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Impacts of Community Health Insurance Schemes on Health Care Provision in Rural Tanzania

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Abstract

In 1996 the Tanzanian government initiated community health insurance schemes to improve the access to health care and to protect people against the financial cost of illness in an environment with shrinking budgets for the health sector. This study aims to evaluate the role of the community health funds (CHF) in lowering the barriers to access health care. Three important results emerge from this study: First, the results show that income is amongst the most important factors determining household participation in the schemes. This means that despite exemption mechanisms, the poorest of the poor within the society are not reached as they can not afford to pay regular insurance premiums. Secondly, though we find no significant differences between members and non-members in the overall amount of health expenditure and in the use of preventive measures, sick individuals in member households were 15 percentage points more likely to get treatment than those in non-member households. Hence, being insured leads to an increase in the effective demand for health care. Third, the analysis reveals that members of the CHF are better financially protected against health shocks than non members. The result of this work provides further evidence of the important role that micro insurance schemes can play in the risk management of people in developing countries.

Kurzfassung

Die Regierung von Tansania hat 1996 gemeindebasierte Krankenversicherungssysteme eingeführt, um den Zugang zu Gesundheitsfürsorge zu verbessern und die Bevölkerung gegen die finanziellen Kosten von Krankheit in einem Umfeld schrumpfender Etats für den Gesundheitsbereich abzusichern. Die vorliegende Studie beabsichtigt, die Rolle der gemeindebasierten Gesundheitsfonds (community health funds = CHF) in Bezug auf die Verringerung von Hürden beim Zugang zu Gesundheitsfürsorge zu bewerten. Aus dieser Studie ergeben sich drei wichtige Schlussfolgerungen: Erstens zeigen die Ergebnisse, dass das Einkommen eines der wichtigsten Faktoren darstellt, um die Teilnahme der Haushalte an diesen Systemen zu bestimmen. Das bedeutet, dass trotz der Ausnahmebestimmungen die Ärmsten der Armen in der Gesellschaft nicht erreicht werden, da sie es sich nicht leisten können, regelmäßige Versicherungsprämien zu zahlen. Zweitens, obwohl wir keine signifikanten Unterschiede zwischen Mitgliedern und Nicht-Mitgliedern bezüglich der Gesamthöhe der Gesundheitsausgaben und der Anwendung von Präventivmaßnahmen finden können, war es für kranke Personen in Mitgliedshaushalten 15 Prozentpunkte wahrscheinlicher, behandelt zu werden, als für Kranke in Nicht-Mitgliedshaushalten. Versichert zu sein führt demzufolge zu einer Steigerung der effektiven Nachfrage nach medizinischer Versorgung. Drittens macht die Untersuchung deutlich, dass Mitglieder des CHF finanziell besser gegen Gesundheitsschocks abgesichert sind als Nicht-Mitglieder. Das Ergebnis dieser Arbeit ist ein weiterer Beleg für die wichtige Rolle, die Mikroversicherungssysteme bei der Risikobewältigung der Bevölkerung in Entwicklungsländern spielen können.

1 Introduction

The government of Tanzania has initiated a number of strategies to increase the access to health care of its citizens in an environment with a shrinking budget for the health sector and economic decline. One of such initiatives has been to come up with a mechanism through which households and individuals can share community health risks. This was done by introducing a community-based health insurance scheme known as *community health funds* in the Tanzanian context and abbreviated as CHF (Ministry of Health, 1999). The scheme was supported by the World Bank and was implemented for the first time in 1996 in the Igunga District, in the central part of the country. The scheme has afterwards been expanded into ten other districts. The general objective of the CHF scheme is to enable all community members to have access to reliable and effective health care by creating a sustainable financial mechanism. The claimed specific objectives of CHF include: (i) establishing a strong and sustainable financial resource base for basic curative and preventive health care, (ii) ensuring security and equity of access to health services to community members and (iii) improving the protection of people against the financial consequences of health shocks.

The concept of community-based health insurance (CBHI) now receives considerable attention in the literature (Ahuja and Jütting 2003, Jütting 2001, Wiesmann and Jütting 2001, Dror and Jacquier 1999, Bennett et al. 1998). Despite the increasing amount of literature on the pros and cons of micro-insurance schemes[1],, the merits of the concept are still controversially debated: Proponents argue that micro health insurance schemes are a potential instrument of protection from the impoverishing effects of health expenditures for low-income populations. It is argued that the schemes are effective in reaching a large number of poor people who would otherwise have no financial protection against the cost of illness (Dror and Jacquier 1999). However, other available studies are less optimistic: community structures may not necessarily reflect the views of the wider population, critical decisions may not take into account the interest of the poorest, and the poorest may be excluded from decision-making (Gilson et al. 2000). It is furthermore argued that the risk pool is often too small, that adverse selection problems arise, that the schemes are heavily dependent on subsidies, that financial and managerial difficulties arise, and that the overall sustainability does not seem to be assured (Bennett et al. 1998, Criel 1998, Atim 1998).

