care at contracted hospitals.

2.9 Summary

To sum up, Tanzania has a week economy with GDP per capita of $630. The economy is relying mostly on agriculture. Generally, the level of education is low especially in rural areas making it difficult to sell the idea of insurance to majority of people. The health status as indicated by infant, under-five and maternal mortality is poor due to high rates recorded on these indicators. There is high infant, under-five and maternal mortality rates. At the same time malaria and HIV/AIDS continue to affect a lot of people. Both public and private providers are operating in Tanzania with the dominance of public providers especially in rural areas. The majority of private providers are concentrated in urban areas.

CHAPTER THREE

3 LITERATURE REVIEW

3.1 Introduction

This chapter covers both definition of key terms, explanation of the theoretical framework and presentation of empirical literature. The chapter starts with definition of key terms followed by explanation of theoretical framework and concludes with a review of empirical literature.

3.2 Definition of key terms used

3.2.1 Community financing

There are varying definitions of community based health financing (CBHF) and sometimes the term is used interchangeably with community based health insurance (CBHI). According to Hsiao (2001) this term has evolved into an umbrella that covers a wide spectrum of community health financing instruments. Micro-insurance, community health funds, mutual health organizations, rural health insurance, revolving drug funds, and community involvement in user fee management have all been loosely defined as community based health financing. He argues that the reason for referring these diverse financing mechanisms under one heading is the number of similarities that effectively distinguish them from other health financing mechanisms. Among the similarities are the targeted members and premiums which are community rated. Also, they are organized at community level, run on a non profit basis and apply the basic principle of risk sharing (Criel et al. 2004) However; this study did not intend to cover all the health financing instruments under CBHF/CBHI. The main focus was on the community health fund which operates in Tanzania.

Hsiao (2001) defined community financing as any scheme that has three features: community control, voluntary, and prepayment for health care by the community members. According to him, this definition excludes financing schemes such as regional compulsory social insurance plan and the community managed user fees programme. McPake et al. (1993) defined community health financing as a system comprising consumer payment (either as user fee or some form of prepayment mechanism or other

charge) for health service at community level. The proceeds are retained within the health sector and managed at local level. There is also community participation which ensures that communities are not just passive recipient of services.

Given a wide range of community health financing instruments, this study did not intend to cover all of them. The main focus was on community health fund which operate in Tanzania. Therefore, it adopted the McPake et al. (1993) definition as it is similar with the CHF framework implemented in Tanzania. In addition, the study was restricted to the prepayment part of the scheme.

3.3 Theoretical review

3.3.1 Introduction

In this subsection various theories are reviewed. Expected utility theory (gain perspective) was used to study the predictors of CHF enrolment while theory related to trust was used to study the barriers to enrolment. They are reviewed in the following subsections.

3.3.2 Expected utility theory (Gain perspective)

Nyman (2003) explained the demand for insurance using the expected utility theory from the gain perspective. Meaning that, insurance is demanded to obtain an income payoff gain in the bad state or when ill. Under this theory, the choice to purchase insurance is made at the point when the consumer is deciding whether to spend the last amount of income endowment on insurance premium or consumption of other goods/ services.

More precisely, the expected utility from gain perspective can be expressed as

$$p[U(Y_1)-U(Y_3)] > (1-p)\,[U(Y_0)-U(Y_1)] + p[U(Y_2)-U(Y_3)]$$

Where the right hand side is the expected utility gain from being uninsured and the left hand side is the expected utility gain with insurance, U = utility which is a function of disposable income Y, p= Probability of becoming ill, 1-p = Probability of not becoming

ill, Y_1= The initial level of income and if ill will have spent L amount of income on medical care reducing his income level to Y_3. But with insurance if ill, the ill payoff increases income from Y_3 to Y_1 with a probability of p, therefore the expected utility gain if ill becomes $p[U(Y_1)- U(Y_3)]$ evaluated at Y_3. The gain is determined from the specific reference point which does vary sometimes. According to Nyman (2003) with health insurance and if ill the gain of disposable income is from the reference point of just having spent a certain amount of income on medical care. With insurance and if healthy, there is no gain in income because there is no change in utility due to the fact that the consumer remains at the same reference point, Y_1. Therefore, insurance would be purchased if the expected utility gains in disposable income from the insurance payoff when ill is higher than when not insured.

Moreover, Nyman (2003) argues that when insurance choice is expressed as an expected gain in utility, the choice to purchase insurance becomes like the choice in any standard economic transaction. That is, a commodity is purchased because the utility gained from it exceeds its cost in terms of utility foregone from other goods and services which could have been purchased. According to him, when a consumer purchases any commodity, the consumer gives up income that could have been used to purchase other goods and services. In this case, these other goods and services are sometimes given up in one state (ill) and sometime in another state (healthy). Therefore, the choice to purchase insurance requires these goods/services to be given up in order to purchase insurance policy that has an expected utility gain associated with it. In other words, insurance is demanded because the uncertain payoff is timed to coincide with bad state not because of uncertainty it provides. If a consumer buys insurance it is because they want to obtain an income payoff in future bad state.

In terms of CHF in Tanzania, utility gain or loss represents the amount of disposable income an individual will gain when ill after enroling into CHF. If the expected utility gain in income when ill is higher when the household is a CHF member than when the household is not a CHF member, other things held constant, there is likelihood of enroling into CHF. Thus household will give up the purchase of other goods/services so as to contribute into CHF in order to have utility gain from being a CHF member.

Therefore, it is the ability of CHF to produce the utility gain that will attract household's willingness to prepay. According to Hsiao (2001) the expected gain can happen in three ways. First, the existing facilities producing the patient valued service more efficiently, so that prepayment can buy more than it can now. Second, if the prepayments can purchase something new that is valued by the household such as risk protection. Third, the government can provide direct and visible subsidy to motivate community members to join a community financing scheme.

It can also be related to the medical need of the people. It is worth noting that individuals have different medical needs and face different risks of vulnerability than others due to age, sex, marital status, health status and material well being (Bhatt and Jain, 2006). For example, medical need generally increase with age and is higher for the female gender. Additionally, family demographic factors can also influence medical need. Therefore, the utility gain will differ from one consumer to another. Hence, the difference between individuals in terms of social-economic classification and demographic factors needs to be considered in modelling the demand for health care and health insurance. This study while taking on board the expected utility theory from the gain perspective also considered the socio-economic and demographic factors in modelling the predictors of enrolment in CHF in Tanzania.

3.3.3 Trust theory

Various authors have defined trust in different ways. However, all the definitions center on the relationship and behavior between people and institution or among people themselves. According to Gilson (2003), trust is a relational notion; it generally lies between people, people and organizations, people and events. In addition, Fukuyama (1995) defined trust as the expectation that arises among citizens of regular, honest and cooperative behavior, based on commonly shared ethical norms and values, including reliability, loyalty and solidarity. Gambetta (1998) defines interpersonal trust as a specific expectation that another's action will be beneficial rather than detrimental. Beneficence is the expectation that the one part (trustee) will be concerned for the well being and interests of the other part. From the above definitions it is clear that behavior

expectation between two parts involved is very important in trust. When these expectations are jet down it may lead to bad outcomes like distrust between the parties.

According to Thiede (2005) distrust can lead to obstruction of social interactions. In a health system, trust can be looked at in terms of patient/provider interaction. In particular factors which influence the expected behavior in the patient/provider interaction. Gilson (2003) noted a trusting patient/provider relationship is rooted in specific expectations and personal behavior. They include provider's technical competence, openness (governance), concern and reliability. Technical competence terms of staff skills and availability of equipments available at the health care service provider. Technical competence signifies to patients the providers' ability to diagnose and treat illness. Where technical competence appears to be low the trust changes to distrust.

Openness is an element of governance. Governance describes the process of decision-making and the process by which decisions are implemented (or not implemented). Good governance accomplishes this in a manner essentially free of abuse and corruption, nepotism, patronage or capture by narrow private interest groups, guarantees property and personal rights and with due regard for the rule of law.

With regard to concern over patient well being, Mechanic (1998) argues that the health care providers are specifically expected to demonstrate impartial concern over patient's well being and to act in the patients' interest. This is based on client orientation or patient sovereignty. It refers to several dimensions which cause patient satisfaction with services. Examples are staff attitude and prompt attention to patients. Gilson (2003) noted poor staff attitude toward patients can cause dissatisfaction with service, which even good technical care may not offset.

Reliability of the provider to the patient explains whether the provider has a range of resources such as drugs, equipment necessary to provide care, access to referral services and the range of services offered (Gilson, 2003). The presences of all these builds trust between patients and the health care provider.

The implication of trust for CHF can be looked at in terms of factors underpinning the patient-provider relationship because they have direct impact on the people's confidence and trust on the CHF. Where the providers of health care are unreliable, unconcerned, not open and technically incompetent the relationship turns into distrust. When there is distrust of provider and since they are perceived as linked together, it means there is also distrust of CHF. This automatically will have impact on the voluntary enrolment into CHF because the expectation of patients from both the provider and CHF will not be met. Hsiao (2001) and Gilson et al (1994) argued that people's confidence and trust in the organization managing the fund is a precondition for community based financing success.

3.4 Empirical studies

This sub section presents the empirical literature review of the predictor of and barriers to enrolment in CBHF. It starts with the literature review on the predictors of enrolment followed with the literature review on barriers to enrolment

3.4.1 Predictors of enrolment

According to Jakab et al. (2004) the choice to enrol or not to enrol in CBHF is influenced by individual or household characteristics and community characteristics. Individual or household characteristics include age, gender, and income/wealth and health status while community characteristics include social, ethnic and religious values. They argued that, these determinants shape individuals' preferences toward health risk, their ability to pay membership fee, and their demand for insurance. While various studies done elsewhere have confirmed the influence of individual/household and community characteristics in other countries, it is worth noting that countries are unique. The results in one country may not be applicable in another country. Therefore, there is a need to study the influence of these variables in the Tanzanian context.

Income has been shown to have strong relationship with decision to purchase health insurance (Scotton, 1969, Cameron, Trivade et al.1988). It has been found to have a positive association with insurance purchase decision in studies done in the developed

countries. Van De Ven and Van Praag (1981) noted higher income generally decreases the opportunity cost associated with the purchase of insurance. Therefore, overall increase in income would be expected to increase the probability of buying insurance (Mathiyazhagan. 1998). Similar results were found by Jütting, (2003), Asenso-Okyere et al. (1997) and Wang et al. (2005). Jütting found that the level of income had a significant positive influence on decision to enrol in CBHF in Senegal, while Asenso-Okyere and others found income was significantly associated with positive effects on the decision to enrol in Ghana. Similar results were found in China by Wang and others where farmers with lower income were less likely to enrol in a community based insurance. However, in some developing countries income has been found not to be a significant factor (Jakab et al. 2004; Supakankunti, 2001). While Jakab and others found income was not significant in deciding to join CBHF in Rwanda, Supakankunti found the decision to enrol with the Thai card in Thailand was not influenced by income. Changes in this trend of findings are normally associated with the poor quality of services offered at the contracted providers between countries.

Age was found to have a significant positive relationship with decision to enrol in community based health insurance in Senegal (Jütting, 2003). This is because there was the need for more hospital care as age increased. Cameron et al. (1988) noted that health care utilization was quite responsive to age in Australia. Thus, older people tended to consume health care more than the younger age group. Therefore, older people are more likely to enrol with an insurance scheme especially where the costs of health care services are high. Joining a health insurance scheme becomes a cushion against unexpected cost of illness. However, different results were found in India where there was a negative relationship between age and willingness to join (Mathiyazhagan, 1998). The elders were less likely to join a rural health insurance scheme compared to younger age groups. This was because the younger were more open to innovations and the fact that the majority of older people had no family dependents to take care of them at their age

Gender also plays an important role in the decision to enrol into insurance through its effect on expected medical consumption (Bhat and Jain, 2006). Sindelar (1982) found that women generally use medical care more than men. The higher demand for medical

services by women may be explained by increased need during the reproductive years. This has implications for the decision to buy insurance when costs of medical care are considered. The same results have been found in studies done in other countries (Jütting, 2003). Jütting found that women of child bearing age need more hospital care than men. Therefore, they were more likely to join community based health insurance in Senegal. Dong et al. (2003) argued that women have a lower proportion of becoming household heads because of a higher marriage rate to men. Therefore, theoretically it may be true women are more likely to enrol in the schemes, where as in practice the reality may be the exact opposite. .

The role of education in health related decision making has been well explained elsewhere (Grossman, 1972; Muurinen, 1982). According to these studies, not only is a better educated person is likely to be healthier which would lower the probability of insurance, but also he/she is often better informed about the services available in the public health system and the benefits of joining the insurance. On the other hand education and income are generally correlated (Van De Ven and Van Praag, 1981). Having higher income increases the affordability of the premium. This was confirmed in other studies done elsewhere (Jütting, 2003; Asfaw, 2004). Jütting (2003) found people who can read and write are more likely to join community based health insurance in Senegal. In Thailand, members of the health card insurance scheme[19] tended to have a lower education, a lower income per year (Supakankunti, 2001). This means that, the health card eased their health expenditure burden.

Health status of an individual or the household measured by frequency of illness and illness ratio is another important determinant. It is related to adverse selection where in theory high risk illness people tend to join insurance. According to Cultler and Zeckhauser (1998) higher risk people find insurance most attractive and will tend to buy insurance than lower riskier people. Mathiyazhagan (1998) found the health condition and number of hospital episodes in a household was a significant determinant of willingness to join in Micro insurance schemes in India. This was because the number of

[19] The health insurance card scheme was introduced as the Health Card Project (HCP) in 1983 and the membership is voluntary (Supakankunti, 2001).

hospital episodes in a household lead to higher financial risks in the household. Similar results were found by Supakankunti (2001) in Thailand where the presence of illness in a household was statistically significant in deciding to purchase a health card. In China, Wang et al. (2005) found farmers with good health were less likely to enrol in community based insurance than those with poor health. This was because those with poor health status had high potential of utilizing the health care than those with good health because having insurance has implications for the total health care expenditure. However, Jakab et al. (2004) noted in Senegal and Rwanda illness ratio (number of sick members in the household) was not a significant determinant of joining the community based health insurance. Similar results were found by Schneider and Diop (2004) in Rwanda. It was found health status had no impact on the probability of demand for community based health insurance.

Mathiyazhagan (1998) used distance, travel and waiting time as proxies of physical accessibility to health care facility. He found that the coefficient of estimated physical accessibility (except waiting time) was positive. Meaning people far away from the facility were more willing to join community based health insurance than the ones closer to the facility. This was due to the fact that most of the community based health insurance in India includes transportation to the scheme's provider in their benefit package. Asenso-Okyere et al. (1997) noted people who travel long distance to attend clinic tend to spend more on health care due to transport cost. Therefore, they would want to register in the schemes to cut down on costs. However, In Rwanda different results were found. Jakab et al. (2004) and Schneider and Diop (2004) found household heads that live closer to the provider's facility were more likely to join the scheme than those who live farther away. This result was due to the fact that prepayment schemes' awareness campaigns were more intense in the vicinity of the health facility. Bennett (2004) argued the benefit package affects the enrolment pattern and in most cases neither government nor schemes have thought about this.

Family size has been found to strongly influence the decision to enrol in insurance in various studies (Mathiyazhagan, 1998., Asenso-Okyere et al. 1997., Schneider and Diop 2004). Mathiyazhagan found that a larger family size had a higher probability of paying for the proposed schemes compared to the small family size in India. Similar results were found in Ghana, were increase in the number of dependents in a household was positively associated with enrolment into the schemes. This was due to these household expected to reduce the risk of incurring high health cost by enroling in the schemes (Asenso-Okyere et al.1997). This was especially where costs of health care were generally considered high. In Rwanda, households with five and more members were more likely to buy insurance than smaller households (Schneider and Diop, 2004). This was because, according to them, house holds pay the same amount of premium irrespective of family size. Therefore, larger families effectively pay less per household member.

Marital status had strong influence on the decision to enrol into insurance else where. Wang et al. (2005) found married couples were more likely to join the scheme than unmarried ones in China. This was because married couples have responsibility for each others health and their children. In Thailand, descriptive statistics showed married couples tended to purchase the health card more than in the non purchase group (Supakankunti, 2001). Similar results were found in Senegal by Jütting (2001). In connection to this, Bhat and Jain (2006) argued families with children spend more on health care. Therefore, they would prefer health insurance to cover the unforeseen medical expenses. However, in the context where illiteracy rate is high and the concept of insurance is not well known, the results may be different from those found elsewhere

Studies on religious influence on CBHF enrolment are very scanty. In Senegal, it was found that being a Christian increased the probability of being a member in mutual (Jütting, 2003). This was because the Catholic Church was supporting the mutual in various ways. Bennett et al. (1998) noted linking the scheme to other community development activities appeared to strengthen the scheme. This is because people's trust and confidence in the scheme increases (Hsiao, 2001). However, in studies done elsewhere, religion was found not significant (see Asfaw, 2004; Ransom, 2004). This

was mainly due to the fact that the level of religions involvement with CBHF in the respective areas was either small or none existent.

Putman (1993) argues that the quantity and intensity of individual membership in social and professional bodies is a good indicator of social capital. Social capital shapes the quality and quantity of society's social interaction. Narayan and Pritchett argued social capital is an important determinant of people's willingness to cooperate with each other. In rural Senegal, Jütting (2003) found households with experience in other local organization tended to participate more in mutual schemes. This was because they already had an experience of the cost and benefit of participation in local organizations. In China, variables of social capital namely gift giving, attending village meeting and presence of social events in a village were positively correlated and statistically significant with the probability of joining the Cooperative Medical System(CMS) (Liu et al.2002). According to Harper (2002) gift giving and participation in social events measure social participation (Networks) while attending village meeting measures civic participation. Both individual and family participation in social and civic activities are an important indicator for social capital. In Ghana, a different result was found where membership to other resource pooling schemes was not significant (Asenso-Okyere, 1997).

Individual or household sources of health care services based on quality of service provided have greater influence on shaping decision to enrol. Annis (1981) argued that the perceived quality of services is one of the most important determinants of patient's choice of provider and willingness to pay. Mathiyazhagan (1998) found, in India, people who use private health facility had higher chance of joining the proposed health insurance than those who use the public facility. However, those who used private facility had lower probability of willingness to pay for the proposed health insurance scheme. In Tanzania majority of CHF providers are public facilities, with few exceptions where public facilities are not available.

3.4.2 Barriers to enrolment

According to Preker et al. (2002) the existences of trust in local community control over the scheme appears to increase enrolment of poor people and informal sector workers in low and middle income countries. Additionally, matching of willingness to pay and expectation of benefit to be received at a later stage has impact on enrolment. If the expected benefit is higher than the amount they are contributing, and the quality of service is good, people will be willing to participate. In another study, Arhin-Tenkorang. (2004) argued that the completeness of benefit package is the design feature that has major influence on the decision to enrol in community health financing in Africa. Additionally, Bennett (2004) noted the benefit package affects the enrolment pattern in low income countries and in most cases neither government nor schemes have thought about this.

Abel-Smith and Dua (1998) noted poor people in developing countries have more pressing priorities to take care of such as food, shelter and income. When the premium becomes unaffordable it becomes a barrier to enrolment. According to the authors, people's ability to pay in many parts of the third world countries is severely limited besides being vulnerable to agricultural seasonality. Sometime willingness to pay is matched with the service individuals receive by being a member. If it benefits individuals, there may be positive response to participation in the scheme. In relation to this, Sinha et al. (2006) found financial poverty in Gujarati-India was one of the barriers to benefit in SEWA insurance and especially when it is complimented with co-payment.

