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Social Inclusion and Financial Protection Through Community Financing

Initials Results from Five Household Surveys

Melitta Jakab, Alexander S. Preker, Chitra Krishnan, Pia Schneider, Francois Diop,
Johannes Jutting, Anil Gumber, Kent Ranson, and Siripen Supakankunti

September 2001



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Health, Nutrition and Population Discussion Paper

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Report Submitted to Working Group 3 of the Commission on Macroeconomics and Health,
Jeffrey D. Sachs (Chairman), September 2001

Abstract: *Objective.* To provide empirical evidence regarding the performance of community-based health care financing in terms of (a) social inclusion and (b) financial protection. *Methods.* Five non-standardized household surveys were analyzed from India (two samples), Senegal, Rwanda, and Thailand. Common methodology was applied to the five data sets. Logistic regression was used to estimate the determinants of enrolling in a community financing scheme. A two-part model was used to assess the determinants of financial protection: part one used logistic regression to estimate the determinants of the likelihood of visiting a health care provider; part two used ordinary least-squares regression to estimate the determinants of out-of-pocket payments. *Findings.* (a) *Social inclusion.* Our findings suggest that community financing can be inclusive of the poorest even in the most economically deprived context. Nevertheless, this targeting outcome is not automatically attributable to the involvement of the community; rather it depends on key design and implementation characteristics of the schemes. (b) *Financial protection.* Community financing reduces financial barriers to health care as demonstrated by higher utilization and simultaneously lower out-of-pocket expenditure of scheme members controlling for a range of socioeconomic variables. *Conclusions.* (a) *Social inclusion.* Design and implementation characteristics of community financing schemes matter to achieve good targeting outcome—community involvement alone does not guarantee social inclusion. Further research is needed to delineate which design and implementation characteristics allow better inclusion of the poor. (b) *Financial protection.* Prepayment and risk sharing, even on a small scale, reduce financial access barriers.

Keywords: Community financing; financial protection; access to health care, health care financing; social exclusion.

Disclaimer: The findings, interpretations and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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PREFACE

In January 2000, Dr. Gro Harlem Brundtland, Director General of the World Health Organization (WHO), established a Commission on Macroeconomics and Health (CMH) to provide evidence about the importance of health to economic development and poverty alleviation.

This HNP Discussion Paper is based on a Report on community financing submitted in September 2001 to Working Group 3 of the CMH. The mandate of Working Group 3 was to examine alternative approaches to domestic resources mobilization, risk protection against the cost of illness, and resource allocation. The working group was chaired by Professor Alan Tait (Former Deputy Director of Fiscal Affairs, International Monetary Fund, and currently Honorary Fellow at University of Kent at Canterbury and Honorary Fellow at Trinity College, Dublin) and Professor Kwesi Botchewey (Director of Africa Research and Programs at the Harvard Center for International Development).

Professor Jeffery D. Sachs (Chairman of the Commission and Director of the Harvard Center for International Development) presented the findings of the CMH in a Report that was submitted to WHO on December 20, 2001—[*Macroeconomics and Health: Investing in Health for Economic Development*](#).

The report of the CMH recommended a six-pronged approach to domestic resource mobilization at low-income levels: “(a) increased mobilization of general tax revenues for health, on the order of 1 percent of GNP by 2007 and 2 percent of GNP by 2015; (b) increased donor support to finance the provision of public goods and to ensure access for the poor to essential health services; (c) conversion of current out-of-pocket expenditure into prepayment schemes, including community financing programs supported by public funding, where feasible; (d) a deepening of the HIPC (Highly Indebted Poor Countries) initiative, in country coverage and in the extent of debt relief (with support from the bilateral donor community); (e) effort to address existing inefficiencies in the way in which government resources are presently allocated and used in the health sector; and (f) reallocating public outlays more generally from unproductive expenditure and subsidies to social-sector programs focused on the poor.”

Most community financing schemes have evolved in the context of severe economic constraints, political instability, and lack of good governance. Usually government taxation capacity is weak, formal mechanisms of social protection for vulnerable populations absent, and government oversight of the informal health sector lacking. In this context of extreme public sector failure, community involvement in the financing of health care provides a critical but insufficient first step in the long march toward improved access to health care by the poor and social protection against the cost of illness.

The CMH stressed that community financing schemes are no panacea for the problems that low-income countries face in resource mobilization. They should be regarded as a complement to—not as a substitute for—strong government involvement in health care financing and risk management related to the cost of illness.

Based on an extensive survey of the literature, the main strengths of community financing schemes are the degree of outreach penetration achieved through community participation, their contribution to financial protection against illness, and increase in access to health care by low-income rural and informal sector workers. Their main weaknesses are the low volume of revenues

that can be mobilized from poor communities, the frequent exclusion of the poorest from participation in such schemes without some form of subsidy, the small size of the risk pool, the limited management capacity that exists in rural and low-income contexts, and their isolation from the more comprehensive benefits that are often available through more formal health financing mechanisms and provider networks.