The existing studies on CBHI schemes face an important limitation: most of them are not based on household data and/or do rely solely on qualitative methods of investigation. In

[1] Throughout the text, the terms "micro-insurance" and community-based health insurance" are used interchangeably. Ahuja and Jütting (2003) differentiate these types of schemes from "market based" and "informal schemes" with respect among others to type of risk management strategy (ex-ante or ex-post), risk pooling and targeted population.

addition, they mainly look at the impact of the schemes on the provider of the insurance scheme, largely neglecting the effects on the members. Against this background, the aim of this study is to assess the impact of the Community Health Fund (CHF) on the access to health care of the concerned population by using data from a recent household survey. We are interested in three particular aspects and research questions:

- Who participates in the CHF schemes and are the schemes accessible to all?
- What is the impact of the CHF schemes on the demand for preventive and curative health care?
- Are members of a CHF fund financially better protected than non-members?

The remaining part of the article is organized as follows. Section 2 presents the conceptual framework of the study by highlighting three important potential effects flowing from the introduction of a health insurance scheme. Section 3 gives an overview of the history and basic characteristics of the scheme, while section 4 introduces the sampling procedure and descriptive statistics. Section 5 presents the results and discussion of the study and section 6 concludes the paper.

2 The Conceptual Framework: Supply and Demand Effects of Health Insurance

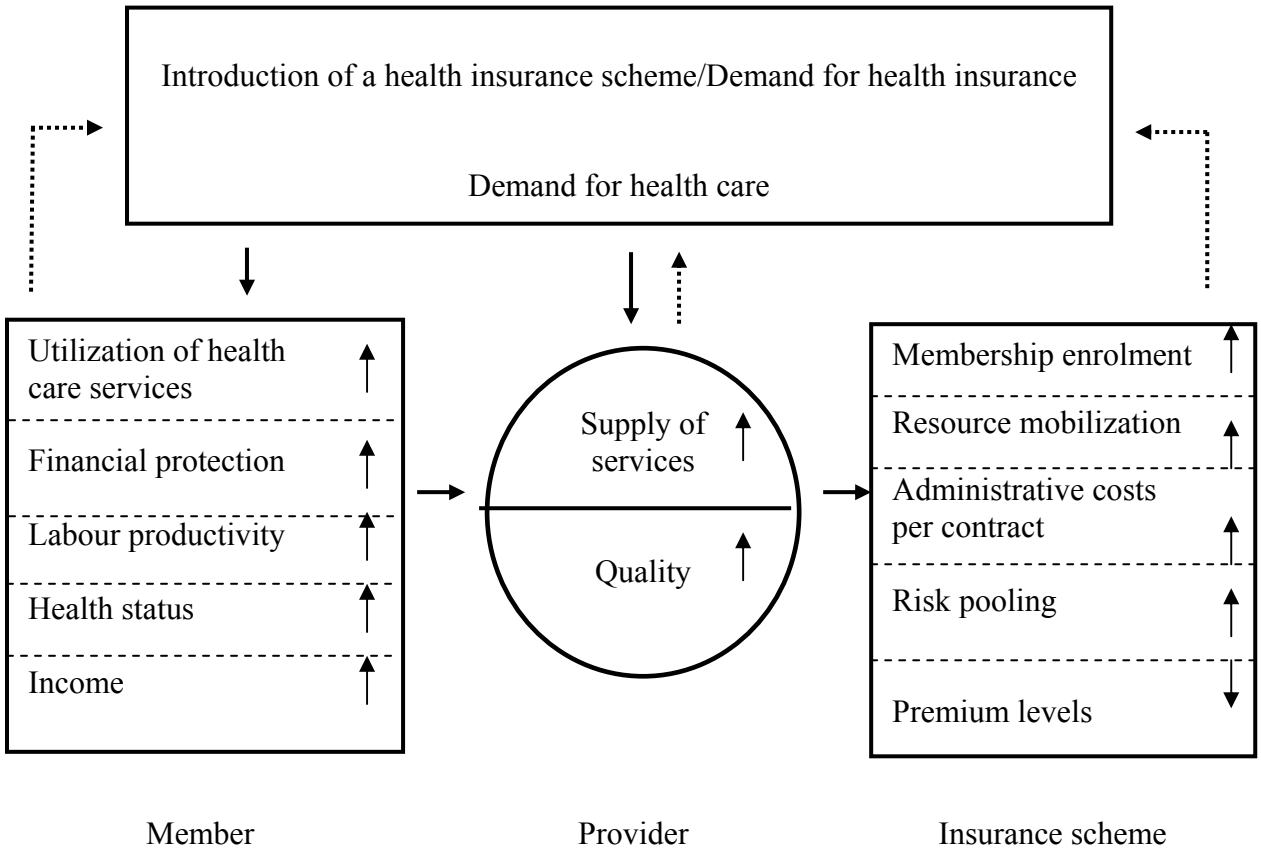
Health insurance schemes are supposed to reduce unforeseeable or unaffordable health care costs through calculable and regularly paid premiums. In contrast to the history of social health insurance in most developed countries, where health insurance schemes were first introduced for formal sector employees in urban areas, recently emerging health insurance schemes have taken the form of local initiatives of a rather small size that are often community-based with voluntary membership.[2] They have either been initiated by health facilities, member-based organizations, local communities or cooperatives, and can be owned and run by any of these organizations (Atim 1998, Criel 1998). There are several possible ways to classify these schemes, according to: type of benefits provided, degree of risk pooling, circumstances of creation, fund ownership and management, and focus on coverage for high-cost, low-frequency events or on low-cost, high-frequency events. Similar characteristics of these schemes are:

- voluntary membership
- non-profit character
- prepayment of contribution into a fund and entitlement to specified benefits
- important role of the community in the design and running of the scheme
- institutional relationship to one or several health care providers

To see the supply and demand effects of health insurance, assume that a health insurance scheme has been set up and that some people are willing to test the new financing option and demand health insurance, that is, they decide to pay the premium and become members for one year. A certain proportion of the insured members will fall ill during that time and need care at the hospital or health post. Financial barriers to access are removed for them by the insurance. In spite of a possible lack of cash income at the time of illness, and despite user fees being relatively high with respect to their income, the insured can readily get treatment at the health facility. Figure 1 highlights the dynamic interactions between the supply and demand for health insurance and health care. This scenario could lead to three effects (Wiesmann and Jütting 2001):

[2] Ahuja and Jüttting (2003) describe the differences between alternate insurance arrangements, i.e. informal insurance, community-based insurance or micro insurance and market insurance.

Figure 1: Demand and Supply Effects after the Introduction of a Health Insurance Scheme



Source: Based on Wiesmann and Jütting (2001)

1. Effect on members: First of all, insured members no longer have to search for credit or sell assets. They also recover more quickly from their illness since there are no delays in seeking care. Considering the fact that people in rural areas rely mainly on their labor productivity and on assets such as livestock for income generation, a serious decline of income can be prevented as productive assets are protected and people can return to work sooner. Income is stabilized, and may even increase, taking the sum throughout the year. Consumption will be more stable and probably even higher, thereby positively affecting the health of all household members. Both increased consumption and better health contribute to overall income. In the mid- to long term, the positive experience in terms of immediate access to health care and the resulting benefits to some households or community members with health insurance, may create trust in the new institution. It will also encourage people to prolong their membership and convince others to join the scheme. Therefore, the demand for health insurance increases, as shown by the dotted feedback line.[3]

[3] In some settings, membership rates nearly doubled in the second and third year after the foundation of a CBHI, when people became aware that the scheme was working and gained confidence in its benefits (Garba and Cyr 1998).

2. Effect on provider(s): Given the fact that people may be willing to spend more money on securing access to health care than they can actually pay as user fees at the time of illness and that the healthy carry the financial burden of illness together with the sick via the insurance scheme, additional resources may be mobilized for health care provision. As a result of the insurance scheme, utilization of health facilities will probably increase, a desirable effect if one considers currently prevailing under-utilization in developing countries (Müller et al. 1996). A part of these resources could then be used up to expand access, for example, by increasing drug availability and purchasing extra necessary medical equipment. Better quality of care will increase people's expectations of getting value for money in the case of illness, and will again enhance demand for insurance (dotted feedback line).

3. Effect on the insurance scheme: Assuming that effect 1 and 2 materialize, one can imagine that new members will join the scheme and hence increase membership enrolment. This could drive down the administrative cost of insurance provision per member. Risk pooling is therefore enhanced as more people participate. Consequently, risks become more calculable. Though the idea of rising demand usually suggests rising prices, in this case it could result in reduced premiums due to 'economies of scale' (McGuire et al. 1989). Lower premiums will probably once again increase demand for insurance and coverage rates. Besides acting as an agency that expresses the interests and needs of its members, the CBHI can try to promote the use of preventive care and healthy behavior (Garba and Cyr 1998). Health education and awareness of health problems would improve public health outcomes and counteract cost escalation.

The scenario presented here seems very promising, but it may be far too optimistic with regards to what can be achieved by introducing health insurance as a new institution in rural areas. The benefits described here, i.e. improved quality of care, increased access to health care, better health outcomes, higher and more stable incomes, cannot be realized if some serious pitfalls are not taken into account in the scheme design, and if the CHF is badly managed, or if impeding factors at the health facility or household level cannot be overcome. Keeping the balance between mobilizations of resources by means of insurance on the one hand, and increasing costs for health care provision due to higher utilization rates on the other hand, may turn out to be a considerable problem.

In the following case study, the effect on members is investigated. Taking the example of the CHF in Tanzania, it addresses the question of whether or not members of a community-based insurance scheme actually have better access to health care and financially protected than non-members. Hence, the case study looks at only some aspects of the effect on members. However,

one can assume that if there are no improvements in the access to health care, it is very unlikely that an impact on health outcomes will be found.[4]

[4] An analysis of the impact of health insurance on health outcome is a promising research area for the future. This would require a different research design than the one followed in this study, e.g. to undertake a panel with a baseline inventory before the intervention takes place.