In another study Hsiao (2004) found that rural household and urban poor households in Asia region were willing to prepay for a portion of their health service if they are sure of getting quality service. Quality service can be achieved by providing patients with a valued service more efficiently. In China and Indonesia it was found people most often mentioned availability of drugs, some preference against high financial risks such as hospital charges, neat and clean facilities, reasonably competent practitioners

De Allegri at el. (2006) established that decision to enrol is closely linked to whether a single element of the scheme matches the consumers' need and expectation in Nouma District- Burkina Faso. In particular, they found that consumers justified the decision to

enrol or not to enrol using argument about the unit of enrolment, the premium level and payment modalities. Unit of enrolment was based on the household where each member had to pay premium in order for the whole household to enrol in the scheme. This was a barrier for bigger households. In addition, the premium level was unaffordable for the very poor households and the payment modality requiring a household to pay the premium for the entire household at once constituted a barrier especially for larger households.

According to Criel and Waelkens (2003) the operational aspects of Maliando Mutual Health Organization (MMHO) in Guinea-Conakry (West Africa) were among the reasons for the declining subscriptions. These operational aspects included lack of confidence in management, inability to pay the subscription and the perception of poor quality of care in the contracted health facility. Lack of confidence in management was related to respondent experience with dishonest management embezzling the funds in the past in both formal and informal initiatives. Inability to pay was due to lack of resources to raise the premium needed for majority of physically disable, blind and chronically ill and the poor population. Poor quality of service was expressed in terms of disappointment with the outcomes and series of comparisons which people make between their original expectation and the reality, between care given to subscribers and to non-subscribers, rich and poor, the good care available in the private sector and bad care in the public health centre. Bad care was related to lack of good products and skills, no cure or fast recovery, not welcoming toward the patients. Also, it related to poor reception, lack of consideration, respect and attention for patient which generated heated criticism from patients. According to them all these factors discouraged people to subscribe to MMHO.

Kamuzora and Gilson (2007) found inability to pay membership contribution, low quality of health care, lack of trust in CHF managers and failure by the community to see the rationale of insuring against risk as barriers to implementation of CHF in Tanzania. Inability to pay premium was preventing poor households to join CHF. Low quality of health care was related to shortage of drugs and essential medicines, in appropriate diagnosis due to lack of diagnostic equipments, staff related problems,

limited range of services, limited choice of facilities among CHF members and referral problems. Lack of trust in CHF mangers included the wealthy group perceiving CHF officials being not trustworthy in terms of corruption and lack of transparency and past embezzlement of public funds. Community not seeing the rationale of insuring against risk was mainly a characteristic of the wealthy groups who did not see the reason for paying before falling sick. The study concluded that district managers have influence on the factors that explains low enrolment and their action are partly responsible for low enrolment. However, this study was done in different districts with different social and economic environments. In addition, it was partly documentary review and empirical confirmation of the previous CHF evaluation report findings on the barriers.

3.5 Conclusion

In summary, it seems evident from the review of empirical studies that different predictors have different effects on enrolment into insurance scheme. While some of the predictors were significant in study done in one country, they appeared to be not significant in another country. In some studies the direction of the relationship between the predictors and enrolment changed between countries. The same trend was reveled from the empirical review of the barriers to enrolment. Issues that appeared as barriers in one context were not in another context. Therefore, it was correct to say that the effects of predictors on the enrolment into insurance scheme and the barriers to CHF enrolment are context based. However, study of this nature in the Tanzanian context is missing hence creating a gap in the existing literature. This study will fill this gap by adding the Tanzanian experience with CHF.

CHAPTER FOUR

4 METHODOLOGY OF THE STUDY

4.1 Introduction

In this chapter, the methodology of the study is explained. It include the conceptual framework, study design , study area, sampling procedures and sample sizes, type of data ,variables and the data analysis procedures.

4.2 Conceptual framework

The following conceptual framework has been developed to guide the study.

Figure 2 Conceptual Framework

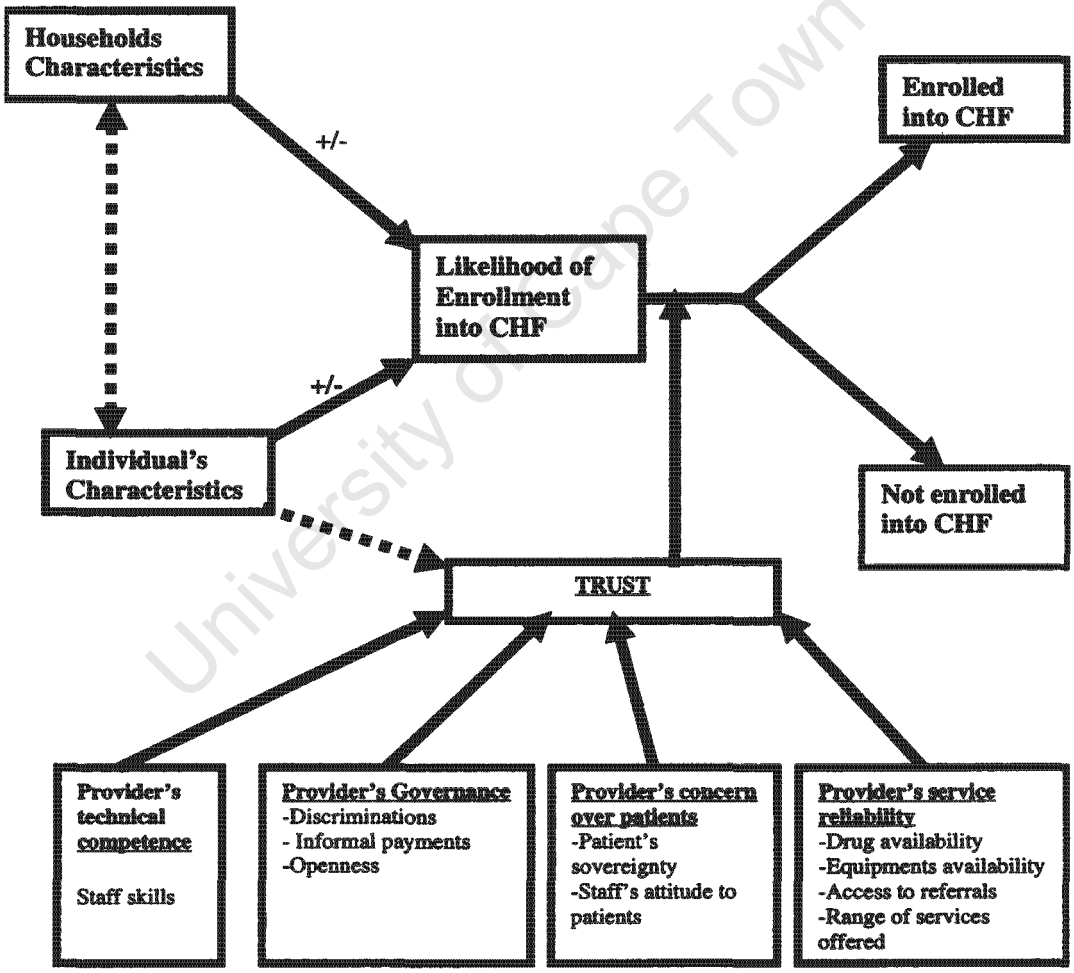


Figure 2 represents the conceptual framework derived from both theoretical and empirical studies review. The framework shows the predictors of enrolment on one part as well as the barrier to enrolment on the other part. Predictors of enrolment include individual characteristics (age, gender, being member to other mutual, marital status, educational level or literacy, membership of micro credit/insurance/professional bodies and health seeking behavior) and household characteristics (wealth, religion and frequency of illness distance from the facility, size of the household). They determine the likelihood of enrolment into CHF. The positive (+) and negative (-) sign gives an indication of the direction of the relationship between the individual predictor and enrolment. They represent the hypothesis or assumptions of the study. The positive sign hypothesizes that the household head with the given characteristics is more likely to enrol while the negative sign hypothesizes that the household head with given characteristics is less likely to enrol into CHF. The doted line shows the interaction between the individual characteristics and household characteristics. Since the enrolment unit in CHF is a household and individuals form part of the household, then both individual and household characteristics may have indirect influence to each other on the whole process of enroling into CHF. More details of the meaning of the sign (+/-) are explained in the following sub section.

The other part of the framework explains the barriers to enrolment. "Trust" may deter households from enroling. Trust in health care system refers to expected behaviors in the patient/provider interactions. Trust on the part of the patient is influenced by the provider's technical competence, openness, concern and reliability. The individual perceptions of these elements in health care have influence on the decision either to enrol or not enrol into CHF. This depends on whether they are positively or negatively perceived. If positively perceived trust will be built on the provider hence it will attract more people to join CHF. The opposite applies when they are negatively perceived as distrust. The doted line between the individual characteristics and trust indicate an indirect influence of individual to trust. This is because it is individuals who are involved in trusting or distrusting the CHF

4.3 Study Design

This study used a mixed method design specifically concurrent nested strategy in answering the research questions. According to Creswell (2003) in concurrent nested strategy, both quantitative and qualitative data are collected simultaneously. However, one method is method is predominant and guides the study. The other method is embedded and addresses a different question than the dominant method. The purpose of concurrent nested strategy is to help the researcher gain a broader perspective as a result of using different methods as opposed to using one method. This study used quantitative method as predominant method and embedded qualitative method within it. The reason for this mixing was to have a broader perspective of the CHF enrolment issue and the fact that they were used to answer different questions.

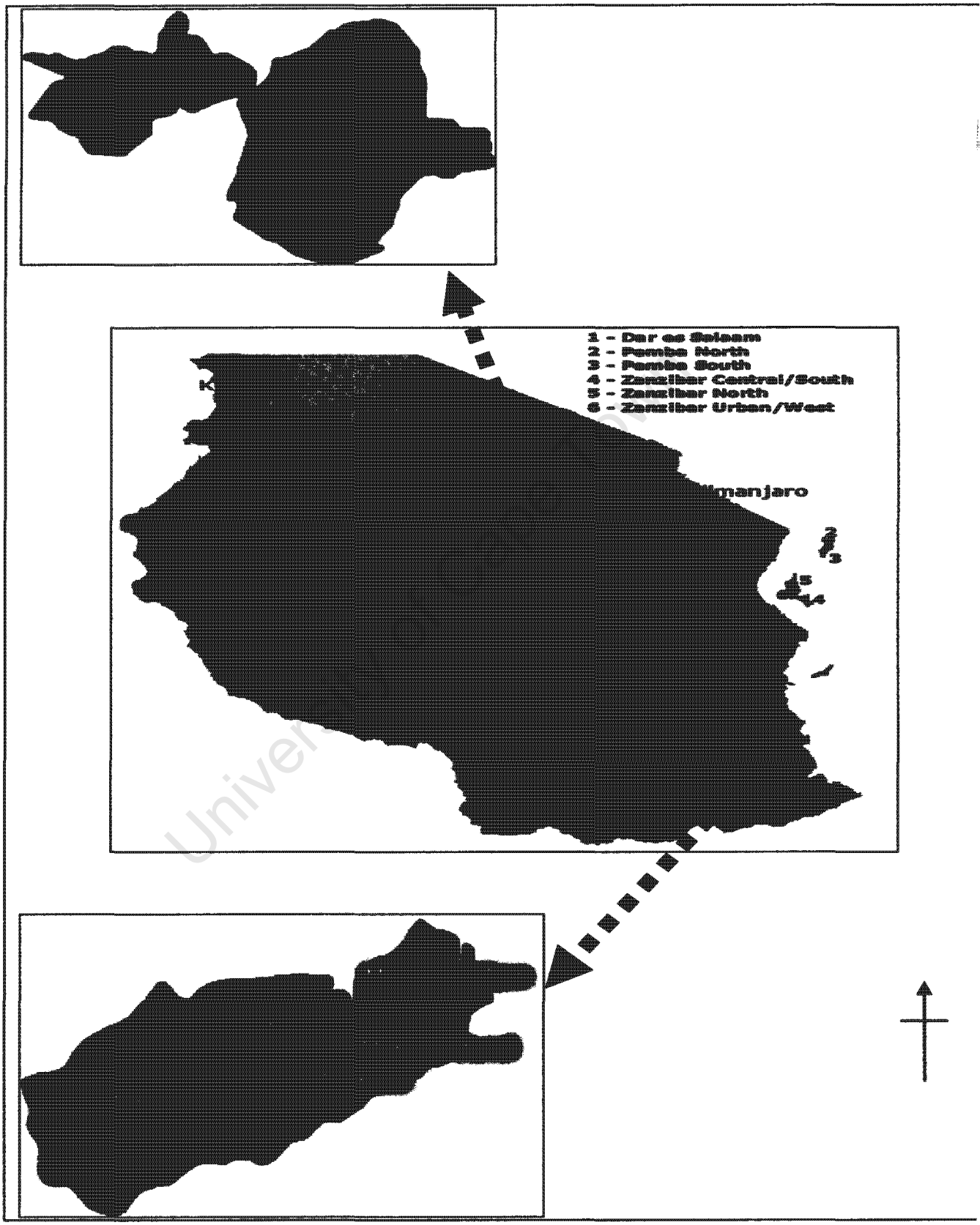
4.4 Study area

The study was conducted in two districts namely Babati and Masasi. The district level was chosen because CHF only operates at the district level. The choice of these districts was based on household income poverty incidences and adult literacy rate at district level based on the Tanzania Poverty and Human Development Report (RWAG, 2005). The level of poverty indicator was chosen as basis for selection of areas of study because poverty level is very important aspect of community participation in health insurance (Wagstaff, 2000; Abel-Smith and Dua, 1998). Babati is ranked in the 5th quintile based on percent of households below basic need poverty line (income poverty) while Masasi is ranked in the second quintile based on percentage of households below the basic needs. All the two districts are in the middle groups (average group) when considering the adult literacy rate. Due to time and resource constraints it was not possible to cover all districts. Hence, the two districts were chosen as convenient for this study. The selection process is explained in the sampling procedure subsection.

4.4.1 Location

Babati is one of the five district forming Manyara region in the northern part of Tanzania. The region lies between latitude 3^0 $40'$ and 6^0 south of Equator and between longitude 35^0 and 38^0 east of Greenwich. Masasi is one of the five districts forming Mtwara region located in the southern part of Tanzania. The region lies between latitude 10^0 $5'$ and 11^0 $25'$ south of Equator and between longitude 38^0 and 40^0 east of Greenwich. Figure 3 is a map showing the location of the study area in Tanzania.

Figure 3 Tanzania map showing location of Babati and Masasi districts



4.4.2 Economy

According to National Bureau of Statistics [NBS] (2005) per capita GDP in Babati District was $ 271.00 in year 2003 while in Masasi District was $341.00. The main economic activities in Babati include agriculture production and livestock keeping. Agriculture production is dominated by peasant farming and commercial crop farming is dominant in wheat and seed beans production. Masasi like Babati is predominately agricultural. The main occupation of the inhabitant is farming. Production of cassava, sorghum and maize, pigeon peas, cowpeas, bambara nuts, and beans, groundnuts, sesame, simsim, sunflower, castor bean, coconut and oil palm. However cashew is the only major cash crop contributing to the District economy.

4.4.3 Population distribution

According to the GOT (2002) Babati District population is 303,113 while Masasi District is 442,573. The urban- rural distribution of population is approximately 10.25%% and 89.755 % respectively for Babati District. In Masasi District the urban-rural distribution is 7.72% and 92.28% respectively.

4.4.4 Health facilities

In both districts health facilities comprise of public and private health facilities. However, in both districts the majority of Tanzanians use the public health facilities due to the fact that private hospitals are very few and expensive. Table 2 show the public-private mix of health facilities in Babati and Masasi District

Table 2 Health facilities in Babati and Masasi Districts 2003

	Dispensaries		Health Centers		Hospitals	
	Public	Private	Public	Private	Public	Private
Babati	18	18	1	1	1	1
Masasi	32	6	3	1	1	1

Source: National Bureau of Statistics, 2003

4.5 Population and Sampling procedures

4.5.1 Population

The population of the study was all the household heads in the respective districts (Babati and Masasi) regardless of whether they are member of CHF or not in respect of quantitative data. While for qualitative data only non-members household heads were targeted.

4.5.2 Sampling procedures

For the survey, stratified random sampling procedures were used to sample the respondents. According to Bowling (2002) the population of interest is divided into strata and sampling of subjects from the strata is carried out. In this study stratified random sampling was applied in three stages. The first stage was about choosing the study districts in the districts stratum. Second stage involved choosing the village from the districts, while the last stage involved choosing the subjects from the villages. In each stage simple random sampling was applied to select subjects. With simple random sapling each unit was given equal chance of being selected. According to Bowling (2002) with simple random sampling, members of the population of interest are numbered and then the numbered subjects from the population are selected using random numbers without replacing them.

The first stage of district stratification was based on the districts' income poverty head count quintiles as presented in the 2005 Tanzania Poverty and Human Development Report (RAWG, 2005). This means the stratification process was not based on personal judgment. Therefore, the stratification effect normally inherited in stratified sampling was controlled. Simple random sampling was used to select a district from the above average quintiles (quintile four and five) as well as the below average quintiles quintile (one and two). Babati district was selected from the above average quintiles while Masasi was selected from the bellow average quintile. Additionally, both districts are ranked in the average quintile when considering the adult literacy rate.

Stage two involved selection of the village to be involved in the study in each district. At this stage numbers of villages selected from the strata were kept proportional to the size of the district in terms of village. The proportional allocation of villages aimed at controlling the weighting effect inherited stratified sampling. In addition to proportional allocation, the presence of a health centre or dispensary in before applying the simple random selection of village ware considered. The facility was used as a catchments area for both CHF members and non members. For convenient purposes six villages in each district were chosen.

Stage three involved choosing the household heads for questionnaire administration in the village. At this stage the sampling unit was the household from the sapling frame of households obtained from village executive offices. Simple random sapling was used to select the household heads regardless of membership status provided he/she was not above 60 yrs old. Age limit was necessary because of avoiding inclusion of household heads who qualify for exemption of user fees. A list of household obtained from the village authority was used to select the sample for questionnaire administration.

For focus group discussions (FGDs) purposive sampling was used to select the village within the districts. FGDs targeted CHF non-members and drop out only from villages without members. The villages without CHF member were selected basing on district's CHF report. Three villages were selected in each district for one FGD in each. Lastly, simple random sampling was used to select participants for FGDs in the villages.

4.5.3 Sample Size

The total sample size of the survey was 572[20] households. The size was based on the minimum number of observations required for each variable in the regression analysis. Since most of the variables used are dummy variables, according to Bartlett et al. (2001) and Long (1997) the minimum number of observations required for each variable is at least 10. In this study a minimum number of 13 for each variable were used to calculate

[20] 572 = 22*2*13 , Where 22= total number of independent variables, 2= dummy nature of independent variables and 13= minimum number of observation for each independent variable (Bartlett et al.2001).

the sample size. However, the total number of questionnaires used for analysis was 568. Four questionnaires were discovered incomplete during data cleaning. They were dropped and posed no effect on the overall analysis in terms of the sample size bias. In addition, the remaining questionnaires were above the minimum number required for each variable

For the FGDs the minimum recommended number of participants for each focus group is 8-12 (Kitzinger and Barbour, 1998). For the purpose of this study, number of FGD members was obtained by calculating the average number using the Kitzinger and Barbour (1998) approach. Ten[21] members were recruited for each FGD.

4.6 Type of data and Collection Techniques

Both primary and secondary data were used. Secondary data came from the CHF reports at district level. These were used during selection of villages to be included in the study and to support the analysis. Primary data were both quantitative and qualitative in nature. Quantitative data were collected using the questionnaire (Appendices D) administered to household head. They were used to capture the information on individual and household characteristics and wealth. Questionnaires were administered within the district by research assistants and the researcher.