The work by the CMH proposed concrete public policy measures that governments can introduce to strengthen and improve the effectiveness of community involvement in health care financing. This includes: (a) increased and well-targeted subsidies to pay for the premiums of low-income populations; (b) use of insurance to protect against expenditure fluctuations and use of reinsurance to enlarge the effective size of small risk pools; (c) use of effective prevention and case-management techniques to limit expenditure fluctuations; (d) technical support to strengthen the management capacity of local schemes; and (e) establishment and strengthening of links with the formal financing and provider networks.

The report presented in this *HNP Discussion Paper* has made a valuable contribution to our understanding of some of the strengths, weaknesses and policy options for securing better access for the poor to health care and financial protection against the impoverishing effects of illness, especially for rural and informal sector workers in low-income countries.

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I. INTRODUCTION

Community-based health financing (CF) has been attracting increasing attention as a potential instrument to protect low-income populations from the impoverishing effects of health care expenditures. Proponents argue that communities have incentives as well as instruments to reach the poor and the socially excluded. In contrast, general tax and social insurance-funded health care structures often lack instruments to achieve close targeting of the poor and ensure their financial protection at the time of illness. Market-based organizations, on the other hand, lack incentives to promote their insurance products to rural populations as high transaction costs would translate into high and unaffordable premiums for the poor. (Preker and Jakab 2001, Wiesmann and Jütting 2001, Dror and Jacquier 2000, Jütting 2000)

However, many point out that community structures are not inherently inclusive of the poor either. Community structures may not necessarily reflect the views of the wider population, critical decisions may not take into account the interests of the poorest, and they may not be involved in the decision making. (Gilson 2000) As recent thinking related to social capital suggests, communities can be as exclusive creating a gap between the “in-community” and “out-community” groups as they can be inclusive and provide a bridge for the disadvantaged. (Narayan 2000)

The literature on community financing provides some insights into this debate, although the evidence is far from conclusive. A recent review of 45 articles on community financing found that fewer than a dozen provided some indication whether the reviewed schemes were inclusive of the poor and whether they were effective in protecting them from the impoverishing effects of illness. (Jakab and Krishnan 2001)

These studies suggest that CF is effective in reaching a large number of low-income populations who would otherwise have no financial protection against the cost of illness (Desmet 1999, Diop 1995, Arhin 1994, Liu 1996, Carrin 1996, DeRoock 1996, CLAISS 1999, Hsiao 2001). At the same time, several studies demonstrate that the very poorest are excluded from the financial protection benefits of CF schemes. The main reason appears to be that the schemes are not able to reduce the financial access barrier for the lowest income groups (McPake 1993, Criel 1999, Atim 2000, Arhin 1994, Supankankunti 1997).

Nonetheless, it is difficult to make far reaching systematic conclusions about the impact of CF on preventing impoverishment based on these studies. Most of the reviewed studies did not have access to household data to assess the impact of scheme membership on beneficiaries. In the few cases where household data were used, the studies faced methodological difficulties. The most important difficulty in a cross-sectional setting is that the variation in membership status is endogenous. This is due to the fact that enrollment in voluntary health insurance is driven by both observable and unobservable characteristics and the latter are likely to be correlated with the observable explanatory variables. In most of the available studies, these issues are not properly addressed. Second, the large variety of indicators reported prevents comparability. Third, many studies report indirect measures of social inclusion and impoverishment due to health expenditures. Due to these limitations, there continues to be a need to provide empirical evidence to explain who is covered by CF schemes, why those and not other groups, how effective CF is in terms of financial protection, and what structural characteristics make certain schemes more inclusive and more effective than others.

This study is an attempt to address some of these shortcomings. The study analyzes household data from four countries (India, Senegal, Rwanda, and Thailand) with a common methodology. The study addresses two principal questions:

- (i) Are the surveyed CF schemes in these four countries inclusive of the poor?
- (ii) Are the surveyed CF schemes in the four countries effective in providing financial protection from the impoverishing effects of illness?

This section of the report summarizes the methodology, synthesizes the results, and discusses the reasons behind commonalities and differences in findings. It is followed by five sections presenting the country reports.

This report is structured as follows. Section 2 provides background about the four countries, their health system, and the surveyed CF schemes. Section 3 describes the methodology used in the analysis. Section 4 presents the results. Section 5 discusses the findings. Section 6 concludes.

II. BACKGROUND

The report synthesizes findings from five household surveys conducted in four countries: Rwanda, Senegal, India, and Thailand. Despite their varied socioeconomic and cultural contexts, all four countries have sizeable poor populations—many in the informal sector—who lack access to government and/or social insurance-funded health care services. Community financing schemes are present in the four countries and aim to fill the gap in financial protection for the poor against the impoverishing effects of illness. This section reviews the socioeconomic background of the four countries, their health systems, and the characteristics of community financing schemes surveyed.

A. SOCIOECONOMIC BACKGROUND

Three of the four survey countries are classified as low-income countries with per capita GNP ranging from US\$250 in Rwanda to US\$510 in Senegal. Thailand is a lower middle income country, with per capita GNP of US\$1,960. The four countries have varied sociodemographic characteristics (Table 1).