3 History and Basic Characteristics of the Community Health Funds in Tanzania

The Community Health Fund (CHF) project was launched on a trial basis in 1996 in the Igunga district as part of the countrywide World Bank Health and Nutrition activities. The scheme is designed to address both a serious health financing gap and a poor quality service while maintaining the government's commitment to equity of access. It is important to bear in mind that although health care was free at primary care facilities under the government system; it was not available when needed – with drugs in particular being in inadequate supply.

According to the Ministry of Health (1999), the authorities selected Igunga district from among Tanzania's 113 administrative districts for conducting the pre-testing because of several reason, the most important being that:

- it was one of the 10 poor districts implementing a health and nutrition project funded by the World Bank
- the health and nutrition project had already rehabilitated a number of dispensaries in the district
- the necessary political will was demonstrated
- district communities showed interest in participation during the rehabilitation of the dispensaries
- a plan to rehabilitate the district hospital, which would handle referral cases, was already there
- a missionary hospital (Nkinga Mission Hospital) was ready to participate as a private hospital

The project was launched in December 1995 with the holding of meetings with regional leaders, district leaders, and technical teams that discussed the set up of the CHF in the Igunga district, with a view of preparing a pilot project. Intensive training campaigns were held to inform participants about the concept.

Participation in the CHF is voluntary and membership is on a family basis, i.e. if a household head joins the program by purchasing a membership card, all the family members automatically become CHF members. Single mothers and women involved in polygamous marriages are identified as household heads. A CHF community-based agent promotes household membership. He is motivated to expand population coverage by an incentive payment equal to five per cent of each household contribution.

People are entitled to coverage for a minimal package of outpatient and preventive services at a dispensary and a referral hospital to which the scheme is linked. The district council, in collaboration with the District Health Board, is supposed to carry out, from time to time, costing exercises to determine the service profile available to CHF card-members. The nature of benefits that are supposed to be made available through the CHF scheme are outlined in Table 1.

Table 1: Definition of a Basic Package of Health Services

Health Package	Dispensary level	First referral (Hospital level)
Reproductive health and Child Care	Ante-natal care, delivery care, post-natal care, immunization and family planning services, micronutrient supplements	Obstetrics and Gynaecological care including caesarean section Paediatric care
Control of communicable diseases	Diagnosis and treatment of common illnesses including malaria, STD, diarrhoea, TB and referral of severe conditions	Outpatient and Inpatient care for severe disease conditions
Non-communicable diseases and Trauma	Diagnosis, treatment and/or referral of non-communicable diseases including Diabetes, anaemia, mental disorder trauma	Outpatient and Inpatient care for severe conditions General Surgery
Clinical Support Services	Essential drug supply Basic laboratory services	Drug supply laboratory services, X-ray services, Quality services

Source: Ministry of Health (1999)

Each CHF member household is required to make a pre-set flat rate contribution that compares favorably with existing average per capita out-of-pocket expenditures for health. Collection coincides with harvest times when households are likely to be in the best position to pay. Based on pre-test experience, per household contribution has been set at Tanzanian Shilling (TZS) 5000 (US$ 10) per annum which, taking a general household size of five members, averages TZS 1000 per household member. However, people who are too poor to pay the required CHF contribution are exempted from paying and get free membership. Exemptions are granted by the Village Council and are not easily given so as not to discourage membership by payment. The District Council, on the other hand, is supposed to fully subsidize the CHF membership fee of those exempted.

Providers of health services under the scheme receive an advance capitation grant to allow for sufficient equipping of the facility, for example to pre-stock drugs. The capitation grant is pegged according to the number of CHF members that pre-selected the facility. This

arrangement ensures that health personnel at the various facilities try harder to provide better quality services so as to attract and retain clients.

As far as the involvement of the community in the CHF is concerned the government has emphasized CHF members to have great say in the planning and management of CHF activities (Ministry of Health, 1999). It clearly states that the CHF organization structure builds on the existing structure of government operations to avoid building up new and parallel structures. Accordingly, two government ministries are directly involved, namely the Ministry of Health and the Ministry responsible for local governments. The role of the former is basically to control and facilitate health services while the latter is because CHF schemes are managed by the District Councils, which fall under that Ministry. Various committees are involved in managing the scheme at different administrative levels in the district. They include Village Primary Health, Ward Development, and District Health Board.

While the above-mentioned structure may imply a strong community representation, and therefore participation, in managing the scheme, it is perhaps important to bear in mind that most of the representatives are actually government officials. In other words, they are members by virtual of their positions. In such a situation, it is not difficult for the community members to feel that it is not their own scheme but rather it is a government's, and therefore their commitment can be questionable.

4 Sampling Procedure and Descriptive Statistics

The study purposely focused on the Igunga district for fieldwork. The district was selected due to its relatively long experience of implementing the community-based health insurance scheme (the CHF). The district has enjoyed the most intensive mobilization to implement the scheme because it was, as previously mentioned, used as a pilot area between 1996 and 1998 (Ministry of Health, 1999).