Qualitative data were collected using FGDs approach with non members to explore barriers to enrolment. It is an approach based on open discussion on pre-identified themes with a variable number of participants gathered around the moderator (Haddad et al. 1998). A focus group discussion guide was used to guide the discussions (Appendices D). Three FGDs were done in each district and information was captured using tape recorders and field notes. The language of communication in FGDs was Swahili. Translators into local language were hired where people could communicate in local language only

[21] The average number of the proposed minimum and maximum number for each FGD was calculated as $10=\frac{8+12}{2}$

4.7 Conceptual and Operational Variables

The following conceptual and operational variables were researched

Table 3 Conceptual and Operational variables

Conceptual Variable	Operational Variables
Individual Characteristics	Gender Age Membership of micro credit/insurance/voluntary organization. Marital Status Education/Literacy Source of health care service (based on type of provider's facility)
Household Characteristics	Frequency of illness (number of episodes in 3 recall period) Distance from Facility Size of the household (Number of dependents) Wealth (based on asset index of household) Religion

4.7.1 Variables included in the logit regression analysis

The dependent variable included CHF membership which was whether the respondent was a CHF member or not. Therefore, it was a binary response variable with values one for a CHF member and zero for non members.

Independent variables included both individual and household characteristics. Table 3 gives an overview of the independent variables which were included in the predictors of enrolment analysis. It explains the type of the variable as well as the expected effects (+ve or –ve)

Table 4 Overview of variable used and expected effects

Variable	Type of the variables	Expected effect for participation decision
Gender	Dummy variable (1=male, 0=Female)	+
Age	Dummy variable(1=Age >27,0= Age<=27)	–
Member of micro credit/insurance/voluntary organizations	Dummy variable(1=Yes,0=No)	+
Marital Status	Dummy variable(1=Married,0= Otherwise)	+
Years of Education	Continuous variable	+
Asset Index A (no animals)	Continuous variable	+
QuintileA1	Dummy variable(1= QuintileA1 ,0=Others)	–
QuintileA2	Dummy variable(1= QuintileA2 ,0=Others)	–
QuintileA3	Dummy variable(1= QuintileA3 ,0=Others)	+
QuintileA4	Dummy variable(1= QuintileA4 ,0=Others)	+
QuintileA5	Dummy variable(1= QuintileA5 ,0=Others)	+
Asset Index B(with animals)	Continuous variable	+
QuintileB1	Dummy variable(1= QuintileB1 ,0=Others)	–
QuintileB2	Dummy variable(1= QuintileB2 ,0=Others)	–
QuintileB3	Dummy variable(1= QuintileB3,0=Others)	+
QuintileB4	Dummy variable(1= QuintileB4,0=Others)	+
QuintileB5	Dummy variable(1= QuintileB5 ,0=Others)	+
Type facility	Dummy variable (1= Public facility,0=Others)	–
Religion	Dummy variable(1=Christian ,0=Others)	+
Illness rate (More than 2 illness episodes in 3 month recall period)	Dummy variable (1=Yes,0=No)	+
Distance(Distance from the facility)	Dummy variable(1= Short,≤1km,0=Long>1km)	+
Household size	Continuous variable	+

Source: Own compilation

As indicated in table 3 the enrolment of the household in community based insurance schemes is supposed to be influenced by both individual and household characteristics. In this study gender referred to gender of the household head. The positive coefficient for gender proposes that men are more likely to enrol in CHF.

With regard to age, it referred to age of the household head. The mean age of household heads was 27 years. The maximum age allowed was 60 years while minimum age was 12 years. The maximum age was 60 years because those above 60 years are exempted to pay for medical cost at public facilities. The negative coefficient proposes household with age more than 27 years are less likely to enrol in CHF.

Narayan and Pritchett (1999) noted that membership to other social and professional organizations have been used as a proxy for social capital[22] in many studies. In this study, memberships in other micro-credit/micro-insurance or voluntary organization were used to measure social capital. Social capital is defined as networks together with shared norms, values and understanding that facilitate cooperation within or among groups (Cote and Healy, 2001).According to Word Bank (Undated) social capital encompasses institutions, relationships, and customs that shape the quality and quantity of a society's social interactions. In addition, social capital when enhanced in a positive manner can improve project effectiveness and sustainability by building the community's capacity to work together to address their common needs, fostering greater inclusion and cohesion. Social capital may facilitate greater cooperation between members of the community and greater diffusion of innovation might be facilitated by greater linkage among individuals (Narayan and Pritchett, 1999). According to Rogers (1993) social participation, interconnectedness with the social system, exposure to interpersonal communication channels and belonging to a highly interconnected system are each positively related to early adoption of innovation. Therefore, a household head with membership of micro-credit/insurance/voluntary organisations can easily understand the CHF concept and the benefit embedded in it. The positive coefficient suggests that household heads who are members of other micro-credit/insurance/voluntary organisations are more likely to enrol in CHF. Marital status referred to whether the household head is married or not. The positive coefficient for marital status proposes that married household heads are more likely to enrol in CHF than unmarried ones.

22 According to World Bank (Undated) social capital can be broken down into five key dimensions. They include the following

i. Groups and networks - collections of individuals that promote and protect personal relationships which improve welfare.
ii. Trust and solidarity - elements of interpersonal behavior which fosters greater cohesion and more robust collective action.
iii. Collective actions and cooperation - ability of people to work together toward resolving communal issues.
iv. Social cohesion and inclusion- mitigates the risk of conflict and promotes equitable access to benefits of development by enhancing participation of the marginalized.
v. Information and communication - breaks down negative social capital and also enables positive social capital by improving access to information.

Years of education referred to the total accumulated years of education of the household head, in other word the length of stay in education. The assumption is that the length of stay in education is directly proportional to the level of education. For analysis purposes the mean years of education was calculated at six years. Therefore, less than 6 years of education was regarded as lower education level and vice versa for those with six years and above. The positive coefficient for the years of education proposes that household heads with more than six years of education are more likely to enrol in CHF than household head with less than six years of education.

According to Mathiyazhagan (1998) the type of health care provider (Public or private provider) in rural areas plays a significant role in the decision to join or pay for any proposed health insurance scheme. This is because of the perceived difference in quality of service between the types of facilities used by the scheme. In Tanzania majority of CHF providers are public facilities, in rare cases private facilities are used. Therefore, only public and private providers were considered in this study. The expectation is that where a service is offered at a public facility, people are less likely to enrol than where the private facility is used to offer services. Religion also has an impact on the decision to enrol. Religion referred to whether a household is Christian or Muslim. According to Goold (2001) shared values or beliefs in a community such as religion have greater role in influencing individual participation in various activities. Shared values or beliefs can encourage or discourage participation of its members in various community activities. In Tanzania, Christians through their churches have been involved in micro-insurance schemes to protect members from financial risk of illness even before the implementation CHF. Therefore, it was hypothesized that Christians are likely to enrol into CHF than other religions. Illness rate was used to capture the health status of the household using the number of illness episodes in the last three months. The positive coefficient proposes that households experiencing more than two episodes of illness in the period of three months are more likely to enrol in CHF than households with lesser episodes.

Annis (1981), Mathiyazhagan, (1998) argued that distance to the facility can be used to measure physical access to the health care facility. Other things held constant, physical access has direct relationship with utilization of the facility health services. Households

closer to the facility tend to visit the facility more than those residing far from the facility. Therefore, distance from the facility to the household can have influence on the decision to enrol in CHF. The positive coefficient in this variable presupposes that households closer to the facility are more likely to enrol than the distant households. Household size referred to the number of dependents in the households. The positive coefficient for household size proposes that households with more dependents are more likely to enrol than household with fewer dependents. Asset indexes (Asset Index A and Asset Index B) were used to reflect the economic status of the households. Both asset indexes have a positive coefficient. These suggest that households with higher economic status are more likely to enrol into CHF than household of lower economic status.

Quintiles for each asset index were created to represent economic status classes across the population. They included the lower quintiles (lower social economic status class), middle quintile (average social economic status class) and higher quintiles (higher social economic status class). Quintiles one and two were the lower quintiles, quintile three was the middle or average quintile and quintile four and five were the higher quintiles. The negative coefficient in quintiles one and two proposed that households in quintile one and two are less likely to enrol into CHF than the households in other quintiles. With regard to quintile three, four and five (positive coefficient) it was hypothesized that households in these quintiles are more likely to enrol into CHF than households in the other quintiles

4.7.2 Construction of Asset Index

An asset index was used as a proxy of wealth to reflect the economic status of the household. According to Filmer and Pritchett (2001) in the absence of income and expenditure data, durable asset ownership and housing characteristics (also known as asset indicators) can be used to construct asset index which can be used as a proxy for household wealth. This study focused on the informal sector where both income and expenditure data are difficult to get. Therefore, durable goods owned within and outside the household, household characteristics, access to utilities were used to construct an asset index as proxy of wealth. Variables included in the asset index construction were adopted from the DHS-2004 questionnaire. Since it was rural areas, inclusion of animals such as cattle, pigs, goats and sheep became necessary. This is because ownership of

animals in rural areas of Tanzania is an indication of wealth, even if animals are not commonly regarded as durable goods. This led to the construction of two asset indexes aiming at capturing the perspectives of the general living standard of households of the surveyed areas. Asset index A included no animals while asset index B included animals.

Variables used to construct the asset index in the principal components analysis (PCA) were binary in nature with exception of the animal variables. The animal variables were continuous in nature. The information was therefore converted into dummy variables. This involved calculating the mean number of animals for each group. Then three categories of animal dummy variables were created. Category one included those who had no animals, category two included those who owned between one and the mean number of animals and category three those who owned animals above the mean number of animals. According to Filmer and Pritchett (2001) by using dummy variable (a move from 0 to 1), weights have an easy interpretation of variation between owning a certain type of durable good and not owning it.

The statistical procedure of PCA in the STATA software was used to derive the weights (scores) of the asset indices. Principal component analysis is a technique for extracting from a set of variables those few orthogonal linear combinations of the variables that capture the common information most successfully by assigning weights to each variable (Filmer and Pritchett, 2001). In addition, principle component analysis works best when asset variables are correlated and when the distribution of variables varies across cases (Vyas and Kumaranayake, 2006). Assets with zero standard deviation (assets which all households own or which no household owns) would exhibit no variation between households and would be zero weighted in PCA. This formed the basis for selecting variables to be included in the PCA in this study.

Variables included in the PCA were selected based on the descriptive analysis (means, frequencies and standard deviation) (See Appendix A). Variables which had zero standard deviation and lower frequencies were excluded from the PCA for both asset indexes. According to Filmer and Pritchett (2001) the reliability of an asset index can be

tested in two ways. The first test refers to the internal coherence of the asset index. Meaning the asset index constructed must be able to produce clear separation of asset ownership across the lower, middle and higher quintiles for each asset individually. Second test is the variation in variable among cases must be higher. In this study, the reliability of the both of the asset indexes constructed was tested. The internal coherence of individual variables was good (see Appendix A) and the variation in variables was considered higher given the context of Tanzania where majority of rural people live bellow the poverty line. The result of the PCA for Asset Index A (no animals) showed the variation in variable of 19.2% and for Asset Index B (with animals) variation in variables were 15.18% (See appendices A). Therefore, these two tests confirmed the reliability of both asset indexes for the analysis of predictors of enrolment into CHF.

4.8 Data Management and Analysis

4.8.1 Field editing

The principal investigator was personally involved in data collection and editing. This made it easier to do spot checks and solve any problems which came up in relation to data collection in due course.

4.9 Coding and Transcribing

Coding of questionnaires was done before going to the field. Data from the FGDs was coded before, during and after data collection. Coding before the data collection was done by developing list of codes basing on the research question and the conceptual frame work. During data collection other codes were emerging and were included in the prior code list. The transcribing of taped data was done in Swahili then translated to English. This was because the language of communication during the FGDs was Swahili.

4.10 Data entry and Cleaning

Quantitative information was captured using EpiData software. Missing data was carefully considered and accounted for. Data cleaning was done upon completion of data entry. After cleaning of data, they were transferred to STATA version 8 (Statacorp, 2003) for analysis. For the qualitative data, cleaning was done through repetitive reading of the transcripts and correcting mistakes once discovered. Comparison of the

transcripts from FGD and own hand notes taken during FGDs was done to discover mistakes and missing information. Mistakes found were corrected instantly. After cleaning, the qualitative data was entered in NVivo software for analysis

4.11 Data analysis

Data analysis involved both quantitative and qualitative methods. Quantitative analysis was applied on the predictor of enrolment analysis while qualitative analysis was applied on the barriers for enrolment. Details are given below.

4.11.1 Predictors of enrolment

The binary logit model was used in the analysis with the help of STATA. Binary logit model was used due to the nature of the response variable which is binary. It takes the value of one if the household is a CHF member and zero if not. . The model was used to estimate the probability/likelihood of enroling to CHF .Despite the fact that the appropriate estimator could be binary logit or probit model, this study used logit model. This was because the probit and logit models are indistinguishable from each other except their tails where logit has a fatter tail (Gujarat, 2003). However, the choice between logit and probit is largely on convenience and convention since substantive results generated are often indistinguishable (Long, 1997). In this study binary logit model was convenient. The following equation describes the model used to estimate the binary logit model.

$$Li = In\left[\frac{\Pr ob(y=1)}{1-\Pr ob(y=1)}\right] = \sum_{K=1}^{K} \beta_k x_k$$

Where $\frac{\Pr ob(y=1)}{1-\Pr ob(y=1)}$ is simply the odds ratio in favor y =1, β= independent variable coefficient and χ = independent variable.

In order to estimate the likelihood of participation the following general logit model was used in STATA,

$$In\left[\frac{\Pr ob(y=1)}{1-\Pr ob(y=1)}\right]=\beta_1+\beta_2*\text{Gender}_1+\beta_3*\text{Age}_2+\beta_4*\text{Memorg}_5+\beta_5*\text{Marital\_status}_6+$$

β_6*YEdu$_7$+β_7*Asset indexA_8+β_8*Quintile$A1_9$+β_9* Quintile$A2_{10}$+β_{10}* Quintile$A3_{11}$+ β_{11}* Quintile$A4_{12}$+β_{12}*Quintile$A5_{13}$+β_{13}* Asset_IndexB_{14}+β_{14}* Quintile$B1_{15}$+ β_{15}* Quintile$B2_{16}$+β_{16}*Quintile$B3_{17}$+β_{17}*Quintile$B4_{18}$+β_{18}* Quintile$B5_{19}$+ β_{19}*Type of facility$_{20}$+β_{20}*Religion$_{21}$+β_{21}* Illness rate$_{22}$+β_{22}* Distance$_{23}$+β_{24}* Household size$_{24}$+u_i

Where 1= CHF member, 0 = Non CHF member, β_1 = intercept of indicating the expected value of y when all the value of $\beta_{1\text{-}26} = 0$, $\beta_{1\text{-}26}$ = coefficients of independent variables, $u_{i=}$ error term, Memorg = member to other micro-credit/insurance/voluntary organizations, Marital_stat= Marital status and YEdu = Years of educationFor the purpose of analysis the above model was decomposed into four models. Model one included Asset Index A (without animals), model two included QuintileA1-5, model three includes Asset Index B (with animals) and model four included QuintileB1-5. The aim of this decomposition was to find out the association between groups of people who share similar social economic status positions with the actual CHF enrolment. This is because asset indexes being continuous variable does not give clear demarcation of social economic classes within the population.

4.11.2 Barriers to enrolment

Barriers to enrolment were mainly analysed from qualitative data captured in the FGDs. Miles and Huberman's approach with the help of NVivo Software was used in the analysis. This approach was used because of the deductive nature of this study. According to Miles and Huberman (1994) this approach facilitates the production of core constructs from textual data through a systematic method of data reduction and analysis. The process of collecting, coding[23] and analyzing data are simultaneously done. Coding is done at different levels of the research (multilevel coding). First level coding involves production of working set of codes and second level coding involve the

[23] Codes are used to build analytic propositions about the basic elements of some aspect of social organization, the conditions under which particular phenomena occur or social processes of relevance to theory, (Fielding and Raymond, 1998:26).

production of pattern codes which have exploratory status serving to identify themes emerging from the data..

In this study Miles and Huberman approach was applied as follow

Step one: Early analysis: This involved creation of an initial or start list of codes before going to the field. The list came from the conceptual framework with key variables that was intended to be studied. The list of codes included staff skills, discriminations, informal payments, and openness, patient's sovereignty, staff's attitude toward patients, drugs availability, equipment availability, access to referrals and range of services offered. However, this was a provisional list because principally, the start list codes change as the field experience continues. According to Miles and Huberman (1994), in qualitative research some provisional codes may decay because no field material fit them or they may flourish calling for breaking them into sub-code. In this study, some of the start codes decayed while others flourished after the first level coding.

Step two: Reading of the data (transcripts)

This involved several readings of the transcripts before the actual coding. The aim was to get an initial sense out of the data and understand the context in general. It was also an interaction process with the data.

Step three: First level coding

This was done by developing codes and assigning them to the text of passage that contained reference to a particular piece of information .It was also a data reduction strategy. They were developed in NVivo software as free nodes (See appendices B). At this stage, a working definition for each code was developed to ensure consistency in their application. Working definition for codes is important for consistency especially when there is a single researcher (Miles and Huberman, 1994).

Step four: Second level coding

This involved classifying codes using tree nodes in NVivo, into groups of themes or constructs. The basis was conceptual framework variables and searching for

commonalities and recurrence that suggested some underlying patterns. After classification, fine codes from tree nodes were developed for easy analysis (see appendices B). Text search for each sub code in the tree nodes was done to identify evidence /data for each code in the free node. The text search result formed part of the findings. At this stage possible explanations for the results were given.

4.12 Quality assurance

Apart from supervising the data collection process, the principal investigator was also involved in the data collection. The two researchers assistants were expected to have experience in data collection. They attended a short training organized by the principal investigator on research instruments and the data collection process.

CHAPTER FIVE

5 RESULTS

5.1 DESCRIPTIVE RESULTS

Table 4 shows the results from the descriptive characteristics of both CHF members and non members.

Table 5 Descriptive characteristics of the sample

VARIABLES	CHF MEMBERS N/48	NON CHF MEMBERS N/520	TOTAL N/568
%Number of Households	8.45	91.55	100
Age (Mean= 27 years)			
%≤ 27years	43.75	52.12	51.41
%> 27years	56.25	47.88	48.59
Gender			
% Male	64.58	60	60.39
% Female	35.42	40	39.61
Member of micro credit/insurance /voluntary organization			
%Yes	8.33	2.12	2.64
% No	91.67	97.88	97.36
Marital status			
% Married	81.25	78.08	78.35
%Others	18.75	21.92	21.65
Type of Facility			
% Public facility	41.67	51.35	50.53
%Private facility	58.33	48.65	49.47
Religion			
%Christian	79	56.15	58.1
%Others (Muslims and Traditionalists)	20.83	43.85	41.9
Illness rate(More than 2 illness episodes in 3month recall period)			
%Yes	77.08	60.96	62.32
%No	22.92	39.04	37.68
Distance from the facility			
%Short(≤ 1km)	47.92	69.23	67.43
%Long (>1km)	52.08	30.77	32.57
%Quintile A1	10.42	21.73	20.77
%Quintile A2	27.08	19.42	20.07
%Quintile A3	16.67	20.00	19.72
%Quintile A4	14.58	20.00	19.54
%Quintile A5	31.25	18.85	19.89
%Quintile B1	8.33	21.54	20.42
%Quintile B2	25.00	19.23	19.72
%Quintile B3	18.75	20.00	19.89
%Quintile B4	14.58	20.58	20.07
%Quintile B5	33.33	18.65	19.89
	Mean (SD)	Mean (SD)	Mean (SD)
Years of Education (min=0,max=17)	6.72 (2.35)	5.78 (2.7)	5.85 (2.68)
Household size (Number of dependents) (Min =1, Max=41)	6.93 (5.93)	4.68 (2.41)	4.87 (2.93)

The total number of observations was 568, where 8.45% were members of CHF and the remaining 91.55% were non members. This percentage of the membership is similar to the national average found in other studies. With regard to age, the sample had the mean age of 27 years with maximum and minimum age of 60 years and 12 years respectively. About 51.41 % of the household heads were below or equal to 27 years of age.. In terms of CHF membership, household heads with more than 27 years of age are more represented (56.25%) compared to those below or equal to 27 years of age (43.75%). About 52.12% of non CHF members were aged below or equal to 27 years.