Table 1. Socioeconomic characteristics of Rwanda, Senegal, India, and Thailand (1999)

	Rwanda	Senegal	India	Thailand
Population (mn)	8.3	9.3	997.5	61.7
Urban population (percent of total)	6	47	28	21
Labor force (percent of total population)	48	43	44	60
Adult illiteracy rate (percent of people 15+)	29 (m) 43 (f)	55 (m) 74 (f)	33(m) 57 (f)	3 (m) 7 (f)
GNP per capita (\$US)	250	510	450	1,960
Population living below \$1 a day (percent)	-	26.3 (1995)	44.2 (1997)	<2 (1998)
Population below national poverty line (percent)	70 (1997)	-	35 (1994)	13.1 (1992)

Source: World Bank 2000

All four countries are characterized by sizeable poor populations. Rwanda, one of the poorest countries in the world, counts 70 percent of its population as falling below the national poverty line. In Senegal, 26 percent of the population (2.4 million people) lives in absolute poverty on less than a dollar a day. In India, 44 percent of the population (439 million people) lives in absolute poverty. Even in Thailand, the only middle-income country in the sample, 13 percent of the population lives below the national poverty line, and about one million people still live in absolute poverty

B. HEALTH SYSTEM

There are similarities in the health system of the four countries: a large proportion of the population is not covered by prepayment schemes, and access problems are reported. With the exception of Thailand, the three other countries are classified as high child and high adult mortality rate stratum of WHO. Health spending in the three low-income countries is US\$13 to US\$23 per capita. Despite the much higher level of per capita spending, Thailand channels comparable amounts of resources through out-of-pocket payments.

Table 2. Health outcomes and expenditures in Rwanda, Senegal, India, and Thailand (1999)

	Rwanda	Senegal	India	Thailand
<i>Health outcomes</i>				
U5MR	189 (m) 163 (f)	134 (m) 126 (f)	97 (m) 104 (f)	40 (m) 27 (f)
Life expectancy	41.2(m) 42.3 (f)	53.5(m) 56.2 (f)	59.6(m) 61.2 (f)	66(m) 70.4 (f)
<i>Health expenditures</i>				
Total (percent of GDP)	5	4.5	5.2	5.7
Total (per capita in US\$)	13	23	23	133
Out-of-pocket (as percent of total)	49.9	44.3	84.6	65.4

Source: World Health Organization 2000

Health expenditure figures for Rwanda: Schneider, P., A.K. Nandakumar, D. Porignon, M. Bhawalkar, D. Butera, and C. Barnett (2000): Rwandan National Health Accounts 1998. Technical Report No. 53. Bethesda, Md.: Partnerships for Health Reform, Abt Associates Inc.

Rwanda

The Rwandan health sector has a three-tier structure, consisting of the Ministry of Health (MOH) at the central level, 11 health regions, and 38 health districts. Medical care is provided in two public referral hospitals and one private hospital, 28 district hospitals, and 283 health centers. District hospitals cover on average an area of 217,428 inhabitants, and health centers serve an average population of 23,030 individuals. The Rwandan government remains the major provider of health services with religious organizations as partners, especially in rural areas. The role of private providers is limited. There are only two health insurance companies. They insure about 1 percent of the Rwandan population, including 6 percent of the formal sector employees. Most employers contract with providers directly to ensure care for their employees. Financial barriers restrict access to medical care for the poor, who are excluded from formal sector employment. The Rwandan health sector is financed by foreign assistance (50 percent) and by private out-of-pocket spending (40 percent); the government contributes only 10 percent of total funds.

The genocide in 1994 was followed by a period of humanitarian assistance. During this time, public health care services were provided for free to patients, financed by donors and the government. In 1996, the Ministry of Health reintroduced prewar level user fees in health facilities. By 1999, utilization of primary health care services had dropped from 0.3 in 1997 to a national average of 0.25 annual consultations per capita. This sharp drop in demand for health services combined with growing concerns about rising poverty, poor health outcome indicators, and a worrisome HIV prevalence among all population groups motivated the Rwandan government to develop community-based health insurance to assure access for the poor to the modern health system.

Senegal

In Senegal, as in most of the other African countries, large proportions of people are not covered by formal health insurance, and access problems are reported in terms of financing and geographic outreach. Social health insurance, introduced in 1975, extended coverage to private sector employees and their families. The added coverage of social insurance and the partial coverage of civil servants and their dependants, however, still leave the most of the population in the urban informal sector and rural sector under-protected against the financial risks associated with illness.

The Senegalese health care system has three different levels: health district, region, and central level. The health district has a health care center as well as health posts. Senegal has 50 health districts run by a chief health doctor (1998). The regional level is attached to the administrative division of a region, and the central level is attached directly to the Ministry of Health. The Senegalese health sector is financed by the central government (about 50 percent), user fees (about 10 percent), local government (about 6 percent), and donors (about 30 percent).

In Senegal, the private sector plays an important part in the health care system due to both its size and its geographical distribution. Private providers are a mix of for-profits providers, serving urban high- and middle-income groups and charging relatively high fees, and nonprofits, mostly church-run facilities, serving rural and poor populations and charging only modest fees. Company clinics are also important. In Senegal there are around 40 private clinics (1994), about three quarters of them located in Dakar; half of these private facilities are mainly maternity clinics. There are also around 14 diagnostic labs, 11 of them in Dakar.