A multi-stage sampling technique was employed to select administrative divisions, wards, and villages. Two divisions were selected, and from each, two wards were chosen. One representative village from each selected ward was then picked. The selection at all three stages did ensure that communities with varying access to health facilities were included. Much of the exercise did depend on the advice given by the district officials, particularly the District Medical Officer (DMO). The procedure allowed the selection of four wards and four villages in the study district. Fifty households were then randomly picked in each selected village using a list-sampling procedure. The lists were obtained from the respective village local governments who maintain up-to-date lists of all the residents in their areas. The selection also took into consideration membership in the CHF scheme to ensure that there was a balance between member and non-member households. Therefore, 100 member and 100 non-member households were selected. The process gave a total sample size of 200 households with 1700 family members.

The survey was conducted using trained enumerators and well designed questionnaire. The questionnaire was designed to collect information on: membership in the CHF, actions taken when a household member is sick, amounts of cash costs involved, how the cash was obtained, and on providers of health services from which care was sought. The recall period was three months, from September to November 2000. The three-month period proved to be sufficient to provide meaningful data for such kind of analysis (Lucas and Nuwagaba, 1999). It was also established during the pre-testing that household heads, when assisted by other household members, could accurately recall their health care seeking actions of the past three months.

Few local village health attendants (VHAs) were selected and recruited as enumerators to conduct the fieldwork under close supervision[5]. It was recognized that the use of enumerators who were based in the surveyed communities could pose problems, for example in terms of the possibility that some respondents might be unwilling to disclose some sensitive information to such individuals. However, experience has shown that their local knowledge, acceptability in the

[5] Various options were explored before the survey including the use of school teachers, agricultural extension workers, and university/college students. However, given the actual field situation, the best option was found to be that of local Village Health Attendants (VHAs).

community and availability to conduct interviews at times convenient to household members can outweigh potential disadvantages (Lucas and Nuwagaba, 1999). Besides, it was realized that since the interviews were basically dealing with issues related to health, household members were free to discuss them with their VHAs, perhaps more than any other person. The VHAs were supervised closely by a research assistant from Sokoine University of Agriculture (SUA) who made frequent research visits to the study area throughout the survey period. A two-day training was conducted to instruct the fieldwork team and to make final revision of the survey questionnaire and other related fieldwork instructions. In the rest of the study this data source is referred as REPOA-SUA Survey, 2000.

The average household size in the sampled areas was 8.5 and small households of less than 6 individuals were only about one quarter (23%). Half of the households had a dispensary as the nearest health facility and the other half reported a health center. The majority of the households (64%) lived within a distance of 2 km to a health facility. The government owned almost all the health facilities (99.5%). The majority of the households (up to 90%) lived in households that were constructed using poor materials (mud walls or soil floors), however, more than one quarter (27.5%) of the surveyed households had their main houses roofed with corrugated iron sheets. Locally built water wells and dams were the main sources of water in more than 70% of the households, while 61% used kerosene burners as the main source of light in their homes.

The households were equally distributed among the four study villages (25% in each) while about half of the heads of households were from the Sukuma ethnic origin. About half were members of CHF and one quarter were Moslems. More than 60% started to live in the area more than 10 years ago, and half of all the heads of households reported to have lived outside the study area at any given time in their lives. Only 14% had their main occupations that involved non-agricultural activities.

5 Results and Discussion

5.1 Determinants of Membership

In order to ascertain the characteristics of households that were more likely to be members of the CHF scheme, several variables that were considered relevant were tested for relationship with membership in the scheme using Chi-square statistics and probit analysis. The Chi-square statistics test result reveal that village of residence ($p<0.001$), ethnic origin ($p<0.05$), main occupation of the head of household ($p<0.01$), education level of the key female member ($p<0.05$), household size ($p<0.05$) and the wealth status of the household ($p<0.001$) have statistically significant relationship with CHF status. However, more than 60% of the households that were considered to be either rich or normal had joined the scheme compared to only about 33% of the poor ones. This implies that the observed influences of the above variables in determining membership could more likely be through their influence on wealth status. Therefore, a probit model is estimated to add empirical depth to the Chi-square analysis and to net out the effect of each variable on the decision of households to join CHF. The results are presented in Table 2.

Village of residence was one of the significant variables that affect the decision of households to join the CHF scheme. Households in Igurubi village were more likely and households in Itumba village were less likely to join the scheme compared to households in Nanga village (the reference village). This is not an expected result since Igurubi is the nearest (less than one km) and Itumba is the furthest village to the health centre.

Once other factors were taken into account variables such as religion, ethnicity and sex of the household did not affect the decision of households to join the scheme. One would expect that a more educated person was more likely to perceive the benefits of joining the scheme than a less educated one, but that did not take place as shown by the insignificant coefficient of the education variable. This result held irrespective of the educational level of the head or that of the spouse was taken or the way the education variable was measured.