Majority of the household heads were male comprising 60.39% of the sample while female household heads were only 39.61%. Male household heads who are CHF members were 64.58% while female household heads were 35.42%. For non-CHF member, male household heads were 60% compared to female household heads who were 40%. Household heads who are married were 78.35% of the sample, while 21.65% comprised others (unmarried, divorced or widowed). Among CHF members, 81.25% were married and 18.75% represented others. In terms of religion, the majority of the household heads were Christians as compared to others. Christians were 58.1% while other religious groups (Muslims and Traditionalists) were 41.90%. Among CHF members, 79 % were Christians while other religious groups were only 20.83%.

Household size explained the total number of dependents in the household. The mean house hold size in the total sample was 4.87 people with standard deviation of 2.93. In addition the minimum number of dependents was one while the maximum number of dependents was 41 people. The maximum number seems to be high because there are families where household head has more than one wife. When comparing between CHF members and non members, household size mean and standard deviation for CHF members were 6.93 and 5.93 people respectively, while in non-CHF members it was 4.68 and 2.41 respectively. With regard to illness rate, 62.32% of the household heads reported their family as having more than two illness episodes in a period of three months, while 37.68% reported they had none. Among the CHF members, 77.08% of members had more than two illness episodes in a period of three months while 22.92% of CHF members had less than two or no illness episodes. Moreover, the majority of

household heads interviewed lived closer to facilities. About 67.43% of households live within a short distance to the facility and 32.57% live farther from the facility. About 47.9 % of CHF members live closer to the facility, while 58.33% live farther from the facility. In terms of non-CHF members 69.23% live closer to the facility, while 30.77% live far from the facility.

With education level, the mean years of education was 5.85 years with standard deviation of 2.68 years. The maximum years of education for the sample were 17, while the minimum years of education were 0 (zero). Zero years represented those who did not attend school at all. The study results showed that the mean years and standard deviation for CHF members were 6.72 years and 2.35 years respectively, while for non-CHF members the mean years of education and standard deviation stood at 5.78 years and 2.7years respectively.

Membership with other micro credit/insurance/voluntary organizations was also considered. The aim was to measure the extent of social capital in rural Tanzania. Only 2.64% of the total household heads in the sample were members with micro-credit/insurance/voluntary organizations. The remaining 97.36% were not members. In terms of CHF membership, 8.33% of those were members with micro-credit/insurance/voluntary organizations, while 91.67% were not members with micro-credit/credit/voluntary organization. For non-CHF members 2.12% had membership with micro/insurance/voluntary organizations and 97.88% were not.

Source of household health care was another characteristic. This was considered in terms of whether the household sought health care from a public or private facility. There was almost equal preference between the two types of facilities. About 50.53% of the sample sought health care from public facilities while 49.9% sought health care from private facility. Among the CHF members, majority were those who sought health care from private facilities. They were 58.33% compared to 41.67% who sought health care from public facility. For non-CHF members, 51.35% sought health care from a public facility while 43.85 sought health care from private facilities.

Two asset indexes were constructed, asset index A and asset index B and their respective quintile A (1-5) and quintile B (1-5 In terms of CHF membership, the distribution of households across quintile A were 37.50% for lower quintile (quintile A 1&2), 43.83% for higher quintiles (quintile A 4&5) and the average quintile A3 there were 16.67% of the households. The distribution of non-CHF member households in quintile A was 41.15% for lower quintile (quintile A 1&2) and 38.85% for higher quintile (quintile A 4&5). The average quintile A3 had 20% of the households.

In quintile B (1-5), the distribution of CHF member households across quintiles were 33.33% for lower quintiles (quintile B 1&2) and 47.91% for higher quintiles (quintile B 4&5). In the average quintile B3 there were 18.75%. For Non-CHF members, 40.77% of households were in the lower quintiles (quintile B 1&2) and 39.23% for higher quintiles (quintile B 4&5). The average quintile B3 had 20% of the households.

5.2 LOGIT REGRESSION MODELS RESULTS

To measure the predictors of enrolment into CHF in Tanzania, four different logit models were developed as summarized in table 5. All the four models were statistically significant. In all the models, Asset Indexes and their respective quintiles were not statistically significant with the exception of model 4, where quintileB1 had the expected negative sign and was statistically significant meaning the households in the lower social economic status strata (quintile B1) were 0.34 times as likely as those in the higher social economic status strata to enrol into CHF.

Other predictors which influence enrolment in CHF included membership with other micro credit/insurance/voluntary organizations, Religion, Household size, Illness rate and distance to a facility. These predictors were all statistically significant and had the expected positive association with CHF enrolment. The only exception was the distance from the facility predictor which had a negative association different from the predicted positive association.

Model 1 (Table 5) shows that household heads who are member to other micro credit/insurance/voluntary organizations are 3.848 times more likely to enrol into CHF than household heads who are not members with other micro credit/insurance/voluntary organizations. In terms of religion, Christians are 2.631 times more likely to enrol into CHF than other religions. With regard to household size, as the house hold size increases the odds of enroling into CHF are 1.19 times more than when the household size decreases. With illness rate, we find households which reported to have more than 2 illness episodes in a period of 3 months recall period are 2.104 times more likely to join than households who reported no illness episodes. Lastly, households residing closer to the provider facility were 0.537 times as likely as those residing farther to the facility to enrol in CHF.

Model 2 (Table 5) shows that household heads who are members with other micro credit/insurance/voluntary organizations are 4.282 times more likely to enrol into CHF than household heads who are not members with micro credit/insurance/voluntary organizations. In terms of religion, Christians are 2.774 times more likely to enrol into CHF than other religious groupings. With regard to household size, as the house hold size increases the odds of enroling into CHF are 1.202 times more than when the household size decreases. With respect to illness rate, households which reported to have more than 2 illness episodes in a period of 3 months recall period are 2.313 times more likely to join than households who reported no illness episodes. Lastly, households residing closer to the provider facility were 0.537 times as likely as those residing farther to the facility to enrol in CHF.

Model 3 (Table 5) shows results almost similar to model 1. Household heads who are members with other micro credit/insurance/voluntary organizations are 3.763 times more likely to enrol into CHF than household heads who are not member to micro credit/insurance/voluntary organizations. In terms of religion, Christians are 2.634 times more likely to enrol into CHF than other religious groups. With regard to household size, as the house hold size increases the odds of enroling into CHF are 1.189 times more than when the household size decreases. If we look at illness rate, we find

households which reported to had more than 2 illness episodes in a period of 3 months recall period are 2.095 times more likely to join than households who reported no illness episodes. Lastly, households residing closer to the provider facility were 0.537 times as likely as those residing farther to the facility to enrol in CHF.

Model 4 (Table 5) shows that household heads who are members with other micro credit/insurance/voluntary organizations are 3.605 times more likely to enrol into CHF than household heads who are not member with other micro credit/insurance/voluntary organizations. In terms of religion, Christians are 2.756 times more likely to enrol into CHF than other religious groups. With regard to household size, as the house hold size increases the odds of enroling into CHF are 1.189 times more than when the household size decreases. With respect to illness rate, we find households which reported to have more that 3 illness episodes in a period of 3 months recall period are 2.292 times more likely to join than households who reported no illness episodes.

Table 6 Logit regression models result

Variables (comparator)	Model 1 Odds ratio (z-statistic)	Model 2 Odds ratio (z-statistic)	Model 3 Odds ratio (z-statistic)	Model 4 Odds ratio (z-statistic)
Gender (Male)	1.323 (0.430)	1.374 (0.379)	1.325 (0.427)	1.318 (0.440)
Age (>27 yrs)	1.205 (0.582)	1.248 (0.518)	1.205 (0.583)	1.266 (0.490)
Marital Status (Married)	0.752 (0.514)	0.725 (0.470)	0.745 (0.501)	0.739 (0.496)
Years of Education [mean=5.85 years]	1.110 (0.148)	1.102 (0.179)	1.106 (0.161)	1.100 (0.187)
Member of micro credit/ micro-insurance/voluntary organizations (Yes)	3.848 (0.052)***	4.282 (0.038)**	3.763 (0.056)***	3.605 (0.071)***
Religion (Christians)	2.631 (0.014)**	2.774 (0.011)**	2.634 (0.014)**	2.756 (0.011)**
Household size [Mean=4.87 people]	1.190 (0.001)*	1.202 (0.001)*	1.189 (0.001)*	1.189 (0.002)**
Distance[Distance from the facility] (Short, <= 1km)	0.537 (0.061)***	0.561 (0.087)***	0.545 (0.069)***	0.580 (0.108)
Illness rate [More than 2 illness episodes in 3 month recall period]	2.104 (0.052)***	2.213 (0.042)**	2.095 (0.054)***	2.292 (0.034)**
Type of facility (Public facility)	0.709 (0.311)	0.724 (0.350)	0.713 (0.320)	0.702 (0.305)
Asset Index A [no animals]	1.043 (0.532)	-	-	-
QuintileA1 (Quintile A5)	-	0.376 (0.102)	-	-
QuintileA2 (Quintile A5)	-	1.364 (0.512)	-	-
QuintileA3 (Quintile A5)	-	0.811 (0.676)	-	-
QuintileA4 (Quintile A5)	-	0.556 (0.256)	-	-
Asset Index B [with animals]	-	-	1.053 (0.434)	-
QuintileB1(Quintile B5)	-	-	-	0.340 (0.090)***
QuintileB2 (Quintile B5)	-	-	-	1.183 (0.726)
QuintileB3 (Quintile B5)	-	-	-	0.824 (0.689)
QuintileB4 (Quintile B5)	-	-	-	0.536 (0.219)

*significant at 1%, **significant at 5%, ***significant at 10%, Quintile A5&B5 dropped due to collinearity

Model 1: LR chi^2 (11) = 46.19, Prob>chi^2=0.0000, Pseudo R^2=0.1404

Model 2: LR chi^2 (14) = 52.47, Prob>chi^2=0.0000, Pseudo R^2= 0.1595

Model 3: LR chi^2 (11) =46.40, Prob>chi^2=0.0000, Pseudo R^2=0.1410

Model 4: LR chi^2 (14) = 51.77, Prob>chi^2=0.0000, Pseudo R^2=0.1573

For more details see Appendix C

5.3 RESULTS OF THE QUALITATIVE ANALYSIS

In this sub section the results on the barriers of enrolment into CHF are presented. The barriers are as follows.

5.3.1 Provider's technical competence

The results show that most of the health centers and dispensaries have either a shortage of or no skilled staffs. There is the feeling that most of the public health centers and dispensaries have shortage of technical staff to diagnose and prescribe ill people. This was revealed in the FGDS discussion held in one of the district under the study.

> *"There is no enough doctors at the near by dispensary. There is a need to improve this first before we are told to pay Tshs 10,000." (FGD, 30th January: 2007).*

5.3.2 Governance in provider's facility

Poor governance is prevalent in some health centers and dispensaries. This is through corruption, nepotism mainly favoring interest groups especially those with power and those who can afford informal payments to facility staff in exchange for treatments. In addition, majority of respondents complained about the lack of accountability in public health facilities. This is because resources supplied at the health centers or dispensaries, for example, drugs are used by dishonest staffs for personal interest rather than public benefit. One example is the illicit sale of drugs to private stores.

> *"The drugs quota normally comes, but they are then taken to private drug store. These staffs have got drug store in the streets. Some time you are told where exactly to buy the required drug" (FGD, 30th January: 2007).*

> *"It is very surprising the private stores has drug while the government dispensary does not have. People translate this as drugs from the government are ferried to private stores" (FGD, 30th January: 2007).*

In some cases the issue of staff being honest and trustworthy was emphasized by the prospective CHF members. They were concerned that misuse of their contributions (premium) may happen again.

> *"I think the staff need to be honesty and trustworthy. It won't make sense if I pay Tshs 10,000.00 in exchange of a Tshs 500 worthy service." (FGD, 30th January: 2007).*

5.3.3 Provider's staff concern over patients

The result shows that staffs in facilities are not paying much attention to patients. Patients feel not valued enough, they feel being ignored by health facility staff and they are not treated with courtesy.

> *"I am not sure if I join will be valued or treated well by facility officer once I get there. May be once he is removed or transferred to somewhere else I will think of joining." (FGD, 30th January: 2007).*

Staff attitude toward patients in some facilities was not good. In some health centers and dispensaries patients are humiliated by staff.

> *"We are humiliated at the facility and services are not as good as we were told before." (FGD, 30th January: 2007).*

5.3.4 Provider's service reliability

The results show that services in the provider's facility are not reliable. Several indicators at the facilities are evidence for unreliable services. The first major contributor to poor services is the unavailability of drugs. Dispensing of drugs is not reliable because most of the time they are out of stock. Moreover, during the CHF sensitization campaign, people were told that once they join they will get all the drugs. However, this has not been the case, such that there is no difference between the members and non members. All of them are told to buy drugs from private stores after being prescribed. This made them to perceive services at the health centers are not good.

"Services at the government dispensary are not good. There is no difference between the member and non member. Because at the end of the day you have paid Tshs 10,000.00 and non member paid Tshs 1,000.00 but all of you will be told to go buy drugs in private stores."(FGD, 30th January: 2007).

"Majority of us afraid to contribute because when you fall sick and visit our dispensary you will be diagnosed but you end up being told there are no drugs. You are told to go buy them at the drug stores regardless of your Tshs 10,000.00 contribution."(FGD, 30th January: 2007).

"Even the members are told to go and buy drugs at the stores. So why should I join?" (FGD, 30th January: 2007).

In some cases the rural people are forced to use private providers instead of public health centers or dispensaries despite being active members of CHF due to poor services at the health centers and dispensaries.

"I and my family are members of the CHF. But due to poor services at the centre, I am forced to use private hospital. So the premium I paid does not help me at al." (FGD, 30th January: 2007).

In other areas, those who were members in the first year of CHF operation decided not to renew their membership in the following year. They dropped out due to shortage of drugs at the health centers.

"I was a member in the first year. The next year I dropped because there no drugs at the centre. You still need to go to the shops for drugs. I saw no point of renewing my membership because no difference between the members and non members." (FGD, 30th January: 2007).

Others have seen CHF as increasing the cost of illness burden instead of reducing it. This is because when they go to other private health centres they incur additional costs apart from the premium paid to CHF.

> *"Unless you go other hospital, but now you are going to incur cost twice. So the problem is poor service and nothing else." (FGD, 30th January: 2007).*

Apart from the benefit package, most of the health centre and dispensaries have limited services. For example the absence of night services for emergence cases. This causes people to rate the services at the health centers and dispensaries as unreliable.

> *"In our case the clinician stays far from the dispensary. At night she won't be there. Therefore i may pay the 10,000 but when I go to the dispensary at night she won't be there for me." (FGD, 7th December: 2006).*

In some of the health centers, there is shortage of or no basic supplies like soaps, charcoal etc. The CHF fund is supposed to contribute to the availability of these supplies. However, people are told to provide for themselves instead of the facility providing them. Shortage of supplies at the health centers and dispensary contributed to the unreliability of services offered.

> *"For pregnant women when you are about to deliver, you are require to go with kerosene, soap, charcoal. So what is the logic of paying Tshs 10,000.00?" (FGD, 7th December: 2006).*

The benefit package was another issue around service reliability. The majority of interviewees were concerned about the benefit package design. The benefit package is perceived to include minor illnesses which cost much less to manage or treat. They were of the opinion that the benefit packages include the referral hospital or secondary health care. Most of the benefit packages included primary care only, which included illnesses people do not consider to be affecting them most or as priority. Sometimes, even the promised primary care benefits were not given.

> *"The said benefits at the facility are not there; again the fund does not include referral hospitals in their coverage."(FGD, 7th December: 2006)*

"It is not well designed in terms of benefits and services at the health centre. Some crucial services are left out, especially the major ones. Once all these are fixed, we will join." (FGD, 7th December: 2006: 7)

"They should cover all services. They should not select some, especially unimportant ones." (FGD, 7th December: 2006)

In some cases interviewees wished there was a wider choice of providers. Business men and women who travel outside their district of residence complained about the lack of CHF service coverage when they travel to another district. Not only that, but also hospitals in one district can be better in terms of service than in the other district. They wanted the CHF to operate even beyond their district jurisdiction.

"I understand other districts in the country have CHF arrangements in place. I was wondering if I travel to other districts on my normal business activities then unexpectedly I fall sick, will I get the treatment using my card from." (FGD, 7th December: 2006)

5.3.5 Premium

Issues which came up around the premium included affordability, mode of payment, timing of payment and lack of reciprocity. Majority of interviewees complained about the amount of the premium they are supposed to contribute. Most of them saw the set amount as unaffordable. Given the cost of living difficulties due to poor economic situation they face. Also, they complained the premium set was never discussed by community members. It was set by councilors in their meeting. Some wanted the premium to be reduced from the current amount of Tshs 10,000.00 to Tshs 5,000.00.

"The Tshs 10,000.00 is a little bit higher for us. They should think of reducing it to Tshs 5,000/=. In fact we have never discussed this amount. It was set by the council without our consensus." (FGD, 7th December: 2006: 7)

"Tshs 10,000.00 is a lot given the economic situation and life difficulties. It should be brought down to Tshs 5,000/=." (FGD, 7th December: 2006)

In rural areas, health care is not the only basic need of people. There are other competing needs which have higher priority than health care in a family. Given the level of income of the family head, setting higher premium than the income earned by the family renders CHF unaffordable.

> *"I get very little income from my farming activities and my family depends on that. I can not go to borrow from my uncle because he is like me. Therefore I can't afford it." (FGD, 7th December: 2006)*

Further more the timing of the premium payment period was not good in some areas. Premium payment was often demanded during those times when people had no money or income flow was not good. This contributed to the unaffordability of the CHF premium amount.

> *"They should bring it during December and not may to September. December is appropriate time." (FGD, 7th December: 2006)*

The mode of payment was not ideal for most of the interviewees given the fact that the premium is higher and also that they were having irregular and low incomes. In most cases, members are required to pay the premium all at once in one lump sum. For majority of the families this was not easy hence rendered the premium unaffordable.

> *"The premium is big for us. We can't afford to pay at once. With two installments we could try. At least they could have made it Tshs 5000.00." (FGD, 7th December: 2006)*

As a result of higher CHF premium as compared to the amount of user fee charged, some of people opted to pay instantly when they fall sick than making prepayments. This was the case where prepayments were regarded as higher compared to instant payment when someone falls sick

> *"The premium is high. It is easier to pay when ill than paying before falling ill." (FGD, 7th December: 2006)*

Lack of reciprocity in premium payments in some areas was revealed. The results show some of the districts succeeded in the collection of initial contribution because they made it mandatory to pay through direct deduction from income earned by households/individuals from sales of their crop produce. However, some of the farmers have not received the CHF membership cards since making their payments. Most people were not happy about this arrangement especially with the delay in issuing them membership cards.