In the nonprofit-sector the Catholic church health posts (around 70, mainly in rural areas) and the Catholic hospital (St. Jean de Dieu in Thiès) play an important role. The church deliberately put most of its nonprofit services in the rural areas to reach the otherwise excluded and the poor. The church network, developed mostly in the 1950s and 1970s. Church-based providers are especially important in reaching rural areas with preventive services.

India

Health care in India is provided through general tax-funded public providers, insurance for the formally employed, and increasingly through nongovernmental organizations and charitable institutions.

- *Public system.* There are concerns about access and use of subsidized public health facilities. Most of the poor households, especially rural, reside in remote regions where

neither government facilities nor private medical practitioners are available. These people have to depend heavily on services provided by local, often unqualified, practitioners and faith healers. Further, wherever accessibility is not a constraint, the primary health centers are generally either dysfunctional or providing low-quality services. The government's claim to provide free secondary and tertiary care does not stand; in reality there are charges for various services (Gumber 1997)

- *Voluntary insurance.* Only 9 percent of the Indian workforce is covered by some form of health insurance--the majority of those covered belong to the formal employed sector. Public insurance companies so far have paid very little attention to voluntary medical insurance because of low profitability and high risk together with lack of demand. From the consumer point of view, the insurance coverage is low because information about the private health insurance plans is lacking and the mechanisms used by the health insurance providers are not suitable to consumers.
- *Nongovernmental organizations (NGOs)* and charitable institutions (not-for-profit) have played an important role in delivering affordable health services to the poor, but their coverage has always remained small. The issue is how to reach the socially excluded and, more recently, how to insure the uninsured to get minimum affordable quality services.

Thailand

Health insurance schemes in Thailand can be classified into three types: welfare and fringe benefit, compulsory, and voluntary health insurance.

C. SURVEYED COMMUNITY FINANCING SCHEMES

In all four countries, community financing plays a role in raising resources for health care and providing financial protection. In India, Senegal, and Thailand, community financing has had a relatively long tradition while in Rwanda, it is a new phenomenon. The community financing arrangements surveyed in the four countries are similar in that they are based on prepayment and risk sharing. Using the categorization developed by Jakab and Krishnan (2001), Rwanda, Senegal, and India fall under modality 2—community health funds and mutual health organizations—while Thailand belongs to modality 4—community financing with substantial government and/or social insurance involvement.

Rwanda

In early 1999, the Rwandan MOH in collaboration with the local communities, and the technical and financial support of Partnerships for Health Reform (PHR) started the process to pilot test prepayment schemes in three health districts. At the end of their first operational year, the 54 schemes enrolled more than 88,000 members.

Under Rwandan law, the schemes are deemed mutual health associations, headed by an executive bureau with four volunteers, elected by and among the scheme members during a CBHI general assembly. On a district level, the schemes have formed a federation. Six members have been elected by and among all PPS executive bureau representatives in their general assembly to constitute the bureau of the district federation of prepayment schemes. The federation is the partner to the district hospital as well as to the health district and other authorities. Each

prepayment bureau has signed a contract with the affiliated health center, and each federation with the district hospital, defining in 17 articles, the rules of collaboration between the insurer and provider. According to the schemes' by-laws, members are invited, at least once a year, to attend the prepayment scheme's general assembly.

The CBHI schemes promote group membership. Households that would like to be insured pay, at the time of enrollment, an annual premium of 2,500 francs¹ per family of up to seven persons to the CBHI affiliated with their "preferred" health center.² An individual pays 2,000 francs on enrollment. PPS membership entitles members--after a one-month waiting period--to a basic health care package covering all services and drugs provided in their "preferred" health center, including ambulance transfer to the district public or church-owned hospital, where a limited package is covered³. Group enrollment and the one-month waiting period are designed in the voluntary CBHI schemes of Rwanda to minimize adverse selection. In case of sickness, members contact first their preferred health center, which is usually their nearest public or church-owned facility. Members pay a 100 francs⁴ copayment for each health center visit. Health centers play a gatekeeper function, and hospital services are covered for members only if referred by their preferred health centers. This is done to discourage members and providers from frivolous use of more expensive hospital services.

Senegal

In Senegal has had a long tradition of mutual health insurance schemes. The first experience started in the village of Fandène in the Thiès region in 1990. From the beginning, the movement in Senegal has been supported by a local health care provider, the nonprofit hospital St. Jean de Dieu. Sixteen mutual health insurance schemes operate in the area of Thiès (2000). The main features of the schemes are:

- They are community based.
- Ninety percent of the schemes operate in rural areas.
- With the exception of one mutual—Ngaye Ngaye—the schemes cover only hospitalization.
- The mutuels have a contract with the hospital St. Jean de Dieu, where they get a reduction of up to 50 percent for treatment
- In general, the household is a member of a mutual and participates in the decisions. The insured has a membership card on which he can put all or selected family members family (beneficiaries). The membership fee is per person insured.