Table 2: Probit Results: Determinants of Membership

Variable		Marginal Effects	Mean values of the variable
Constant		-1.544** (0.7438)	
Village of residence	Itumba	-0.2463* (.1472)	0.244
	Igurubi	-.0999 (.12210)	0.255
	Itunduru	0.261** (1274)	0.239
	Nanga	Reference village	
Religion	Christian	0.879 (.1234)	0.359
	Muslim	-0.315 (.1395)	0.255
	Pagan	Reference religion	
Ethnic group	Nyamwezi	0.158 (.1779)	0.177
	Sukuma	-0.141 (.1684)	0.479
	Nyiramba/Nyaturu	-0.143 (.662)	0.265
	Other ethnic groups	Reference ethnic	
Ln of family size		0.222** (.1153)	2.016
1 if the head can read and write		-0.069 (0.1133)	0.723
1 if the spouse can read and write		-0.058 (0.0641)	0.567
Income (ln of total consumption expenditure)		.125** (0.0642)	12.067
Female headed households		-0.132 (0.1157)	0.213
Households with a person with chronic disease		.0101 (0.0502)	0. 26
Age of the household head		-.005 (0.0034)	47.677
Log likelihood function		-107.1721	
Restricted log likelihood function		-132.9905	
Chi-squared (Significance level)		51.6368 (0.000)	
Number of observations		200	

Source: Computed from REPOA-SUA Survey, 2000

As expected, income (measured by log of total consumption expenditure) was one of the most important determinants of whether a household joined the CHF scheme or not. Table 2 shows that a 1 % percentage point increase in income of households was likely to increase the probability of joining the scheme by around 12.5 percentage points[6]. This result reveals that most of the members of the schemes were non-poor households. This can also be observed from the fact that while villagers were allowed to pay by installments to take into account the seasonality of their income, the majority of the current members (97%) did pay in full. At the same time despite the existence of exemption policy for the poorest of the poor, only one individual was accepted by the scheme[7]. This result showed that even though community insurance schemes were advocated as one important means to reach the poorest of the poor, it had not happened in the case of the Igunga CHF scheme.[8] This result should not come as a surprise in a poor community like Igunga district, since the scheme involves payment for the membership of around 3.5% of the per capita income of households (based on the total consumption expenditure figure). As we have seen before, although the set up of the scheme did allow for payment by installments allowing the villagers to take advantage of seasons of their crops, that appeal did not seem to be convincing enough for the poorest of the poor.

Households with big family members were more likely to join the scheme than small family size households as shown by the positive and significant coefficient of the family size variable. This is consistent with rational decision making behavior of households since the amount of contribution (TZS 5000) was independent of the family size. The insignificant coefficient of the disability variable might also indicate the absence of adverse selection problem in the decision to join the scheme.

5.2 Impact of the CHF on the Health Care Demand Behavior of Households

Demand for Health Care

Generally it is hypothesized that the CHF scheme helps members to make rational decisions about their health care by removing their financial barrier at the time of illness. Table 3 presents the health care seeking decision of households. As the table clearly shows, there was a significant difference ($p<0.001$) in the first contact points made by sick individuals from CHF member households from those of non-member households (Table 3). The majority of the sick individuals from the CHF member households (87%) did go to government owned health facilities as compared to only half of the non-members. Similarly, about one third of the CHF non-member sick individuals did go for alternative health care as compared to less than 5% of

[6] The robustness of this result is also cheeked by measuring income in terms of self reported wealth status of households rather than by total consumption expenditure.
[7] As we have seen before this was due to the very strict exemption policy of the communities.
[8] The average consumption expenditure of non-members was around TZS 179, 000 compared to TZS 292, 000 in the case of members.

the sick from CHF-member households. The alternative health care did include self-medication, whereby one buys drugs without consulting a physician. It also included going to a traditional healer or seeking self-medication from herbs or performing special rituals.

Table 3: First Contact Points in Seeking Health Care According to Membership Status

Type of first contact sought	**CHF members**	**Non-members**
Government facility	87.0% (154)	51.9% (56)
Non-government facility	8.5% (15)	17.5% (19)
Alternative health care (buying drugs without consulting a physician, going to a traditional healer, or seeking self-medication)	4.5% (8)	30.6% (33)
TOTAL	100% (177)	100% (108)

Chi-square value = 47.527; df = 2; Significance level at p< .001

Source: Computed from REPOA-SUA Survey, 2000

In order to make sure that the observed differences were not just simply caused by the individual or household characteristics, a probit model was estimated by including all individual and household characteristics as explanatory variables. The results are presented in Table 4.

As can be seen from the table, once income and membership status of households are taken into account, other factors such as sex and age of individual family members, age and educational level of the head and the spouse, religion, family size and distance did not affect the probability of seeking formal medical care. Membership was one of the two most important variables that affect the decision of households to seek medical help given illness/injury. Specifically the table shows that sick or injured individuals in CHF member households were 15 percent more likely to get medical help compared to sick/injured individuals in non members households.