> *"For us small cash crops farmers the contribution was deducted from our sales of cash crops through the cooperative without our knowledge .Moreover we have not received the fund cards to date. By now we may not have the Tshs 10,000.00 but previously it was deducted from the sales of our cash crops and we have never used it." (FGD, 7th December: 2006)*

5.3.6 Limited CHF knowledge.

The results show that there is limited knowledge about the CHF prepayment concept among the targeted rural population. Three issues came up on the limited knowledge about CHF. People did not understand the whole idea of CHF prepayment scheme. It was revealed majority do not understand how the CHF operate, its advantages and the whole idea of risk pooling.

> *"We don't understand how it operates, its advantages etc. I hope your visit today will shed some light on it." (FGD, 7th December: 2006)*

Also, there is a misconception about who qualify to join CHF. Some people in the rural areas think that CHF it is not for them, it is for workers in the formal sector, or other groups in the community like children.

> *"For us farmers we feel it is not for us. It is for employees. We really don't understand it. May be you explain to us about it." (FGD, 7th December: 2006)*

> *"Let me ask please. Is it only for the children? Or even me?" (FGD, 7th December: 2006)*

"We heard that if you go to the hospital you pay Tshs 10,000.00 for the medical treatment cost of your child for the whole year every time you visit the dispensary and you wont miss drugs."(FGD, 7th December: 2006)

However, there are few people who understand and appreciate the whole idea of CHF concept. They understand that CHF can help to cross-subsidize the risk of illness between the sick and healthy people. Also, can mitigate the financial risk associated with untimely illness.

"If the services are good, the arrangement is nice. Because you only contribute Tshs 10,000.00 and get the dispensary service for the whole year regardless of the number of visits. If you go to private hospital you will pay more than that...." (FGD, 7th December: 2006)

"..This arrangement is good because poor people don't have money every day. Especially, the untimely illness. When one of the family members falls ill no hassles of or running around looking for Tshs 1000.00." (FGD, 7th December: 2006)

The sensitizations done are not enough in terms of scale and coverage. In some areas it was done only once and sometimes the sensitization only covered certain group of people in the community who may not be key decision makers in the households

"I remember sensitisation was done but only once and longer time has passed. People agreed with the fund but they did not pay their contribution. No body came for the second time to remind us." (FGD, 7th December: 2006)

"Myself I heard it from women who attend maternity clinics. For us men we never attend maternity clinic it is difficult to understand it. This also contributes to poor enrolment. No strong sensitisation was done to explain the advantages of this kind of fund."(FGD, 7th December: 2006)

5.3.7 Health status

The results show that people who ordinarily experience less frequent episodes of illness and therefore less vulnerable to financial burden of medical cost do not see the justification of joining CHF.

> *"We have not been sick for quite some time now. Therefore, I don't see the reasons why I should join."(FGD, 7th December: 2006)*

In other areas people who don't fall sick most of the time perceived that paying a CHF premium is like money wasting. This was because they thought they may not go to the health centre for health services for the whole year. Hence, they have a feeling they may not use their premiums in the whole membership period.

> *"I am not sick most of the time. So why should I pay my money. What if I don't use it? What happens?."(FGD, 7th December: 2006)*

5.3.8 Wait and see attitude

Some people are worried about the sustainability of the fund. They needed more time to appreciate CHF mainly through seeing the benefit (especially, the promised benefit package) accrued to other people. This prevalent skepticism is mainly due to failure of previous initiatives in other sectors initiated by the Government or NGOs.

> *"I am waiting to see the progress of this fund because there have been some initiatives like this in the past .but they died soon after launching. If it is sustainable I will join." (FGD, 7th December: 2006)*

In some areas people are worried with the sustainability of CHF because in those areas, CHF is not performing well. FGDs participants explained CHF is almost dying in their areas.

> *"There are worries whether CHF will continue to operate in the villages, as of now the CHF is almost dying." (FGD, 7th December: 2006)*

5.3.9 Negligence

The results show that some people are just indifferent and laid back about making the decision to join. Despite the fact that they fully understand the concept and advantages of CHF, and that the premium is affordable to them they have still decided to take no action in enroling into CHF.

> *"It is just negligence; premium payment is not a problem at all." (FGD, 7th December: 2006)*

Other households tended to be reluctant to join CHF during harvest time. Yet this is the time when majority of rural people have money from the sales of harvest to be able to afford the premium. But once the harvest period is past they can no longer afford the premium to join CHF

> *"We have not joined because of negligence especially during the harvest period. When harvest period is gone, it's not possible to join." (FGD, 7th December: 2006)*

5.3.10 Patriarchal interests in the households

Majority of the rural households are male denominated when it comes to decision making over various issues facing the family. The result shows that some male household heads were not interested in joining CHF despite the fact that their wives wanted to join CHF

> *"My husband did not like it for reasons known to him, though I was interested to join." (FGD, 7th December: 2006)*

5.3.11 CHF Stopped operations

In some of the district areas CHF has been stopped to operate by council district officials. This is especially so where there was an agreement with the private providers and one part failed to fulfil its obligations. However, FGDs revealed people want to enrol into CHF but it not operating in their area.

"CHF Stopped to operate in our areas otherwise i could have joined. If CHF will be restored majority of people will be happy because it was helping to pay cost of illness at...hospital. There was misunderstanding between the...hospital and the council administration." (FGD, 7th December: 2006)

CHAPTER SIX

6 DISCUSSION

6.1 Introduction

In this chapter the findings of this study are discussed. It starts with the discussion of predictors of enrolment, followed by barriers to enrolment in CHF.

6.2 Predictors of enrolment

The results in section 5.2 show that household heads who are members of micro credit/insurance/voluntary organizations are more likely to enrol in CHF than those who are not members. These results are consistent with the results of other studies (Jütting, 2003; Liu et al.2002). However, the descriptive statistics in section 5.1 show that very few rural people are involved with other micro credit/insurance/ voluntary organizations. Surprisingly, even among the few members of micro credit/insurance/voluntary organizations, the majority of them are not CHF members. This gives an indication that social capital in terms of solidarity is declining in rural areas. Specifically, the communal networking, shared norms and cooperation within or among groups in the villages are declining.

According to Beattie et al. (1996), Tanzania has had a history of strong local community organization, and this facilitated the growth of community dispensaries, central institutions in the provision of health care services. Other examples include traditional saving and credit groups for women and the traditional dances after harvests. These indicate strong existence of social interaction or solidarity in rural communities was high in the past. Of course, it is very rare to find professional bodies in the village given that the majority of rural people have low education level. However, other forms of voluntary organizations like death and burial ceremonial systems used to exist in rural areas. Given the fact that this research was a cross sectional it was not possible to give concrete evidence of the decline in solidarity. More research, especially longitudinal research is needed to give evidences for the declining of social solidarity in rural areas.

The decline of social capital has implications on solidarity and consequently CHF success which is premised on the principals of solidarity and risk pooling. Thus, people may not be ready to help each other by pooling both financial and health risks. Also, the decline of social capital may have implications for the diffusion of the concept of CHF among rural people. This reflects on the impact of CHF sensitization campaigns. In particular the adoption of the CHF concept may be limited because the circulation of information among individuals in a community was not efficient due to deterioration of the quality of networks or cooperation. This deterioration in networks and cooperation translates into decline in communal solidarity.

The results in section 5.2 show that Christians are more likely to enrol in CHF than other religious groups. Similar results have been found in another study (Jütting, 2003). This is reflected in the descriptive statistics in section 5.1 which show substantial involvement of Christians in the CHF. The reason could be some of the churches in Tanzania have been directly involved in ensuring social security to its members by initiating different forms of community based health insurance. Examples example are the Evangelical Lutheran Church of Tanzania (ELCT) which started CBHF in 1997. The Catholic Diocese of Kigoma is paying premiums to CHF Kigoma to cover the most vulnerable children (MVCs) under special arrangement. Also, the Christian Social Services Commission (CSSC) with the support of the Bishops and other leaders of the Catholic and Protestant churches advocate and facilitate the scaling up of sensitization campaigns to communities regarding the benefit of CHF. In addition, the CSSC converse religious faith based organizations (FBO) and religious leaders to appreciate and active interest in the concept and benefits of CHF. Clearly, this shows the reasons for over presentation of Christians in the CHF. However, caution must be taken in generalizing the religious results as these may be biased by the choice of sites where one religion is more dominant over the others.

The results in section 5.2 show that as the household size increases or becomes bigger in terms of dependents, the odds of joining CHF are higher than the case is for smaller households. These results are in line with the findings of other studies done elsewhere (Mathiyazhagan, 1998 ., Asenso-Okyere et al. 1997., Schneider and Diop, 2004). In the descriptive statistics presented in section 5.1, the mean number of household size for

CHF member is higher than the mean number of household size of the total sample and the non CHF member. This means most of CHF members are coming from households with more dependents. The reason for this trend is that as the number of dependent increases in the household, the probability of incurring high cost of health care due to illness increases. This is especially so when majority of the household members fall sick at the same time or even consecutively.

With unpredictable and seasonal flow of income , the escalating medical costs and competing needs, it become secure for households with many dependents to enrol into CHF. By enroling with CHF the health care expenditure incurred per household member will be less compared to paying user fees for each household member when they fall ill. The poor health indicators for Tanzania discussed under section 2.4 signify that the majority of Tanzanians are vulnerable to disease. Therefore, having many dependents in the household increases the risk of having several ill people in the household. The maximum number[24] of people required to enrol for each household is determined independently by each district to control for the household size. However, in this case the majority of members are from larger households the cross subsidization principle may not work because of the absence of redistribution of both financial and health risks from households with fewer dependents to households with more dependents. This calls for the need to put in place the mechanisms to control the tendency of lager household dominating CHF membership as it has implications on the CHF health care expenditure.

Illness rate was used as a proxy for household health status. More illness frequencies represented poor health status and vice versa. The results in section 5.2 show that illness rate was statistically significant and positively related to CHF enrolment. This indicated that households which encounter illness episodes more frequently are more likely to join CHF than households with less frequent illness episodes. These results are in line with the results of other studies (Mathiyazhagan, 1998., Supakankunti, 2001., Wang et al.2005). The results are also reflected in the descriptive statistics in section 5.1 where the majority of CHF members are those households with poor health status. This is an

[24] The 2001 CHF act does not explicitly spell out the maximum number of dependents eligible to enrol under one household. It only defines the household as parents and their children less than 18 years of age. The maximum number of household member is set under the district by laws. This has resulted to have different maximum number of household size in different districts.

indication of adverse selection which may have an impact on the operating cost of CHF in the long run. Also, it may discourage the healthy people from joining CHF as they may feel that this scheme is only for the unhealthy people. One way to control adverse selection could be universal coverage within each village. This can be achieved by making CHF mandatory to all household. Currently, there is no measure in place to control for adverse selection. As for moral hazard, it was difficult to ascertain if it was there given the nature of this study in which no utilization data was collected.

Distance to the facility was used as a proxy for physical accessibility of the health facility. The results in section 5.2 show that distance from the facility was statistically significant and negatively related to CHF enrolment. Meaning those households closer to the facility are less likely to enrol into CHF than those which are farther from the facility. The results are consistent with Mathiyazhagan, (1998) and Asenso-Okyere et al. (1997). However, these results are different from what was expected. It was expected that household closer to the facility could be more represented into CHF than those that live farther from the facility. This was because the design of CHF does not include transport as part of the benefit package. Therefore, it would be advantageous to people living closer to the facility because they are not incurring any transport cost. Several reasons account for this behavior. It could be due to the neighborhood effects, such that the closer households are more used to the facility staff. The "who you know" factor facilitate for them favors from the facility staff. Examples of these favors include the deferred payment of user fee or exemption from paying the user fees. Consequently, they are less motivated to join CHF. Additionally, the closer households may be aware of what is going on at the health center in terms of quality of services. They are in better position to know if the services provided are good or bad ahead of the farther household. Having known services are poor, they may decide not to enrol into CHF.

With respect to income, only quintile B1 representing the poorest people were statistically significant and the expected sign was negative (section 5.2). This means that the poorest people are less likely to enrol into CHF compared to other wealth strata. The results are consistent with other studies (Asenso-Okyere et al.1997; Jütting, (2003). Also, the descriptive results in section 5.1 show less representation of the poorest in the CHF compared to other wealth strata. This confirms the existence of social exclusion of the majority accessing health care services to a lesser extent. Theoretically, CHF has an exemption mechanism to counter social exclusion of the poor. However, the exemption is not effective due to the absence of guidelines to implement it. Additionally, in the context where majority of people are the poorest, it becomes difficult to implement the exemption policy as it may contradict with the revenue generation objective of CHF. District councils are supposed to pay membership fees for the exempted poorest. However, given the limited budget and other competing needs district councils find it difficult to allocate money for this purpose. On the other hand, majority of the poor are not aware about the existence of this exemption policy. Therefore, measures to overcome social exclusion of the poorest need to be strengthened or more innovative strategies should be devised to allow inclusion of the poorest in the CHF.

6.3 Barriers to enrolment

The results in sub-section 5.3.1 show that most of the health centers and dispensaries experience shortage of technically competent staff. This is consistent with the results found in other studies (Gilson et al. 1994., Kamuzora and Gilson, 2007., Hsiao, 2004). According to MoH(1999) rural health centers are supposed to have assistant medical officer, three clinical officers, grade A nurses, four nurse midwives , four nurse PHN B, two MCHA, four medical attendants, one laboratory assistant, one dental therapist and other supporting staffs like catering and accounts. At dispensary level, staff required includes two clinical officers, two Grade B public nurses and a medical attendant. However, in reality the staffing in the rural health centers and dispensaries is not as discussed above. It is common to find health center having only a clinical officer and few nurses or no nurses at all. In some of the dispensaries there is only one medical attendant.

The shortage of technically competent staff has implications for the trustworthiness of the facility to treat patients. Patients do not trust the facility and therefore do not present themselves for examination at the health center or the dispensary. Once there is no trust with the facility, one of the two options is normally taken. Either, patients bypass the health center/dispensary and go to district hospital or go to private hospital/dispensaries where they believe there is enough capacity to deal with their illness. In addition, a hospital is perceived to be more effective at treatments than health centers or dispensaries. In the long run, it becomes an obstacle to CHF enrolment because CHF service providers are mainly the health centers or dispensaries. In Tanzania, majority of private hospital/dispensaries are not linked to CHF with the exception of some districts where private hospitals/dispensaries are contracted by the government to deliver services to the CHF members and non-members. Under these circumstances, patients opt to pay out of pocket to the facility they trust have capacity to attend their illness rather than paying premium for CHF membership.

Related to the above is an unreliable service from CHF providers. The results in sub section 5.3.4 show unavailability of drugs, absence of basic services such as night services for emergence cases, shortage of basic supplies like soaps, charcoal for maternity ward and limited benefit package contribute to the perception of unreliable service in the health centers and dispensaries. These results are in line with studies conducted in other contexts (Kamuzora and Gilson, 2007., Criel and Waelkens, 2003; Annis, 1981). There is typically unreliable supply of drugs from the Medical Stores Department (MSD) which normally does not last for the whole quarter. The majorities of health centers and dispensaries normally have drugs on the first few days of the quarter, and then operates without drugs for the rest of the quarter. Sometimes a quarter may pass without receiving the drug supplies. Unreliable supply of drug can be either due to poor estimation of the requirements at the user facility or ineffective packaging and distribution of drugs from MSD. Haddad et al. (1998) noted that regardless of all health recourses used, availability of drugs is of prime importance in health care and some times it takes precedence over the other attributes of quality. This calls for immediate measures to address these deficiencies at the MSD, the requesting facilities and all the intermediaries involvedWith regard to shortage of supplies, the main cause

remains to be under funding experienced by the health sector in general. Initially it was planned that the revenue generated from user fees and premium collected from CHF members would supplement the subsidies from the government. Given low enrolment in CHF the amount of revenue generated from both the user fees and CHF prepayments is sufficient to cater for all the resource needs of the facilities. This led to the perception that services at the public facilities are unreliable. Thus, patients are not willing to enrol into CHF in exchange for unreliable services. It has been noted elsewhere (Criel et al. 2004) that perceived quality of services is one of the most important determinants of patients' choice of provider and willingness to pay. For example, the Bwamanda scheme succeeded to enrol many people because it was launched in the setting of relatively high standard health care services (Criel et al.1998).

Moreover, in sub section 5.3.4 it is revealed that limited services at the health centers/ dispensaries facility and insignificant benefit packages are barrier to enrolment. Similar results were found in other studies (Preker et al. 2002., Arhin-Tenkorang, 2004 and Bennett, 2004., Hsiao, 2004). Limited services included the absence of night services for emergency cases for both maternity and sudden illness at night. This happens where the facility's staffs reside far from the facility such that they can only be available during the day time only. With regard to the benefit package, the CHF members are entitled to all the services at the health centers/dispensaries, and some time limited range of outpatient services at the district hospital. This set-up has made patients to perceive the benefit package under CHF as incomplete, because it covers minor illnesses of which the majority of people are not worried about their cost. Generally, people prefer a benefit package that protects them against high health care expenditure. This has made CHF not attractive to people because it is not tailored to the preferences and needs of the people. However, with rapid rise in health care costs care must be taken in designing the benefit package as it may have serious implications for the financial viability of the scheme. Therefore, the actual benefit packages costs need to be carefully considered at the design stage.

The results in sub section 5.3.5 show several issues related to the premium as barriers to enrolment. They include unaffordable premium, inflexible mode of payment and lack of

reciprocity in the premium collection. These findings are consistent with other studies done elsewhere (Abel-Smith and Dua,1998., Sinha et al. 2006., Criel and Waelkens, 2003., Kamuzora and Gilson, 2007., Schmidt et al. 2006 and De Allegri et al. 2006). In most cases the premium was set without considering the purchasing power of the rural people. Thus, no prior studies were done to ascertain the ability of people to pay the premium. Premiums were set by councilors in district council meetings and later imposed on people. Surprisingly, majority of the councilors are not member of CHF though they were in the forefront setting up the premium and designing the CHF. This shows that the community was not involved in the initial stages of CHF design. Thus the community felt as not being part of CHF process and the sense of CHF ownership was negatively affected. In the absence of ability to pay studies and community participation, unaffordable premiums (Tshs 10,000 per household) were set making it expensive for majority of people to buy the CHF card. A rapid assessment conducted in this study showed that the majority of people were willing and able to pay the premium of Tshs 5,000.00. However, the mode and timing of payment are not good as people are required to pay the whole sum at once while they are cash constrained. Most people in the rural areas have no resources to afford a single lump-sum payment of the premium. Given that premium is higher, it was suggested two installments would be ideal for the premium of Tshs 10,000.00.

Furthermore, the absence of reciprocity during payment of premium (subsection 5.3.5) was revealed in some areas. Thus, people paid their premium through mandatory deductions from the crop sales but in return they were neither given the CHF card nor utilized the health care via the prepayment made. They had the feeling their contributions were embezzled. This had implications for the integrity of CHF management such that CHF was no longer attracting more people to enrol. However, in those areas where mandatory deduction of premium from sales of crop was done, management were successful in enroling many CHF members in their first years. In the next year, it was made voluntary and majority of them did not renew their membership due to distrust, unaffordable premiums and inflexible mode of payment. All in all, the poorest ability to pay the premium was not given careful consideration leading to

majority of rural people resorting to user fees which are regarded as affordable[25] and convenient to them than raising the premium amount.