¹ July 1999: RWF 2,500 = US\$7.50.

² Premium rates were set by taking into account existing user fees and by assuming that utilization rates would increase by 25 percent over baseline levels. See TR 45: chapter 3.1.1.

³ The Kabgayi PPS covers full stays at the hospital for C-sections, malaria, and non-surgical pediatrics, whereas the Kabutare and Byumba PPS cover C-sections, physician consultation, and an overnight stay at the district hospitals.

⁴ July 1999: RWF 100 = US\$ 0.3.

India

The Self-Employed Women's Association's (SEWA's) Integrated Social Security Scheme was initiated in 1992. SEWA is a trade union of more than 2 million women, all workers of the informal sector. This integrated income-protection scheme provides life insurance, medical insurance, and asset insurance. Women who pay the annual Social Security Scheme premium of 72.5 rupees—30 rupees of which is earmarked for the Medical Insurance Fund (herein referred to as "Fund")—are covered to a maximum of 1,200 rupees yearly in case of hospitalization in any registered (private or public) facility.

Women between the ages of 18 and 58 are eligible for membership in the Fund. Women also have the option of becoming lifetime members of the Social Security Scheme by making a fixed deposit of 700 rupees. Interest on the deposit is used to pay the annual premium, and the deposit is refunded when the woman reaches 58 years of age. Upon discharge from hospital, members must first pay for the hospitalization out of pocket. They submit receipts and doctors' certificates to SEWA, and if the insurance claim is approved, they are reimbursed by check. Excluded from Fund coverage are certain chronic diseases (e.g., chronic tuberculosis, certain cancers, diabetes, hypertension, piles) and "disease caused by addiction" (SEWA brochures, 2000).

Throughout the 10 districts of Gujarat where it operates, the Fund had 23,000 members in 1999–2000 (this compares to coverage of roughly 150,000 women under the broader SEWA trade union, statewide).

Thailand

The Health Insurance Card Scheme was introduced in 1983. Its three main objectives are to promote community development under the primary health care program, foster the rational use of health services via a referral system, and increase health resources based on a community financing concept.

The target population is the near-poor and middle-income class in rural areas or people who can afford the premium. The health insurance card costs bath 1,000 (US\$40) per year per household of up to five members. A household contributes half of the price, and the other half is subsidized by general tax revenue through the Ministry of Public Health. The benefits include outpatient care for illness and injuries, inpatient care, and mother and child health services. There is no limit on utilization of the services. However, the beneficiaries can go only to health care provider units under the Ministry of Public Health. The first contact is at either the health center or the community hospital; patients must then follow a referral line for higher levels of care.

There is a specific time for card selling at each health card cycle. At present the cycle is one year, and the specific time for card selling depends on the seasonal fluctuations in income. The premium is collected when cash incomes are highest, for example, when crops are harvested. In 1992, the population coverage by the health card program was 3.6 million, about 5 percent of the total population.

III. METHODS

A. DATA SOURCES

The use of standardized and nationally representative surveys (LSMS, DHS) was explored, but they did not prove to be useful for the purpose of this study. Though preferred for their representative sampling and standardized measures of socioeconomic status, these large-scale surveys did not allow us to identify households with access to community-based health financing. Even where the survey included health financing questions, coverage through community financing could not be separated from other health financing instruments such as private insurance or social insurance. Appendix A provides the complete list of survey instruments reviewed in 21 countries as well as the variables predefined as selection criteria.

Eleven smaller scale non-standardized surveys matched the requirements for the core list of variables. The five available for further analysis were included in this report. The other six were either impossible to access for further analysis (4), data collection was incomplete (1), or authors were not available to collaborate within the short time-frame of the project (1).

The five household surveys identified and accessible for analysis for the purposes of this report represent non-standardized, relatively small scale data collection efforts with a sample size of 346 to 1,200 households. None of the surveys was nationally representative but random samples of the local population. With the exception of Thailand, four surveys are very recent. Table 3 summarizes the key characteristics of these surveys. The individual country sections provide more detailed information about the survey instruments.

Rwanda

The Rwanda household survey was carried out by PHR in collaboration with the Rwandan National Population Office (ONAPO). Data collection took place during 40 days in October/November 2000 in three pilot districts. The household survey includes 2,518 households (11,583 individuals) successfully interviewed in the three pilot districts. The sample was based on the same sampling frame as the Rwandan Demographic and Health Survey (DHS), 2000, covering 11 health regions in Rwanda.⁵ Households for the prepayment household survey in the three districts were sampled at random from a list of primary sample households from sample cells identified in the national DHS sample, rendering the household survey sample representative to the district level.

The prepayment household survey used three structured questionnaires for data collection: a socioeconomic household questionnaire, a curative care questionnaire, and a preventive care questionnaire. The household questionnaire collected information on households' and individuals' sociodemographic and economic characteristics, including household expenditures for consumption goods, health and education, and participation in CBHI. The curative care questionnaire was addressed to household members who were sick two weeks prior to the interview, and the preventive care questionnaire was used to interview women of childbearing age who had delivered a child in the last five years or who were pregnant during the year preceding the interview (Diop and Schneider 2001).