Table 4: Probit Results: Determinants of Seeking Formal Medical Care

Variables	Coefficients	Marginal Effects+
Constant	-3.529* (2.114)	
Sex of the individual	-0.343 (0.233)	
Age of the individual	-0.009 (0.006)	
Age of the household head	-0.001 (0.011)	
Ln of family size	-0.089 (0.304)	
Education of the head (1 if > IV level and 0 otherwise)	0.107 (0.304)	
Education of the spouse (1 if > IV level and 0 otherwise)	0.066 (0.354)	
Christian	0.535 (0.357)	
Muslim	-0.055 (0.271)	
Pagan	Reference group	
Member in CHF	0.986*** (0.244)	0.149*** (0.037)
Income (ln of total consumption expenditure)	0.425*** (0.179)	0.064*** (0.027)
Distance to the nearest health service center (in km)	-0.362 (0.397)	
Log likelihood function	-84.439	
Restricted log likelihood	-113.896	
Chi-Squared (significance level)	58.914 (0.000)	

Figures in brackets are standard errors

+ only for significant variables

***,**,* show significance levels at 1, 5, and 10 percent, respectively

Source: Computed from REPOA-SUA Survey, 2000

Income was also another factor that affects the decision of households to seek medical care. A 10 percent increase in the income of households was likely to increase the probability of visiting modern medical care by 6.4% percent. This may indicate that some rich individuals in

the district might go beyond CHF designated health facilities (government facilities) to get medical help. This argument is strengthened by the opinion of households. Sixty percent of the respondents felt that some of the health problems could not be treated and ten percent complained that usually some of the prescribed medicines were not available in the CHF designated facilities. In conclusion, we can say that sick individuals from households that were members of the CHF scheme were more likely to seek health care from formal health care providers (public or private) than the non-member households.

Seeking of Relatively Less Reliable Methods of Health Care

The use of alternative medical care was considered to be less reliable compared to the health care that was provided by the formal health facilities (dispensaries, health centers or hospitals). Alternative medical care in this study did include the use of self-medication and traditional healers. Self-medication involved the use of purchased drugs from pharmacy shops without consulting a physician and self-seeking of traditional medicines. The method also included the use of drug stocks in the households, which were bought or otherwise were leftovers after previous treatments. It can therefore be said that alternative medical care is generally unreliable, and very often dangerous.

It is shown in Table 5 that smaller proportions of individuals that were CHF members (4.0%) did go for alternative medical care compared to the non-members (27.9%). The difference is much higher for the poorest households. Nearly 37 percent of sick individuals in poor and non-members households sought alternative care compared to only 8% in poor but member households and all the differences are statistically significant as shown in table 5. It is assumed that individuals were forced to use the alternative medical care as a coping strategy against the user charges in health services. In that matter, this is yet another evidence that taking part in the CHF scheme was providing protection against this negative consequence of user charges.

Table 5: Type of Health Care Sought According to Membership Status

CHF status	Membership status	Type of health care sought		Chi-square value (significant level)
		Formal health care	Alternative health care	
For the whole sample	Members	96.0% (169)	4.0% (7)	37.587 (.001)
	Non-members	72.1% (75)	27.9% (29)	
For poor households	Members	92.0% (46)	8.0% (4)	13.731 (.001)
	Non-members	63.2% (36)	36.8% (21)	

Source: Computed from REPOA-SUA Survey, 2000

5.3 Impact of the CHF on the Financial Protection of Households

Households, especially poor households, try to cover the financial costs of illness by selling assets such as livestock, land, grain, etc., taking loan, and the like (Sauerborn et al., 1996). However, these coping mechanisms coupled with the inability of ill household members to hire out labor in the casual labor markets may eventually affect the welfare of households (Asfaw, 2003). Table 6 portrays the distribution of the sick individuals showing the methods that were used to obtain cash for examination, drugs, transport, and others according to CHF status of their households. Nearly 55 percent of non-member households relied on their own saving to finance their drug expenses compared to only less than 11 percent for member households. The difference is much higher in the case of examination costs where only 4 percent of the members relied on their own saving compared to 57 percent in the case of non-members. More importantly, nearly a quarter of non-CHF members financed their examination and drug costs by selling their households' food compared to 5 percent in the case of member households.

Further analysis is also made to investigate the role of the CHF in protecting members against welfare threatening ways of financing their examination and drug costs and transport and other expenses. Table 7 presents the results. Non-member households were obliged to cover the health expenses for more than 20% sick individuals by selling their own food. This figure is less than 10 percent for member households and the difference is statistically significant at less than one percent. The role of the CHF in protecting members against welfare threatening ways of financing is more evident in the case of examination and drug costs.