The results in sub section 5.3.6 show that few rural people understand the concept of CHF and the majorities have limited knowledge of the CHF concept. Similar results were found in other studies (Kamuzora and Gilson, 2007). Annis (1981) noted that knowledge about something leads to its adoption. In terms of CHF it can be said that limited knowledge of the CHF concept led to non acceptance of the CHF among the rural people. For this reason few people turned up and joined the CHF. This indicates that the sensitization and awareness campaigns done in rural areas were ineffective. Several reasons account for this ineffective sensitization. In some areas the activity was done only once such that the majority did not get to understand thoroughly the whole concept of CHF. It is also possible that the design of the sensitization campaigns did not capture the attention of many people making it ineffective. Other reasons include lack of commitment of district authorities and politicians to support the sensitization campaigns and limited resources at the district level for organizing repeated sensitization campaigns. In the absence of sufficient understanding of the CHF concept, some households failed to enrol in the CHF because the advantages of CHF were not clear to them.

The results in subsections 5.3.10 show the factor of male household heads as barriers to enrolment. Sometimes male household heads just refused to enrol in CHF for unknown reasons. All these are related to lack of understanding and appreciation of the CHF concept among the male members of the household. Once more, this could be one of the consequences of ineffective sensitization campaign done in those areas. There is the need to improve the sensitization campaign so as to attract more households to join CHF

The results show in sub section 5.3.2 that poor governance in health centers and dispensaries is another barrier to enrolment. There are elements of corruption and nepotism at the health centers and dispensaries. Corruption is reflected in the illicit sale of drugs by dishonest facility staff to private providers, while nepotism was related to

[25] The user fees paid at the health center is Tshs 1000/= per visit while at the dispensary is Tshs 500/= per visit (Kiwara, 1999).

unequal distribution of the benefit package among CHF members. For example, while other CHF members are short dosed or told there are no drugs, other favored groups receive full dose drug packs from the facility. Short dosing of patients leads to patients not being cured. Haddad et al. (1998) noted that recovery is one of the most important criteria for judging quality of service by lay people. These actions have discouraged the majority of people from renewing their membership as they felt denied their right, and not confident in the facility's ability to cure them. On the other hand, the factors for poor governance in the facilities include inadequacy of drugs and low salaries to facilities staff. Inadequacy of drugs creates higher demand for drugs, such that, consumers with high purchasing power are ready to give informal payment in exchange for drugs. Low salaries led facility staff to use their position to engage in illicit sale of drugs in order to get money for their livelihoods.

Also, the results in sub section 5.3.3 reveal staff attitude toward patients was another barrier to enrolment. Patients are ignored and not valued enough by some facility staff. In other words, the health center/dispensary staffs are not client-oriented leading to patient's dissatisfaction. This complaint came from both CHF members and non members. According to Haddad et al. (1998) sometimes appropriate and sensitive reception of patients is as important as having drugs available because it is the source of hope and compensate for other shortcomings. In addition, health care personnel are judged on the manner in which they receive their patients. Poor staff attitudes may be due to low motivation among facility staffs. Several factors account for this, they include frustrations due to poor working environment, low salaries and shortage of supplies from the government. It is common to find majority of facilities in the rural areas understaffed and under-resourced while serving many people, making the working environment hardly conducive. Despite the government effort to train and recruit clinical staff for rural areas, majority of the recruited do not turn up for the positions. Poor working environment in rural areas does not attract competent staff to work there. Hence, there is a shortage of staff in rural health facilities.

Interesting results are shown in subsection 5.3.10. It was revealed that in some areas within the district CHF was stopped to operate even though people in those areas were still interested to be members of CHF. This was in a case where there were no public

health centers or dispensaries. Therefore, a private provider was contracted to provide health care services. The major reason for contract termination was the high bill presented to the district for payment against services rendered to CHF members. While the private provider complained about delayed payment, CHF was complaining about high the bill presented by the private provider. This led to the district authorities to cancel the contract with the provider. This scenario may be due to either over-prescription by the provider leading to higher bills or poor contract management on the part of the CHF. Over-prescription is normally the consequence of the provider payment mechanisms applied. The provider payment mechanisms may give incentives to the private provider to over-prescribe so as to increase profit. It is more common with fee for service payment method. Hence, there is a need to apply a payment method which checks for over prescription. Poor contract management on the part of CHF translates into low contracting capacity. That is, there are limited skills for executing and managing contracts of clinical nature on the part of CHF. This calls for more training in contract management for CHF managers.

The results in section 5.3.8 show the wait-and-see attitude as one of the barriers to enrolment. This is a result of distrust of the people in the public institution that has been underperforming in the past. Also, the embezzlement of public funds in various public institutions and NGOs adds to further the distrust of the government initiatives, especially those initiatives involving community participation by contributing money. There are instances in the past when people were told to contribute to certain community development projects and the projects never launched. All these negative precedents made people to worry about the CHF sustainability and embezzlement of premiums. Hsiao (1984) noted that development of a good management system as well as a trust relationship between administrators and beneficiaries are crucial elements for the long term survival of the scheme. Worries expressed above translate into distrust between the people and the CHF, which has implications for the survival of the CHF. The wait-and-see attitude is employed by beneficiaries in order to avoid disappointments and regrets in the future once CHF fails. Failure of the CHF has a hidden consequence of destroying future promising health care financing efforts. One example is the universal coverage goal which may be spoilt by the precedent of CHF failure.

6.3.1 Summary of the discussion

Remarkably, the discussion of results has brought out several areas for CHF improvement in order to attract more people to enrol. On the one side, social exclusion of the poor in CHF, decline of solidarity in rural areas as well as the problem of adverse selection were issues which came up when discussing the predictors of enrolment. On the other side, as major barrier to enrolment perceived poor quality of service in rural health centers and dispensaries came out clearly. This included elements such as shortage of competent technical staff, unavailability of drugs and other supplies, poor interpersonal relationship between the patient and facility staff, facility staff dishonesty. Shortage of competent technical staff was related to lack of staff motivation due to poor working environment and low salaries.

Inherent weaknesses in the CHF design was another noted barrier to enrolment. It included marginal community participation in various design issues like premium setting and benefit package design. As a result of marginal community participation, unaffordable premiums and inflexible premium payment modes were set. In additional, a marginal benefits package that did not correspond to the needs and preferences of people was set. Lastly, the communication approach applied to sensitize people was not effective. This led the majority of rural people not to understand sufficiently the concept of the CHF and how it worked. All these have policy implications which are discussed in detail in the following section.

CHAPTER SEVEN

7 POLICY IMPLICATIONS AND CONCLUSION

7.1 Introduction

In this chapter the policy implications and conclusion of the study are explained. It starts with the policy implications, followed by the conclusion at the end.

7.2 Policy implications

7.2.1 Quality of health care services

The study findings provide some information on the perceived quality of health care services in rural health canters and dispensaries. The quality of health care in rural health centres and dispensaries is perceived to be poor making CHF unattractive to people. This provides evidence that it is not possible to set up a viable insurance scheme and mobilise people to enrol before the quality of care is improved since no value for money will be felt by members. Policy makers are advised to address issues leading to poor health care services for rural people. Wiesmann and Jütting (2000) argued that health care quality improvement need not be expected as an outcome of resource mobilization via insurance. Currently, the set up of CHF is focused on resource mobilization for renovations of buildings, installing solar system etc. with little or no consideration to improvement of quality of services. Policy makers need to address the problem of shortage of competent technical staffs for rural areas. One option is training more staff.

However, training alone is not a sufficient means to improve quality of care. This is because there are other factors which make trained staff avoid working in rural areas. Amongst them are low salaries and poor working conditions. Both low salaries and poor working conditions are the results of health sector under-funding. Low salaries can be addressed by setting purposeful allowance for working in rural areas. While special fund for improving the working conditions can be sought from budget allocation by setting aside fund for this purpose. Another alternative is to create a punitive tax on various products which have negative externalities on people to accumulate finance for upgrading employment conditions in rural health facilities. For example, increased taxes on cigarettes and alcohol consumption can be used to finance the upgrading of health care services in rural areas. In addition, increased tax on cigarette and alcohol will help

to control the detrimental health effects resulting from cigarette smoking and alcohol abuse.

By all means availability of drugs is a key element in health care service provision. Patients can not be cured without drugs. This calls for the policy makers to improve supplies of drugs in rural health canters and dispensaries. Since drug distribution is mandated to MSD, it is possible there are inefficiencies within MSD leading to drug shortages in health centers/dispensaries. However, in order to be certain of the cause of poor distribution of drugs in rural areas research needs to be done. The findings of the research will inform the policy makers on the causes of poor drug distribution and take an appropriate course of action. The problem of drugs shortage can also be caused at the facility level. It can be due to poor forecasting of drug requirements, illicit sale of drug to private stores or over utilization of health services. For poor forecasting of drug requirement, the best option is to train the facility staff in how to estimate demand and make sufficient drug requisitions. Illicit sale of drugs calls for thorough supervision and monitoring of rural health facilities. Though there is no evidence of over-utilization of services by CHF members, measure to deal with adverse selection are proposed in the next sub section.

Poor interpersonal relationships between the patients and facility staff translates into lack of client oriented services-the way which patients are received and treated at the time they are visiting the health center or dispensary for treatments. This calls for policy makers to promote professionalism within the health centers and dispensaries. Several tailored short-courses on customer care are recommended for the short term. Long term strategies should include customer care modules in the national curriculum for clinical trainings.

7.2.2 Inherent weaknesses in the CHF design

The discussion of study results has revealed a set of CHF design elements which need attention for the well functioning CHF, and consequently build trust among participants and the rest of the community. Bärnighausen and Sauerborn (2002) noted that voluntary schemes are an opportunity to build trust between management of the scheme and its

participants. There is the need to build trust of rural people in the CHF by redesigning some elements of CHF in the districts where CHF has been implemented. This may also serve as a reference framework for those districts which are in a process of establishing CHF.

The study findings revealed that there is marginal community participation in the early stages of CHF design despite the weight given to community participation in the 2001 CHF Act in various administration activities of the CHF. Early participation in the CHF design leads members identifying themselves with their scheme. Also, it helps to build a sense of scheme ownership among members. This is missing in the CHF leading to people perceiving the CHF as a government project and not community owned schemes. If members can identify themselves with "their" scheme then the possibility of participation and commitment to the scheme increases. Early community participation can be sought in the setting of premiums and benefit packages as well as their modes of implementation. Focus group discussions can be conducted with community members. In addition, early community participation in premium setting helps in sorting out the problem of unaffordability of premiums. This is because the limitations of the financial capacities of the people will be understood in advance. In other words, it calls for consultative assessment on the willingness and ability to pay well in advance rather than have the district council setting the CHF premium based on instincts or mere precedents from another district. Through direct consultation with the community members, realities on premium and its payment modalities[26] can be revealed. However, assessment of willingness to pay need experienced experts to design and compile the results. It is possible that within the districts there may not have capacity to conduct focus group discussions as well as willingness and ability to pay assessments. However, this is a problem that can be addressed by commissioning the study to external experts on consultancy basis.

The marginal benefit package is also a result of minimal or no community participation in the initial CHF design. The experience of Bwamanda community financing scheme can help to exemplify the role of community participation in setting the benefit

[26] Premium payment modalities in this study refer to when payment should be done, how many installment and whether payment should be done in cash or kind.

packages. According to Moens (1990) the designing of the Bwamanda scheme used a preference heuristic model (group discussions) in designing the scheme. In the preference heuristic model, different groups evaluate possible solutions with regards to their impacts on the objectives and their susceptibility to known constraints. Through this approach, the benefit package fitting the needs and preferences of the community was developed. However, with this approach there is a danger of designing a benefit package which does not match the revenue collection capacity. Therefore, at the end, matching the premium collections and the cost of that benefit package is important. Another solution to unaffordable benefit package is the application of incremental expansion of benefit package in accordance with changing needs, values and economic circumstances. That is, designing the initial basic benefit package and then, over time and need more services are added to the original benefit package. For CHF consideration should also be given to the possible inclusion of district hospital referral services in the basic benefit package so as to attract more people to enrol. However, by including district hospital referral services in CHF, the gate keeping system will need to be strengthened and adhered to. Measures to control by-passing of health centers or dispensaries such as co-payment can be instituted

The study also revealed the prevalence of adverse selection in CHF where majority members are more likely to have come from households with poor health status. This has implications for the running costs of the scheme due to increased health care expenditures. Over-representation of members from households with poor health status in CHF leads to the cross-subsidization effect between the healthy and sick not to work accordingly. This study suggests three ways of controlling the adverse selection. One option is co-payment of the medical cost between the members and the CHF. This is where a patient has to meet a certain percentage of the cost of health care consumed. Co- payments make the patients to be sensitive to cost and even question the bills when they become high. The percentage can be set and agreed upon through community participation in the process of designing the CHF. It can be applied at the district hospitals and at the private providers as a means of containing cost. The second option is the application of waiting time before the newly joined members can start enjoying the benefits. Time period can be agreed upon in the design process. The third option is compulsion of membership where every household is obliged to be a member of the

scheme. Compulsion can come at a later stage after the quality of services has been improved. However, the establishment of a compulsory scheme may be deemed not politically feasible. Thus, all stakeholders in the CHF need to be consulted before the final decision of compulsion is made.

Lastly, the study revealed that the majority of the poor are not members of CHF. This translates into the presence of social exclusion within the CHF. In other words, the CHF is not equitable as it leaves out the very poor. The study recommends to policy makers that strategies be designed which will ensure that poor people are not left out of CHF. One strategy is to strengthen the existing exemption mechanism in favor of the poor and vulnerable people. The current exemption guideline is loosely defined such that its implementation becomes difficult and sometimes biased. For example, the exemption guideline does not spell out clearly the criteria for selecting the poor. Apart from the ill defined exemption guideline, there is a problem of funds to cover the premiums of the exempted poor. According to the 2001 CHF Act, it is for the District council to pay the cost of the exempted poor. However, this has not been implemented on grounds that the district councils have tight budget to afford paying premiums for poor people. This study suggests integration of Churches, FBOs and other charity organizations in the CHF to address this problem. The integrated organization can be approached to cover the premium of the poor. The experience of Roman Catholic Diocese of Kigoma in section 7.2 exemplifies this approach. Additionally, some one off activities such as fund rising dinner and charity walks can be used to accumulate funds for premium subsidies. At national level, the sin tax can be one of the options. Examples of sin tax can be increased taxes on cigarettes and alcohol consumption. The taxes revenues collected from the cigarette and alcohol consumption can be used to subsidize the premium payment for the exempted poor people.

7.2.3 Ineffective sensitization campaign

The study revealed that the sensitization campaign to the community about the CHF concept was ineffective. Little was done to educate the community members on the CHF concept. Several factors behind the ineffectiveness of the sensitization campaign have been discussed in the previous sections. This calls for redesigning a new approach

of sensitization nested within marketing strategies of sensitization. This study suggests application of social marketing[27] strategies to communicate the whole idea of CHF to the community. It can be done by commissioning the competent agent to execute it. However, this needs the existence of political will and purposeful budget allocation for social marketing activities in the district councils. One advantage of social marketing campaign is that it is tailored to the unique perspective, needs, and experiences of the target audience, and sometimes it takes on board the inputs from representative members of the targeted group. The current sensitization campaign misses this important aspect of social marketing making it ineffective. The execution and implementation of social marketing campaign is explained elsewhere.

[27] Kotler and Andreasen . (1991). Defines social marketing as application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society.

7.3 CONCLUSION

As pointed out in the introduction chapter, Tanzania is faced with challenges in health care financing, such that it can not provide protection against health care costs for the majority of its population. The most affected are the people living in the rural areas and especially those working in the informal sector. One response to this situation was the health care financing reforms which among others saw the introduction of the Community Health Fund (CHF) in 1996. The CHF aimed at mobilizing resources on voluntary basis from households in order to fund primary health care in rural areas.

Although the CHF has been implemented for almost 10 years, the enrolment of members is still far below the targeted coverage of 85% of the population living in rural areas. This low enrolment prompted the need to study the predictors of and barriers to enrolment in the CHF. Therefore, the objective of this study was to reveal the association between the predictors of willingness to enrol in CHF. In addition, the barriers to enrolment in CHF in the Tanzanian context were explored.

The descriptive statistics have revealed that 8% of the sample was the CHF members. This was within the range of 4% to 18% mentioned in various evaluations and studies done in Tanzania. A notable result from the descriptive statistics was the low representation of the poorest in the CHF. Low representation of the poor in the CHF was also confirmed in the logit model analysis.

In the logit regression analysis six of the hypothesized independent variables were significant with respect to the likelihood of enroling in CHF. The significant independent variables included members of micro credit/insurance/voluntary organizations, religion, household size, distance from the facility, illness rate and wealth quintileB1. All the significant variables had the expected positive sign except QuintileB1 which had a negative sign. The insignificant variables included age, gender, education, marital status, type of facility, asset index A and B, quintile A (1-5) and quintile B (2-5). In addition, the logit regression analysis revealed there is adverse selection and social exclusion of the poorest in CHF. Social exclusion of the poorest translates to inequitable CHF. The qualitative analysis revealed the following as barriers to enrolment; shortage of technical competent staff, poor governance in health, lack of client centered services, unreliable services, unaffordable premium, inflexible payment modalities, limited knowledge about CHF, health status, wait and see attitude, negligence, patriarchal interest in the household and in some areas CHF was stopped to operate.

To conclude, it suffices to say that the current setting of CHF carries significant inherent weaknesses that contribute to low enrolment. Therefore the improvement of the quality of health care services in public health centers and dispensaries is strongly recommended, furthermore the redesign of the CHF and associated sensitization campaigns. The redesigning of the CHF also promises to address the inherent problems of social exclusion of the poor as well as the adverse selection.