⁵ The DHS was conducted by the Rwandan National Population Office (ONAPO) in collaboration with Macro International and USAID in 2000/2001. Households for the DHS were selected as primary sample units from sample cells identified for the Living Condition Monitoring Survey (LCMS), conducted by the Ministry of Finance in collaboration with UNDP in 2000/2001

Table 3. Characteristics of 5 survey instruments

	Name of scheme	Year of data collection	Sample size # of observations (Households)	Organization associated with the survey
Rwanda	54 prepayment schemes in 3 districts of Kabutare, Byumba and Kabgayi	2000	11,583 2,518	Partnerships for Health Reform (PHR) in collaboration with National Population Office
Senegal	4 Mutual Health Insurance Schemes (Thiès Region)	2000	2,987 346	Center for Development Research (ZEF Bonn) in cooperation with the Institut for Health and Development
India (1)	Self-employed Women's Association (SEWA)	1998-99	1,200	National Council of Applied Economic Research (NCAER)
India (2)	Self-employed Women's Association (SEWA)		1,200	London School of Hygiene and Tropical Medicine
Thailand	Voluntary Health Card Scheme (HCP)	1994-95	1,005	National Statistics Office

Senegal

The Senegal household survey was carried out by the Institute for Health and Development (ISED) in Dakar in cooperation with the Center for Development Research in Bonn between March 2000 (pre-test) and May 2000 (final survey). Households were randomly selected in four villages of Fandène, Sanghé, Ngaye Ngaye, and Mont Rolland in the Thiès region of Senegal where mutual health organizations (MHOs) are in place. A total of 346 households were surveyed, 70 percent of which are members of the MHOs. The data set consists of 2,987 persons, 60 percent of them members (some households did not insure their whole families). The participation rate in the interviews was very high, more than 95 percent.

India (1).

The first household survey for India was carried out by the National Council of Applied Economic Research (NCAER). A primary survey of 1,200 households was conducted in the Ahmedabad district of Gujarat, India, between December 1998 and 1999. The survey included households from four types of health insurance enrollment status in rural and urban areas:

- 360 households belonging to a contributory plan known as Employees' State Insurance Scheme (ESIS)
- 120 households subscribing to a voluntary plan (Mediclaim)

- 360 households belonging to the community and self-financing scheme run by a nongovernmental organization called Self Employed Women’s Association (SEWA), and
- 360 uninsured households purchasing health care services directly from the market (control group).

The survey sample came from eight localities (about 90 households each) dominated by slum populations in the city of Ahmedabad and six villages (about 60 households each) in the neighborhood.

India (2).

The second survey of India also surveyed the SEWA population. This was a cross-sectional cohort study; respondents were interviewed at only one point in time, and we fixed in advance the number of SEWA and uninsured households (the two “cohorts”). Two-stage, random cluster sampling was used. The primary sampling units (PSUs) were villages. Twenty villages were selected randomly (using random-number tables); the probability of selection was equal for all villages regardless of size. The secondary sampling units were households. Within each village, insured were randomly selected from lists compiled by SEWA and uninsured were randomly selected from census or voting lists. In 10 villages, 14 SEWA households and 14 uninsured households were sampled, and in 10 villages 14 SEWA households and 28 uninsured households were sampled (20 villages x 14 SEWA households = 280 SEWA households; 10 villages x 14 controls + 10 villages x 28 controls = 420 controls; therefore *700 households* are included in this analysis)⁶.

Thailand

The Thailand survey was conducted in 1994–95 in the Khon Kaen province of Thailand, which has had experience with the voluntary health insurance scheme or the Health Card Program (HCP) since 1983. The pilot study was implemented in six districts where a sample of 1,005 households was selected and categorized into four groups:

- those who did not have a health card between 1993 and 1995 (495 households)
- new health card holders in 1995 (297 households)
- continued card purchasers (132 households)
- health card dropouts (81 households).

Secondary data (National Statistics Office) statistics of card usage rates and utilization rates, reimbursement from providers, and the number of insured and uninsured in the province before and after the implementation of the program by the type of insurance scheme was also used in the study.

B. EMPIRICAL METHODS

⁶ Note this study was actually designed to look at *two* community-based insurance schemes, SEWA and the Trivbhuvandas Foundation, and a total of 1,120 households were actually interviewed. However, TF households and their controls are not included in this analysis.

This section describes the general methods applied to the data sets. Since each of the five data sets is different, some variations in methodology exists and are reported in the individual reports.

Determinants of inclusion in community financing

To assess the determinants of social inclusion in community financing schemes, we assume that the choice of whether to enroll is influenced by two main determinants: (i) individual and household characteristics and (ii) community characteristics.

Individual and household characteristics such as age, gender, income, and health status shape individual preferences toward health risks as well as their ability to pay membership fees and thus influence their demand for insurance.

We hypothesize that individual choice whether to enroll in a prepayment scheme is moderated through certain social characteristics of the community. Social, ethnic, and religious values may shape peoples' preferences and attitudes toward health, risk, and solidarity. This may alter the outcome of the rational choice process for two individuals with similar individual and household characteristics. They may decide differently about joining or not joining depending on encouragement from community leaders, availability of information, ease of maneuvering unknown processes, and the like.