Table 6: Methods Used to Obtain Cash for Drugs According to Membership Status

Expenses for	Membership status	Method of obtaining cash			
		Through CHF	Own saving	Sold own food items	Other methods
Examination	CHF Members	163 (92.6%)	7 (4.0%)	3 (1.7%)	3 (1.7%)
	Non-members	------	17 (56.7%)	7 (23.3%)	6 (20.0%)
Drug	CHF Members	122 (76.3%)	18 (11.2%)	8 (5.0%)	12 (7.5%)
	Non-members	7 (8.4%)*	46 (55.4%)	20 (24.1%)	10 (12.1%)
Transport and communication	CHF Members	------	8 (80.0%)	2 (20.0%)	------
	Non-members	------	4 (50.0%)	4 (50.0%)	------
Others	CHF Members	------	25 (62.5%)	13 (32.5%)	2 (5.0)
	Non-members	------	9 (45.0%)	6 (30.0%)	5 (25.0)

* This can be due to reporting error

Source: Computed from REPOA-SUA Survey, 2000

Table 7: Use of Welfare Threatening Methods to Finance Health Expenses by Income Group and Membership Status (in Percent)

Welfare threatening ways to finance	Income level*	Percentage of sick individuals in		Sign. level (Chi-square)
		member households	non-member households	
All expenses	All	9.7	21.2	0.007
	Poor	6.0	12.3	0.270
	Non-poor	11.4	31.9	0.001
Examination and drug costs	All	4.5	19.2	0.000
	Poor	4.0	10.5	0.204
	Non-poor	4.8	29.8	0.000
Transport and other costs	All	7.4	8.7	0.705
	Poor	4.0	5.3	0.760
	Non-poor	8.7	12.8	0.431

* Households with consumption expenditure in the lowest quartile were considered as poor.

Source: Computed from REPOA-SUA Survey, 2000

The examination and drug costs of more than 19 percent of sick individuals in the non-member households were financed through selling own food compared to less than 5 percent in the case of members and the difference is highly significant. As we have seen before, financing health expenses at the expense of food and other basic necessities may perpetuate or aggravate the health problem in the long run (Sköld, 1998).

However, there is no statistically significant difference between member and non-member households in the case of financing transport and other expenses. The transport and other expenses of 7.4 percent of sick individuals in member households and 8.7 percent in non-member households were financed through welfare treating ways. This is not unexpected result since the CHF scheme did not cover transport and other costs. This may indicate that participation in the CHF scheme has not yet enabled households to save money to cover other illness related costs such as transport and communication expenses.

Further analysis was carried out to see whether some of the above findings were merely due to income differences of households. As table 7 shows the results hold irrespective of income differences. It is therefore true to conclude that participation in the CHF scheme did provide cushioning against possibilities of adopting strategies that were likely to lead into negative consequences.

To summarize, the analysis of the impact of the CHF's on access to health care has shown that members use curative health care services more often than non-members and are better protected in case of a health shock. The results seem to confirm our hypothesis that community-financing through pre-payment and risk-sharing reduces financial barriers to health care, as is demonstrated by higher utilization but lower out-of-pocket expenditure. In addition, it shows that risk pooling and pre-payment, no matter how small-scaled, can improve financial protection for the poor.

6 Conclusions and Implications

Formal health insurance schemes cover only a marginal proportion of the population in low-income countries. Due to economic constraints, lack of good governance and institutional weaknesses, formal social protection for the vulnerable segments of the population is widely absent. Hence, it is one of the most important challenges today to increase the access to health care in low-income countries. This study has analyzed the role of community-based health insurance schemes in rural Tanzania in contributing to this objective. We find that members of a community health fund are more likely to seek formal medical care when they are ill than non-members. Hence, community based health insurance can help to turn latent demand into effective demand. Beside an improved access, we also find that members rely less on risk coping mechanisms that have a negative mid to long term impact such as selling of assets, taking children out of school etc. The results show that members paid considerably less out-of-pocket at health care facilities than non-members. This means that in an area where most people are deprived from access to health care of good quality, the introduction of CHF's schemes can make a substantial difference. Access to curative health care is improved while at the same time members of the CHF are financially better protected against health shocks. This has a potential positive effect on the ability of households to smooth their consumption, on labor supply and labour productivity and the health status of the insured persons. Further research should analyze and evaluate these effects, if possible within a panel data set framework. This would give policy makers a clearer idea on the social costs and benefits of introducing health insurance for the poor.

An important policy implication of this study is that it is critical to move away from resource mobilization instruments that are based on point-of-service payments. If pre-payment and risk sharing can be encouraged, it is likely to have an immediate direct and indirect impact on poverty. Directly, by preventing impoverishment due to catastrophic health expenditures and indirectly, by ensuring access to health and thereby improving health, thus allowing the individual to take advantage of economic and social opportunities.

To enlarge the poor and the rural populations' access to health care, community-based health insurance schemes can be an important element and a valuable first step. To a certain extent, they allow to pool risks, thereby leading to an improvement in the health care system in which most people otherwise have to cover health expenditure through out-of-pocket payments. In order to overcome the existing limitations of the schemes, broader risk pools are required. In particular, the role of external financial support – such as government subsidies, donor funding, and re-insurance – in encouraging social inclusion needs to be further explored. At the same time, greater involvement of the community members might be necessary to improve the performance of such schemes. An interesting option to be further tested would be to integrate

health insurance into micro-finance schemes. In this respect, the cases of Self Employed Women Association (SEWA) in India and the Grameen Bank in Bangladesh are promising examples. Further research is needed on how to scale-up and replicate these schemes, and on how to link them to other social risk management instruments such as social funds.

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