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9 APPENDICES

9.1 APPENDIX A

9.1.1 Descriptive analysis for assets included in the principle component analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
v20_watsou~1	568	.0123239	.1104243	0	1
v20_watsou~2	568	.0950704	.2935707	0	1
v20_watsou~3	568	.1109155	.3143043	0	1
v20_watsou~4	568	.2922535	.4551991	0	1
v20_watsou~5	568	.2271127	.4193353	0	1
v20_watsou~6	568	.0334507	.1799688	0	1
v20_watsou~7	568	.028169	.1656013	0	1
v20_watsou~8	568	.2007042	.4008802	0	1
v21_toilet~1	568	.0140845	.1179433	0	1
v21_toilet~2	568	.0545775	.2273538	0	1
v21_toilet~3	568	.8996479	.3007338	0	1
v21_toilet~4	568	.0035211	.0592867	0	1
v21_toilet~5	568	.028169	.1656013	0	1
electricity	568	.068662	.2531013	0	1
parafinl	568	.7975352	.402191	0	1
radio	568	.6338028	.4821889	0	1
TV	568	.0369718	.188859	0	1
CELLPHONE	568	.1989437	.3995574	0	1
REFREGILATOR	568	.0211268	.1439336	0	1
BICYCLE	568	.5774648	.4943982	0	1
MOTORCYCLE	568	.0158451	.124986	0	1
CARTRUCK	568	.0105634	.1023241	0	1
v23_Cfuel1	568	.0088028	.0934918	0	1
v23_Cfuel2	568	.0193662	.1379298	0	1
v23_Cfuel3	568	.0105634	.1023241	0	1
v23_Cfuel4	568	.181338	.3856376	0	1
v23_Cfuel5	568	.7799296	.4146591	0	1
v24_dwelli~1	568	.6461268	.4785919	0	1
v24_dwelli~2	568	.3362676	.4728481	0	1
v24_dwelli~3	568	.0176056	.1316289	0	1
v25_floor1	568	.8045775	.3968751	0	1
v25_floor2	568	.0052817	.0725469	0	1
v25_floor3	568	.1901408	.3927581	0	1
v26_wall1	568	.0035211	.0592867	0	1
v26_wall2	568	.3433099	.4752324	0	1
v26_wall3	568	.1619718	.3687497	0	1
v26_wall4	568	.4735915	.4997422	0	1
v26_wall5	568	.0017606	.0419591	0	1
v26_wall6	568	.0140845	.1179433	0	1
v26_wall7	568	.0017606	.0419591	0	1
v27_roofing1	568	.5528169	.4976408	0	1
v27_roofing2	568	.4419014	.4970508	0	1
v27_roofing3	568	.0052817	.0725469	0	1
cattle_cat1	568	.8080986	.3941431	0	1
cattle_cat2	568	.1126761	.3164751	0	1
cattle_cat3	568	.0792254	.2703282	0	1
sheeps_cat3	568	.0211268	.1439336	0	1
goat_cat1	568	.7940141	.4047767	0	1
goat_cat2	568	.1338028	.3407404	0	1
goat_cat3	568	.0721831	.259019	0	1
pigs_cat1	568	.9119718	.2835856	0	1
pigs_cat2	568	.0669014	.2500714	0	1
pigs_cat3	568	.0211268	.1439336	0	1
Donkey	568	.0052817	.0725469	0	1

9.1.2 Asset Index's Principal Component Analysis (PCA) Print Out

A. Asset Index A (No animals)

Variable	Mean	Std. Dev.	Min	Max
v20_watsou~1	.0123239	.1104243	0	1
v20_watsou~2	.0950704	.2935707	0	1
v20_watsou~4	.2922535	.4551991	0	1
v20_watsou~6	.0334507	.1799688	0	1
v20_watsou~8	.2007042	.4008802	0	1
v21_toilet~2	.0545775	.2273538	0	1
v21_toilet~3	.8996479	.3007338	0	1
v21_toilet~1	.0140845	.1179433	0	1
electricity	.068662	.2531013	0	1
parafin1	.7975352	.402191	0	1
radio	.6338028	.4821889	0	1
TV	.0369718	.188859	0	1
CELLPHONE	.1989437	.3995574	0	1
REFREGILATOR	.0211268	.1439336	0	1
BICYCLE	.5774648	.4943982	0	1
MOTORCYCLE	.0158451	.124986	0	1
CARTRUCK	.0105634	.1023241	0	1
v23_Cfuel1	.0088028	.0934918	0	1
v23_Cfuel2	.0193662	.1379298	0	1
v23_Cfuel3	.0105634	.1023241	0	1
v23_Cfuel4	.181338	.3856376	0	1
v23_Cfuel5	.7799296	.4146591	0	1
v25_floor1	.8045775	.3968751	0	1
v25_floor3	.1901408	.3927581	0	1
v26_wall2	.3433099	.4752324	0	1
v26_wall3	.1619718	.3687497	0	1
v26_wall4	.4735915	.4997422	0	1
v26_wall6	.0140845	.1179433	0	1
v27_roofing1	.5528169	.4976408	0	1
v27_roofing2	.4419014	.4970508	0	1

(Principal components; 11 components retained)

Component	Eigenvalue	Difference	Proportion	Cumulative
1	5.76037	3.11196	0.1920	0.1920
2	2.64841	0.78566	0.0883	0.2803
3	1.86275	0.31758	0.0621	0.3424
4	1.54517	0.04492	0.0515	0.3939
5	1.50025	0.06259	0.0500	0.4439
6	1.43765	0.10505	0.0479	0.4918
7	1.33261	0.08010	0.0444	0.5362
8	1.25251	0.11444	0.0418	0.5780
9	1.13806	0.06824	0.0379	0.6159
10	1.06983	0.04900	0.0357	0.6516
11	1.02083	0.03539	0.0340	0.6856
12	0.98545	0.02088	0.0328	0.7185
13	0.96457	0.03301	0.0322	0.7506
14	0.93155	0.04676	0.0311	0.7817
15	0.88479	0.10030	0.0295	0.8112
16	0.78450	0.02515	0.0261	0.8373
17	0.75934	0.05279	0.0253	0.8626
18	0.70655	0.09601	0.0236	0.8862
19	0.61054	0.01195	0.0204	0.9065
20	0.59859	0.05400	0.0200	0.9265
21	0.54459	0.07096	0.0182	0.9446
22	0.47364	0.07243	0.0158	0.9604
23	0.40121	0.09031	0.0134	0.9738
24	0.31090	0.02409	0.0104	0.9842

25	0.28681	0.13523	0.0096	0.9937
26	0.15158	0.13355	0.0051	0.9988
27	0.01803	0.00776	0.0006	0.9994
28	0.01027	0.00163	0.0003	0.9997
29	0.00864	0.00864	0.0003	1.0000
30	0.00000	.	0.0000	1.0000

B) Asset Index B (with animals)

Variable	Mean	Std. Dev.	Min	Max
v20_watsou~1	.0123239	.1104243	0	1
v20_watsou~2	.0950704	.2935707	0	1
v20_watsou~4	.2922535	.4551991	0	1
v20_watsou~6	.0334507	.1799688	0	1
v20_watsou~8	.2007042	.4008802	0	1
v21_toilet~2	.0545775	.2273538	0	1
v21_toilet~3	.8996479	.3007338	0	1
v21_toilet~1	.0140845	.1179433	0	1
electricity	.068662	.2531013	0	1
parafinl	.7975352	.402191	0	1
radio	.6338028	.4821889	0	1
TV	.0369718	.188859	0	1
CELLPHONE	.1989437	.3995574	0	1
REFREGILATOR	.0211268	.1439336	0	1
BICYCLE	.5774648	.4943982	0	1
MOTORCYCLE	.0158451	.124986	0	1
CARTRUCK	.0105634	.1023241	0	1
v23_Cfuel1	.0088028	.0934918	0	1
v23_Cfuel2	.0193662	.1379298	0	1
v23_Cfuel3	.0105634	.1023241	0	1
v23_Cfuel4	.181338	.3856376	0	1
v23_Cfuel5	.7799296	.4146591	0	1
v25_floor1	.8045775	.3968751	0	1
v25_floor3	.1901408	.3927581	0	1
v26_wall2	.3433099	.4752324	0	1
v26_wall3	.1619718	.3687497	0	1
v26_wall4	.4735915	.4997422	0	1
v26_wall6	.0140845	.1179433	0	1
v27_roofing1	.5528169	.4976408	0	1
v27_roofing2	.4419014	.4970508	0	1
cattle_cat2	.1126761	.3164751	0	1
cattle_cat3	.0792254	.2703282	0	1
sheeps_cat2	.0492958	.2166757	0	1
sheeps_cat3	.0211268	.1439336	0	1
goat_cat2	.1338028	.3407404	0	1
goat_cat3	.0721831	.259019	0	1
pigs_cat2	.0669014	.2500714	0	1
pigs_cat3	.0211268	.1439336	0	1
donkey	.0052817	.0725469	0	1

(Principal components; 15 components retained)

Component	Eigenvalue	Difference	Proportion	Cumulative
1	5.92071	3.14804	0.1518	0.1518
2	2.77267	0.59369	0.0711	0.2229
3	2.17898	0.34499	0.0559	0.2788
4	1.83399	0.21218	0.0470	0.3258
5	1.62181	0.12342	0.0416	0.3674
6	1.49839	0.03901	0.0384	0.4058
7	1.45938	0.10079	0.0374	0.4432
8	1.35858	0.06005	0.0348	0.4781
9	1.29853	0.05861	0.0333	0.5114
10	1.23992	0.02118	0.0318	0.5432
11	1.21873	0.04806	0.0312	0.5744
12	1.17067	0.04849	0.0300	0.6044
13	1.12219	0.03547	0.0288	0.6332
14	1.08671	0.06448	0.0279	0.6611
15	1.02224	0.05301	0.0262	0.6873

16	0.96923	0.03213	0.0249	0.7121
17	0.93710	0.02099	0.0240	0.7361
18	0.91611	0.06159	0.0235	0.7596
19	0.85452	0.01888	0.0219	0.7815
20	0.83564	0.04486	0.0214	0.8030
21	0.79078	0.02883	0.0203	0.8233
22	0.76195	0.03482	0.0195	0.8428
23	0.72713	0.04290	0.0186	0.8614
24	0.68422	0.05210	0.0175	0.8790
25	0.63212	0.01664	0.0162	0.8952
26	0.61549	0.03096	0.0158	0.9110
27	0.58453	0.09253	0.0150	0.9260
28	0.49199	0.01105	0.0126	0.9386
29	0.48094	0.05777	0.0123	0.9509
30	0.42317	0.02773	0.0109	0.9618
31	0.39544	0.05250	0.0101	0.9719
32	0.34294	0.04049	0.0088	0.9807
33	0.30244	0.03851	0.0078	0.9884
34	0.26393	0.11376	0.0068	0.9952
35	0.15017	0.13226	0.0039	0.9991
36	0.01791	0.00765	0.0005	0.9995
37	0.01026	0.00174	0.0003	0.9998
38	0.00852	0.00852	0.0002	1.0000
39	-0.00000	.	-0.0000	1.0000

9.1.3 Asset Indexes Internal coherence test

This was done using the quintile for each respective asset index

Asset Index A (Frequency distribution per quintile)

Quintiles A	Freq.	Percent	Cum.
1	118	20.77	20.77
2	114	20.07	40.85
3	112	19.72	60.56
4	111	19.54	80.11
5	113	19.89	100.00
Total	568	100.00	

Asset Index B (Frequency distribution per quintile)

Quintiles B	Freq.	Percent	Cum.
1	116	20.42	20.42
2	112	19.72	40.14
3	113	19.89	60.04
4	114	20.07	80.11
5	113	19.89	100.00
Total	568	100.00	

Possession of tape water in the dwelling

Tape water in dwelling	5 quintiles of Asset Index A					Total
	1	2	3	4	5	
No	118	114	111	109	109	561
Yes	0	0	1	2	4	7
Total	118	114	112	111	113	568

Tape water in dwelling	5 quintiles of Asset Index B					Total
	1	2	3	4	5	
No	116	112	112	112	109	561
Yes	0	0	1	2	4	7
Total	116	112	113	114	113	568

Possession of cell phones

CELLPHONE	5 quintiles of Asset Index A					Total
	1	2	3	4	5	
No	118	109	106	88	34	455
Yes	0	5	6	23	79	113
Total	118	114	112	111	113	568

CELLPHONE	5 quintiles of Asset Index B					Total
	1	2	3	4	5	
No	116	111	104	93	31	455
Yes	0	1	9	21	82	113
Total	116	112	113	114	113	568

Possession of bicycle

BICYCLE	5 quintiles of Asset Index A					Total
	1	2	3	4	5	
No	84	48	47	38	23	240
Yes	34	66	65	73	90	328
Total	118	114	112	111	113	568

BICYCLE	5 quintiles of Asset Index B					Total
	1	2	3	4	5	
No	80	52	45	40	23	240
Yes	36	60	68	74	90	328
Total	116	112	113	114	113	568

9.2 APPENDIX B

9.2.1 Free nodes list with descriptions

1 Appreciation
Description:
Acknowledging the importance or advantages of CHF in improving individual, households or society welfare.

2 Benefit package
Description:
Range of services covered by the fund for all members

3 Technical competence~
Description:
Refers to the staff skills in terms of education level as well as experiences

4 Coverage
Description:
In this study coverage is the area of CHF operation or jurisdiction

5 Dishonest
Description:
It refers to staff misconduct behavior like misuse of resources, corruption and other unethical conducts

6 Don't understand
Description:
This refers to either no knowledge of CHF concept among individuals or partial knowledge. It basically it was how one understand the idea of CHF operation principles.

7 Dropped
Description:
Refers to those households who were members in the beginning but did not renew membership the following year for various reasons

8 Facility staff attitude
Description:
This was the staff attitude toward patients. How they handled the patients

10 Health Status
Description:
This refers to frequencies of illness in a household/individuals within a year

11 Honesty
Description:
This refers to good conduct of the facility staffs

12 Limited sensitization
Description:
This basically refers to the effectiveness and number of sensitization programs done before the launching of CHF. Sensitization was partly educating people on the potential of CHF and mobilizing them to join.

13 Limited services
Description:

This refers to range of services offered at a facility. It becomes limited when some services expected to be there are not available

14 Low Income

Description:

This is based on the level of income earned by individual/household.

15 Mandatory contribution

Description:

Premium which was deducted from farmer's sales proceeds without their knowledge and consensus

16 Member=non members

Description:

This is when CHF member have no any difference with non members when it comes to supply of drugs. Members are expecting to get drugs for each visit but they are told to go to private stores to buy the same like other non-members

17 Negligence

Description:

This refer to laxities, slackness in deciding to join CHF

18 No drug -wait and see

Description:

The drugs at the facility are either in short of supply or no available parse

19 No drugs

Description:

Short of supply of drugs or unavailable parse

20 No emergency

Description:

This refers to unavailability of out of normal working hours services

21 No night services

Description:

This refers to absence of night services at the facility. Especially for those night unexpected episodes

22 Patient attention

Description:

This refer to how facility staff value and handle the patients (patient sovereignty)

23 Patriarchal decision making

Description:

This is when the male household head is the only one making final decisions in a family. OR male household head dominated decision making in a household

24 Poor services

Description:

Low quality of services offered at a facility normally they are below standard required

25 Quality of services

Description:

Perception of the quality of services offered at the facility especially when compared to services offered at private facilities. or the level of service excellence

26 Shortage of equipments

Description:

Unavailability of resources or equipment for satisfactory delivery of services required at the facility. Or shortage of resources other than drug and personnel

27 Stopped operations

Description:

Refer to closure of CHF operation by district council authority in some areas

28 Suggested premium

Description:

Refers to the amount of premiums individuals/households are willing to pay

29 Sustainability

Description:

This refers to the life span of CHF operations after launching in a community it is serving. (Short term or long term)

30 Timing of payments

Description:

The time when payment of premium is made.

31 Type of facilty~quality of services

Description:

Type of facility refer t whether the facility is privately or publicly owned

32 Unaffordable Premium

Description:

High priced premium such that people are not able to pay due low income they are earning

33 Wait and see attitude

Description:

People who doesn't believe in something they are not used. They take time to appreciate it until after time when they see the benefit accrued tom other people

9.2.2 Tree Nodes

Document: NVivo PROJECT
Nodes in Set: ALL TREE NODES

Node 1 of 46 **(1 1) /Technical competence/competence~**
Passage 1 of 1 Section 0, Para 189, 135 chars.

189: There is no enough doctors at the near by dispensary. There is a need to improve this first before we are told to pay Tshs 10,000.

Node 2 of 46 **(2 1) /Provider's good governance/Dishonest**
Passage 1 of 2 Section 0, Para 34, 188 chars.

34: The drugs quota normally comes, but they are then taken to private drug store. These staff has got drug store in the streets. Some time you are told where exactly to buy the required drug .

Passage 2 of 2 Section 0, Para 46, 175 chars.

46: It is very surprising the private stores has drug while the government dispensary does not have. People translate this as drugs from the government are ferried to private stores

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Node 3 of 46 **(2 2) /Provider's good governance/honesty**
Passage 1 of 1 Section 0, Para 81, 139 chars.

81: But I think the staff need to be honesty and trustworthy. It wont make sense if I pay Tshs 10,000.00 in exchange of a Ths 500 worthy service

---

Node 4 of 46 **(3 1) /Provider's concerns over patient/Facility staff attitude**
Passage 1 of 1 Section 0, Para 157, 189 chars.

157: Poor services because there are no drugs, we are given panadol only. The premium is also unaffordable, we are humiliated at the facility and services are not as good as we were told before.

Node 5 of 46 **(3 2) /Provider's concerns over patient/Patient attention**
Passage 1 of 1 Section 0, Para 119, 92 chars.

119: I am not sure if I join will be valued or treated well by facility officer once I get there

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Node 6 of 46 **(4 1) /Service reliability/Benefit package**
Passage 1 of 3 Section 0, Para 146, 117 chars.

146: The said benefits at the facility are not there; again the fund does not include referral hospitals in their coverage

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Passage 2 of 3 Section 0, Para 179, 243 chars.

179: The fund seems to be nice and beneficial. However, currently, it is not well deigned in terms of benefits and services at the health centre. Some crucial services are left out, especially the major ones. Once all these are fixed, we will join.

Passage 3 of 3 Section 0, Para 185, 88 chars.

185: They should cover all services. They should not select some, especially unimportant ones

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Node 7 of 46 **(4 2) /Service reliability/Coverage**
Passage 1 of 1 Section 0, Para 89, 237 chars.

89: I understand other districts in the country have CHF arrangements in place. I was wondering if I travel to other districts on my normal business activities then unexpectedly I fall sick, will I get the treatment using my card from Masasi

---

Node 8 of 46 **(4 3) /Service reliability/Droped**
Passage 1 of 1 Section 0, Para 224, 161 chars.

224: I and my family are members of the CHF. But due to poor services at the CENTRE I am forced to use private hospital. So the premium I paid does not help me at all

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Node 9 of 46 **(4 4) /Service reliability/Limited services**
Passage 1 of 1 Section 0, Para 150, 64 chars.

150: No maternity services, waiting time is long and limited services

---

Node 10 of 46 **(4 5) /Service reliability/Member=non members**
Passage 1 of 2 Section 0, Para 42, 264 chars.

42: Services at the government dispensary are not good. There is no difference between the member and non member. Because at the end of the day you have paid Tshs 10,000.00 and non member paid Tshs 1,000.00 but all of you will be told to go buy drugs in private stores.

Passage 2 of 2 Section 0, Para 201, 83 chars.

201: Even the members are told to go and buy drugs at the stores. so why should I join?

Node 11 of 46 **(4 6) /Service reliability/No drug~wait and see**
Passage 1 of 1 Section 0, Para 155, 74 chars.

155: Even those who joined earlier are no getting drugs. so no need of joining

---

Node 12 of 46 **(4 7) /Service reliability/No drugs**
Passage 1 of 14 Section 0, Para 17, 241 chars.

17: Majority of us afraid to contribute because when you fall sick and visit our dispensary you will be diagnosed but you end up being told there is no drugs. You are told to go buy at the drug stores regardless of your Ths 10,000.00 contribution

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Passage 2 of 14 Section 0, Para 24, 170 chars.

24: If you go there with your patient you get the drugs. While at the government dispensary you just get the prescription. It is better I go to pay to the private dispensary.

Passage 3 of 14 Section 0, Para 26, 165 chars.

26: Like of now, older are supposed to pay Tshs 1000/= before the diagnosis. You pay that, and then you are taken for diagnosis. After that you are told to go buy drugs.

Passage 4 of 14 Section 0, Para 28, 100 chars.

28: Can I ask a question? Does it mean if we contribute the Ths 10,000.00 we will get the drugs require?

Passage 5 of 14 Section 0, Para 30, 75 chars.

30: Because what I see hear is when you go there you are told go buy you drugs.

Passage 6 of 14 Section 0, Para 32, 106 chars.

32: once took my child there and ended up buying drugs from the store though she was qualifying for exemption.

Passage 7 of 14 Section 0, Para 34, 69 chars.

34: When you visit the government dispensary you are given two palacentamo

---

Passage 8 of 14 Section 0, Para 42, 263 chars.

42: Services at the government dispensary are not good. There is no difference between the member and non member. Because at the end of the day you have paid Tshs 10,000.00 and non member paid Tshs 1,000.00 but all of you will be told to go buy drugs in private stores.

Passage 9 of 14 Section 0, Para 115, 164 chars.

115: It doesn't make sense to pay Tshs 10,000 to join and then should you fall sick and go to the facility you are told there is no drugs you are to buy at the pharmacy.

Passage 10 of 14 Section 0, Para 117, 86 chars.

117: I am Worried because you may pay Tshs 10,000 and still be told to buy drugs at the pharmacy

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Passage 11 of 14 Section 0, Para 139, 62 chars.

139: We don't get genuine drugs, we get only panadol or under dose

---

Passage 12 of 14 Section 0, Para 159, 109 chars.