To estimate the weight of these determinants, a binary logit model was applied to four of the data sets, and a binary probit was applied to the Senegal data set. The model can be formally written as follows.

$$Prob (membership > 0) = X_1\beta_1 + X_2\beta_2 + \varepsilon \quad (1)$$

The independent variable takes on a value of 1 if the individual is member of a community financing scheme and 0 if s/he is not. X_1 represents a set of independent variables that are characteristics of the individual and the household such as income, gender, age, marker on chronic illness, or disability. X_2 represents a set of independent variables that approximate the social values in the communities: religion, marker on various communities where appropriate. Other variables specific to the surveys as well as interaction terms were included where appropriate. β_1 and β_2 are vectors of coefficient estimates and ε is the error term.

The two variables of primary interest are income and marker on different communities.

Income. Income is the key variable to measure the extent of social inclusion achieved by community financing schemes. This assumes that income is a good approximation of social inclusion. Admittedly, this assumption ignores that poverty and social exclusion have many dimensions and causes other than income such as ethnicity, religion, and mental and physical disabilities, to mention only a few. However, we hypothesize that effective demand for insurance is strongly determined by ability to pay. This hypothesis is supported by some of the literature on community financing, which suggests that the poorest and higher income groups are not included in pooling arrangements.

Community characteristics. Community-specific dummy variables are our key variable to pick up unobservable characteristics of communities such as social values and solidarity to see if it influences individual choice to enroll in a community financing scheme. Our hypothesis is that

the impact of the communities is a significant determinant of the probability of enrolling in a scheme.

Ideally, one would control for social values, social capital, and collective attitudes toward solidarity, risk, and health with more sensitive and direct variables. At this point, however, only the Senegal data set included a variable that directly measured the perceived level of solidarity among survey respondents. For the other surveys, community/district specific dummy variables were included. Admittedly, this is a crude measure to assess variation in social values, collective attitudes toward risk, health, and solidarity. Therefore, a statistically significant finding regarding the community/district dummy variables will call for further examination of what community characteristics are really measured and picked up by these variables.

In addition to income and community-specific dummies, other control variables are also included: gender, age, disability or chronic illness, religion, and distance to the health center under the scheme. Some of these variables are important to control for the different probability of health care use. (e.g., age, health status, distance from provider) These variables also allow us to test the presence and importance of adverse selection to which all voluntary prepayment schemes are subject.

Other variables are included to control for the different individual and household attitudes toward investment in health at a time when illness is not necessarily present (e.g., gender, religion). The literature has shown that distance gradient to the hospitals and local health centers and existence of outreach programs influence the decision to purchase membership in the scheme.

Determinants of financial protection provided by community financing

To empirically assess the impact of scheme membership on financial protection, a two-part model was used.⁷ The first part of the model analyzes the determinants of using health care services. The second part of the model analyzes the determinants of health care expenditures for those who reported any health care use.

There are several reasons for taking this approach. First, using health expenditure alone as a predictor of financial protection does not allow us to capture the lack of financial protection for those who choose not to seek health care because they cannot afford it. As the first part of the model assesses the determinants of utilization, this approach allows us to see whether membership in community financing reduces barriers to accessing health care services.

Second, the distribution of health expenditures is typically not a normal distribution. There is a large number of non-spenders who do not use health care in the recall period. The distribution also has a long tail due to the small number of very high spenders. To address the first cause of

⁷ This model is similar to the two-part demand model developed as part of the Rand Health Insurance experiment to estimate demand for health care services. See Duan N, Manning WG JR, Morris CM and Newhouse JP. A Comparison of Alternative Models for the Demand for Medical Care, report R-2754-HHS. The Rand Corporation: Santa Monica, California, 1982. Manning, W.G. et al., Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment. *American Economic Review* 1987; 77(3): 251-277. For a recent application of the model that analyzes the access impact of school health insurance in Egypt, see Yip, W. and P. Berman 2001. "Targeted Health Insurance in a Low-Income Country and Its Impact on Access and Equity in Access: Egypt's School Health Insurance," *Health Economics* 10(2)

non-normality, we restrict the analysis of health expenditures to those who report any health care use. As the first part of the model assesses determinants of use, we will still be able to look into whether scheme membership removes barriers to care. To address the second part of non-normality, a log-linear model specification is used.

Part one of the model is a binary logit model for the Rwanda, Thailand, India data sets and a probit model in the Senegal model. The model estimates the probability of an individual's visiting a health care provider. Formally, part one of the model can be written as follows:

$$\text{Prob}(\text{visit}>0) = X\beta + \varepsilon \quad (2)$$

Part two is a log-linear model that estimates the incurred level of out-of-pocket expenditures, conditioned on positive use of health care services. Formally, part two of the model can be written as follows:

$$\text{Log}(\text{out-of-pocket expenditure} \mid \text{visit}>0) = X\gamma + \mu \quad (3)$$

where X represents a set of individual and household characteristics that are hypothesized to affect individual patterns of utilization and expenditures.