159: You can contribute Tshs 10000 but you get poor service and some time you are told to buy drugs at the store

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Passage 13 of 14 Section 0, Para 196, 133 chars.

196: you may fall sick and go to the government hospital; having waited for a long time on queue you end up being told there are no drugs.

Passage 14 of 14 Section 0, Para 207, 239 chars.

207: I was a member in the first year. The next year I dropped because there no drugs at the centre. You still need to go to the shops for drugs. I saw no point of renewing my membership because no difference between the members and non members

---

Node 13 of 46 **(4 8) /Service reliability/No emergency**
Passage 1 of 1 Section 0, Para 167, 137 chars.

167: If there is perfect service, Tshs 10,000 is nothing. We will contribute. However, in our case the clinician stays far from the dispensary

---

Node 14 of 46 **(4 9) /Service reliability/No night services**
Passage 1 of 1 Section 0, Para 167, 121 chars.

167: Therefore at night she won't be there. Therefore i may pay the 10,000 but when I go to the dispensary she won't be there for me.

Node 15 of 46 **(4 10) /Service reliability/Poor services**

Passage 1 of 3 Section 0, Para 30, 121 chars.

30: Unless you go other hospital, but now you are going to incur cost twice. So the problem is poor service and nothing else.

Passage 2 of 3 Section 0, Para 157, 67 chars.

157: Poor services because there are no drugs, we are given panadol only

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Passage 3 of 3 Section 0, Para 159, 109 chars.

159: You can contribute Tshs 10000 but you get poor service and some time you are told to buy drugs at the store

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Node 16 of 46 **(4 11) /Service reliability/Quality of services**
Passage 1 of 2 Section 0, Para 30, 113 chars.

30: But what I think to be a barrier is just the quality of service at our dispensary. Does it match our expectation?

Passage 2 of 2 Section 0, Para 85, 182 chars.

85: Utimbe is just a dispensary. Services are not good compared to this mission dispensary. Even if you contribute at Utimbe but I will come here at the mission dispensary for treatment.

Node 17 of 46 **(4 12) /Service reliability/Shortage of equipments**
Passage 1 of 1 Section 0, Para 17, 148 chars.

17: For pregnant women when you are about to deliver, you are require to go with kerosene, soap, charcoal. So what is the logic of paying Tshs 10,000.00?

Node 18 of 46 **(4 13) /Service reliability/Type of facilty~quality of services**
Passage 1 of 1 Section 0, Para 101, 121 chars.

101: I would advise instead of using our premium at Utimbe, we should use the mission dispensary. It is better here than Utimbe.

Node 19 of 46 **(5 1) /Premium/Low Income**
Passage 1 of 1 Section 0, Para 97, 144 chars.

97: I get very little income from my farming activities and my family depends on that. I can not go to borrow from my uncle because he is like me. Therefore I cant afford it.

Node 20 of 46 **(5 2) /Premium/Mandatory contribution**
Passage 1 of 1 Section 0, Para 79, 294 chars.

79: For us small cashew nut farmers the contribution was deducted from our sales of cashew nuts through the cooperatives without our knowledge. Moreover, we have not received the fund cards to date. By now we may not have the Tshs 10,000.00 but previously it was deducted from the sales of our cashew nuts and we never used it.

Node 21 of 46 **(5 3) /Premium/Timing of payments**
Passage 1 of 1 Section 0, Para 198, 106 chars.

198: However, they should bring it during December and not may to September. December is not appropriate time.

Node 22 of 46 **(5 4) /Premium/Unaffordable Premium**
Passage 1 of 6 Section 0, Para 95, 191 chars.

95: The Tshs 10,000.00 is a little bit higher to us. They should think of reducing it to Tshs 5,000/=. In fact we have never discussed this amount. It was set by the council without our consensus.

Passage 2 of 6 Section 0, Para 108, 112 chars.

108: The premium is big for us. We can't afford to pay at once .With two instalments we could try. At least they could have made it Tshs 5000/=

Passage 3 of 6 Section 0, Para 124, 81 chars.

124: The premium is high. it is easier to pay when ill than paying before falling ill

---

Passage 4 of 6 Section 0, Para 157, 34 chars.

157: The premium is also unaffordable,

Passage 5 of 6 Section 0, Para 175, 94 chars.

175: The premium of Tshs 10000 is very high. It should be reduced to 5,000.then majority will join

Passage 6 of 6 Section 0, Para 213, 108 chars.

213: Tshs 10000 is a lot given the economic situation and life difficulties. It should be brought down to 5,0000.

Node 23 of 46 **(6 1) /Limited Knowledge of the CHF concept/Appreciation**
Passage 1 of 3 Section 0, Para 40, 241 chars.

40: Yes! If the services are good, the arrangement is nice. Because you only contribute Ths 10,000.00 and get the dispensary service for the whole year regardless of the number of visits. If you go to private hospital you will pay more than that.

Passage 2 of 3 Section 0, Para 44, 207 chars.

44: This arrangement is good because for the poor people wont have money every day. Especially the untimely illness. When one of the family member fall ill no hassles of or running around looking for Ths 1000/=.

Passage 3 of 3 Section 0, Para 173, 63 chars.

173: It is just negligence; premium payment is not a problem at all

---

Node 24 of 46 **(6 2) /Limited Knowledge of the CHF concept/Don't understand**
Passage 1 of 6 Section 0, Para 9, 254 chars.

9: We heard about it but we don't understand clearly how it operates. We heard that if you go to the hospital you pay Tsh 10,000.00 for the medical treatment cost of your child for the whole year every time you visit the dispensary and you wont miss drugs.

Passage 2 of 6 Section 0, Para 13, 59 chars.

13: Mmmm..... Let me ask please. Is it only the child? Or even me?

Passage 3 of 6 Section 0, Para 36, 68 chars.

36: Does this fund operate just in our village or even beyond like KCMC?

Passage 4 of 6 Section 0, Para 65, 90 chars.

65: We heard about it in the media but we don't understand it well, especially how it operates

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Passage 5 of 6 Section 0, Para 67, 135 chars.

67: This CHF. We heard about it but we don't understand how it operate, its advantages etc. I hope your visit today will shed some light on it.

Passage 6 of 6 Section 0, Para 69, 149 chars.

69: We heard about it, but for us farmers we feel it is not for us. It is for employee. We really don't understand it. May be you explain to us about it.

Node 25 of 46 **(6 3) /Limited Knowledge of the CHF concept/Limited sensitization**
Passage 1 of 2 Section 0, Para 21, 257 chars.

21: My self I heard it from women who attend maternity clinics. For us men we never attend maternity clinic it is difficult to understand it. This also contributes to poor enrolment. No strong sensitization was done to explain the advantages of this kind of fund.

Passage 2 of 2 Section 0, Para 30, 142 chars.

30: i remember sensitization was done but only once and longer time has passed. People agreed with the fund but they did not pay their contribution. No body came for the second time to remind us.

Node 26 of 46 **(7 1) /Health status/Health Status**
Passage 1 of 4 Section 0, Para 99, 138 chars.

99: It is also possible one to contribute for two years consecutively without falling sick. So when we complain about the premium it is right.

Passage 2 of 4 Section 0, Para 112, 99 chars.

112: We have not been sick for quite some time now. Therefore, I don't see the reasons why i should join

---

Passage 3 of 4 Section 0, Para 148, 136 chars.

148: Private hospital, pharmacies should be included in the fund. There should be collaboration between the Government and private providers

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Passage 4 of 4 Section 0, Para 217, 100 chars.

217: I am not sick most of the time. So why should I pay my money. What if I don't use it? What happens?

Node 27 of 46 **(8 1) /Wait and see/Sustainability**
Passage 1 of 1 Section 0, Para 161, 204 chars.

161: There are worries whether CHF will continue to operate in the villages, as of now the CHF is almost dying.

Node 28 of 46 **(8 2) /Wait and see/Waiting to see**
Passage 1 of 1 Section 0, Para 220, 177 chars.

220: I am waiting to see the progress of this fund because there has been some initiatives like this in the past .but they died soon after launching If it is sustainable I will join.

Node 29 of 46 **(9 1) /Negligence/ Negligence**
Passage 1 of 2 Section 0, Para 173, 63 chars.

173: It is just negligence; premium payment is not a problem at all

---

Passage 2 of 2 Section 0, Para 194, 134 chars.

194: We have not joined because of negligence especially during the harvest period. When harvest period is gone, it's not possible to join

---

Node 30 of 46 **(10 1) /Patriarchal Decision Making/Patriarchal decision making**
Passage 1 of 1 Section 0, Para 211, 85 chars.

211: My husband did not like it for reasons known to him, though I was interested to join

---

Node 31 of 46 **(11 1) /Stopped operating/Stopped operations**
Passage 1 of 1 Section 0, Para 165, 176 chars.

165: CHF Stopped to operate in our area otherwise i could have joined. If CHF will be restored majority of people will be happy because it was helping to pay cost of illness at Dareda hospital. There was misunderstanding between the Dareda mission hospital and the municipal administration

9.3 APPENDIX C

9.3.1 Stata logit model output

Model 1

```
Logit estimates                                   Number of obs   =        568
                                                  LR chi2(11)     =      46.19
                                                  Prob > chi2     =     0.0000
Log likelihood = -141.42087                       Pseudo R2       =     0.1404
```

CHF_Member	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Gender	1.322667	.4688245	0.79	0.430	.6602959	2.649489
Age	1.205275	.4088511	0.55	0.582	.6199305	2.343306
Marrital_s~s	.7523274	.328329	-0.65	0.514	.3198361	1.769646
Years_educ~n	1.110116	.0802294	1.45	0.148	.9634981	1.279044
Member_Oth~n	3.848012	2.668729	1.94	0.052	.988323	14.98215
Religion	2.630685	1.039902	2.45	0.014	1.212248	5.708819
Household_~e	1.19044	.0630583	3.29	0.001	1.073047	1.320676
Distance_t~y	.5373519	.1784869	-1.87	0.061	.2802358	1.030372
Ilness_Fre~e	2.104068	.8064224	1.94	0.052	.9927074	4.459624
Type _Fac~y	.7088449	.2406675	-1.01	0.311	.3643768	1.37896
Asset_IndexA	1.042547	.0694323	0.63	0.532	.9149701	1.187913

Model 2

```
                                                  Number of obs   =        568
                                                  LR chi2(14)     =      52.47
                                                  Prob > chi2     =     0.0000
Log likelihood = -138.28297                       Pseudo R2       =     0.1595
```

CHF_Member	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Gender	1.373756	.4958266	0.88	0.379	.6771542	2.786967
Age	1.247837	.4269948	0.65	0.518	.6380976	2.440219
Marrital_s~s	.7246609	.3232464	-0.72	0.470	.3023034	1.737107
Years_educ~n	1.102126	.0796939	1.34	0.179	.9564923	1.269934
Member_Oth~n	4.282048	3.001073	2.08	0.038	1.084144	16.91282
Religion	2.774464	1.106921	2.56	0.011	1.269338	6.064302
Household_~e	1.201806	.0670016	3.30	0.001	1.077405	1.34057
Distance_t~y	.5612949	.1893611	-1.71	0.087	.2897515	1.087318
Ilness_Fre~e	2.212548	.8632727	2.04	0.042	1.029861	4.75343
Type _Fac~y	.7242405	.2498005	-0.94	0.350	.3683763	1.423882
QuintileA1	.3763606	.2251323	-1.63	0.102	.116528	1.215565
QuintileA2	1.363964	.6448837	0.66	0.512	.5399502	3.445498
QuintileA3	.8111623	.4058009	-0.42	0.676	.304282	2.162416
QuintileA4	.5563206	.2872686	-1.14	0.256	.2022033	1.530601

Model 3

Logit estimates — Number of obs = 568; LR chi2(11) = 46.40; Prob > chi2 = 0.0000; Log likelihood = -141.31405; Pseudo R2 = 0.1410

CHF_Member	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Gender	1.325365	.4696522	0.79	0.427	.6617693	2.654389
Age	1.204625	.4085694	0.55	0.583	.6196583	2.34181
Marrital_s~s	.745272	.325376	-0.67	0.501	.3167316	1.753631
Years_educ~n	1.106063	.0796168	1.40	0.161	.9605249	1.273653
Member_Oth~n	3.763082	2.606723	1.91	0.056	.9680735	14.6278
Religion	2.63379	1.039231	2.45	0.014	1.215395	5.707489
Household_~e	1.188878	.0629442	3.27	0.001	1.071695	1.318875
Distance_t~y	.5450839	.1818956	-1.82	0.069	.2834103	1.048361
Ilness_Fre~e	2.095389	.8036352	1.93	0.054	.9881143	4.443469
Type _Fac~y	.7132522	.2423386	-0.99	0.320	.3664663	1.388201
Asset_IndexB	1.052531	.0688928	0.78	0.434	.9258059	1.196602

Model 4

Number of obs = 568; LR chi2(14) = 51.77; Prob > chi2 = 0.0000; Log likelihood = -138.63106; Pseudo R2 = 0.1573

CHF_Member	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Gender	1.317948	.4709125	0.77	0.440	.6542711	2.654843
Age	1.266301	.4334876	0.69	0.490	.6473638	2.476995
Marrital_s~s	.7387505	.3286897	-0.68	0.496	.3088699	1.766932
Years_educ~n	1.100149	.0795809	1.32	0.187	.9547256	1.267723
Member_Oth~n	3.60489	2.560407	1.81	0.071	.8960208	14.50327
Religion	2.756478	1.099403	2.54	0.011	1.261416	6.023525
Household_~e	1.189071	.0649572	3.17	0.002	1.068336	1.323451
Distance_t~y	.579955	.1964815	-1.61	0.108	.2985505	1.126603
Ilness_Fre~e	2.292399	.8994981	2.11	0.034	1.062413	4.946376
Tyepe _Fac~y	.7021322	.2418893	-1.03	0.305	.3574161	1.379315
QuintileB1	.3404503	.2163479	-1.70	0.090	.0979796	1.182964
QuintileB2	1.182814	.5657165	0.35	0.726	.4632372	3.020155
QuintileB3	.823915	.3988548	-0.40	0.689	.3190202	2.127877
QuintileB4	.5357969	.2717723	-1.23	0.219	.1982646	1.447956

9.4 APPENDIX D

9.4.1 Households head questionnaire

SECTION 1: INDIVIDUAL CHARACTERISTICS

I would like ask some questions about you

NO.	QUESTIONS	CODING CATEGORIES	CODES
1.	How old are you now? *(Age in completed years)*		AGE
2.	Sex ?(*Circle the answer)*	Male.....1 Female.....2	SEX
3.	What is your marital status now? (*Circle the answer)*	Never married.....1 Married.....2 Divorced.....3 Widowed.....4 Other(specify).....5	CURRMAR
4.	Have you ever attended school? (*Circle the answer)*	Yes.....1 If yes go to 5 No.....2	HHSCHO
5.	How many years did you use attend to the highest level of education you have?		HHYEAR
6.	What is your religion? (*Circle the answer)*	Traditional..... .....1 Christian .....2 Muslim.....3 Others (Specify).....4	RESPRELI

SECTION 2: GENERAL QUESTIONS ABOUT CHF

Now I would like to ask questions about CHF

7.	Is your household covered by CHF? (*Circle the answer)*	Yes.....1 No.....2	COVCHF
8.	Are you a member to any micro credit/insurance/voluntary organization ? (*Circle the answer)*	Yes.....1 No.....2	OTHMICR

SECTION 3: HOUSEHOLD CHARACTERISTICS

Now I would like to ask some questions about your household

10.	What is the total number of number of people in your household?		HSIZE
11.	During the past 3 month, did you or any member of the household suffer from any illnesses? (*Circle the answer)*	Yes…1 if yes go to 17 No….2	RCILLNESS
12.	Where did the consultation take place? (*If more than one consultation, ask about the most recent one). (Circle the answer)*	Public facility……..1 Private facility……2	HSBHV
13.	How long does it take members of the household to walk to the health facility? (*Circle the answer)*	LESS THAN200M……..1 200M – <500M……...2 500M – <1,5KM……3 1,5KM – <3KM……..4 3KM – <4,5KM……..5 4,5KM – <6KM……..6 6KM - < 10 KM……7 10 KM OR MORE……8	DISTANCE

SECTION 4: POSSESSIONS

Now I would like to talk about your possession

14.	What is the household's main source of water? *(CIRCLE OBSERVATION)*	Piped (tap) water in dwelling…… 1 Piped (tap) water on site or in yard ……..…2 Borehole on site……...3 Water tank on site……...4 Neighbor's tap……..……5 Public/communal tap……6 Water-carrier/tanker……7 Borehole off site/communal……8 Flowing water/stream/river……..…9 Stagnant water/dam/pool……..……...11 Well in yard/plot……...12 Neighbor's well……13 Spring……..……14 Other, (*specify)*……..……..15	SOURWAT

15	What type of toilet facility is available for this household? *(CIRCLE OBSERVATION)*	Flush toilet .....1 Pit latrine with ventilation pipe.....2 Pit latrine without ventilation pipe.....4 Bucket toilet.....5 None 6	TOILET
16	Does your house have Electricity? Paraffin lamp? Radio? Television? Telephone/Mobile? Refrigerator? Bicycle? Motor cycle? Car/Truck? Bank Account? *(Circle the answer)*	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	 ELECTR PARAFL RADIO TV TELMOB REFREG BICYCL MOTORC CAR BANKACC
17	What type of fuel does your household mainly use for cooking? (*Circle the answer)*	Electricity .....1 Bottled gas.....2 Biogas.....3 Parafin /Kerosine.....4 Charcoal.....5 Firewood.....6 Dung.....7 Crop residuals.....8 Solar.....9 Others (specify).....10	COKFUEL
18	Indicate the type of main dwelling and other dwelling that the household occupies? (*CIRCLE OBSERVATION*)	House or brick structure.....1 Traditional dwelling.....2 Hut/structure made of traditional materials.....3 Flat or apartment in a block of flats.....4 Room in backyard.....5 Caravan/tent.....6 other, *specify* 7	DWELLG
19	Main materials of the floor? (*CIRCLE OBSERVATION)*	Earth/Sand .....1 Dung.....2 Wood planks.....3 Ceramic/Tiles.....4 Cement.....5 Others(Specify).....6	FLOOR
20	Wall materials? *(CIRCLE OBSERVATION)*	Glass.....1 Poles and Mud.....2 Sundries Bricks.....3	WALL

		Baked Bricks.....4 Timber.....5 Cement Bricks.....6 Stones.....7 Others(Specify).....8	
21	Roofing materials? *(CIRCLE OBSERVATION)*	Grass/Leaves/Mud.....1 Iron sheets.....2 Tiles.....3 Concrete.....4 Asbestos.....5 Other (Specify).....6	ROOF

22.	How many cattle do you have in this household?		CATTLE
23.	How many sheep do you have in this household?		SHEEP
24	How many goats do you have in this household?		GOAT
25	How many pigs do you have in this household?		PIGS
26.	How many donkeys do you have in this household?		DONKEY

9.4.2 Focus group discussion guide

Welcome note by moderator
-Can we introduce ourselves by saying our name and what we are doing?

Short introduction on the purpose of FGD by moderator

Introductory questions

-Can we explain the quality of service delivered by health facilities in our district?

Transition questions
-Can we explain what are CHF and its importance?

Focus questions
-Can we explain the qualities of people required to join CHF?

-Thinking back to the day, can you remember a specific moment when you decided not to join CHF? Can we explain what the reasons for not joining CHF were?

-How do you explain the performance of CHF in your district?

-Do you think CHF is helpful?

-Can you explain the problem with the current CHF design?

Final questions
-In the future what would need to be changed for you to join CHF?