β and γ are vectors of coefficient estimates of the respective models. ε and μ are error terms.

The two variables of primary interest are scheme membership status and income.

Scheme membership status. The key independent variable of interest is membership status in community financing schemes. The key question is that, controlling for a number of individual and household characteristics, do members of community financing schemes have better access and a lower financial burden of seeking health care. Our hypothesis is that well-functioning prepayment and pooling schemes remove financial barriers to health care access demonstrated by increased utilization and reduced out-of-pocket spending of scheme members relative to nonmembers. Interaction terms between insurance membership status and income are also explored.

Income. Without the financial protection afforded by insurance, demand for health care is heavily determined by ability to pay, and for those who use health care, out-of-pocket expenditures are likely to mean a heavy financial burden. Through prepayment and pooling, we expect that financial barriers to care are reduced and income becomes a less significant predictor of health care utilization and out-of-pocket expenditures.

Other control variables were also included in the estimation model to control for the differences in need for health care (e.g., age, gender); differences in preferences toward seeking health care (e.g., gender, religion); and differences in the cost (direct and indirect) of seeking health care (e.g., distance).

Limitations of the methodology

The applied methodology has several limitations.

- ❑ The estimated coefficients might reflect bias due to adverse selection in the model trying to assess the inclusiveness of community financing schemes. Adverse selection occurs because participation in the schemes is voluntary and therefore, those with greater than average health risk are more likely to enroll than those with lower than average risk. While multiple regression techniques can adjust for the observable characteristics that affect adverse selection, they cannot adjust for unobservable characteristics. This leads to biased coefficient estimates, and thus, undermines the internal validity of the results. We try to control for the adverse selection by including variables associated with health risk such as age, gender, and perceived health status
- ❑ Bias be also present in part two of the model because of potential endogeneity between the choice of whether to enroll in health insurance and health care use. Individuals who self-select into the insurance program have unobservable characteristics—related to preference or health status (adverse selection)—that make them more likely than others to join the program and which also influence their decision to use health care services. An observed association between health insurance affiliation and health care use and expenditure may therefore be due not to insurance but to the underlying unobservable characteristics. In the Senegal study, the Hausmann-test has been performed to control for the effects of the unobservable characteristics.
- ❑ The variables we use to approximate social inclusion and community characteristics are indirect.
 - Social inclusion/exclusion is measured here only in terms of income, and other determinants such as ethnicity or religion are not taken into account.
 - Social values, social capital, collective attitudes toward risk, health, and solidarity are not measured through direct variables—only through indirect community/district-specific dummy variables that measure all unobserved characteristics that vary across the surveyed communities.
 - Both of these weaknesses can be addressed in the future by finding more appropriate and more sociology-driven measures for social exclusion.
- ❑ We do not have a direct measure of financial protection. Ideally, we would like to measure the impact of community financing on impoverishment directly. Such data were not, however, available within the timeframe of this study. Our measures, utilization plus out-of-pocket spending, are indirect approximations of financial protection.

IV. RESULTS

This section presents the key findings from the individual country analyses. Not all variables and findings that are important for the specific countries are included here. This section aims to present the findings with regard to the key variables of interest described under the methods section. The individual country papers provide more comprehensive description of regression results as well as discussion of those findings.

A. DETERMINANTS OF SOCIAL INCLUSION IN COMMUNITY FINANCING

The results in terms of the determinants of social inclusion through community financing are varied. Table 4 presents the determinants that were found statistically significant in the five household surveys.

Table 4. Statistically significant determinants of inclusion in community financing

	Rwanda	Senegal	India (1)	India (2)	Thailand
<i>Model</i>	Logit	Probit	Logit	Logit	Logit
<i>Dependent variable</i>	Proportion of population enrolled in 54 schemes in 3 districts				
Dependent variable	Proportion of population enrolled in 54 schemes in 3 districts	Proportion of population enrolled in 1 of 4 schemes	Proportion of population enrolled in SEWA-insurance	Proportion of population enrolled in SEWA-insurance	Proportion of population purchased new health card, continued, dropped out, never purchased
<i>Independent variables: individual & household characteristics</i>					
Income/assets	No	Yes	No	For the poorest fifth	No
Age	No	No	Yes	Yes	No
Education	Yes	No	No	No	Yes
Gender	No	No	-	-	No
Health status	No	No	Yes	Yes	Yes
Household size	Yes	-	Yes	No	-
Marital status	-	-	Yes	No	No
Religion	-	Yes	-	No	-
Ethnic group	-	Yes	-	-	-
Membership in other org,	-	Yes	-	-	-
Distance of household from scheme provider	Yes	-	-	-	-
<i>Independent variables: community characteristics</i>					
Community marker for unobservable ch.	Yes	Yes	-	-	-
Solidarity	N/A	No	N/A	N/A	N/A

Yes: variable is significant at least at the 10 percent level. No: Variable is not significant. (-) : not included in the particular model

Income and other socioeconomic determinants

We had hypothesized that household income is a significant determinant of membership in a prepayment scheme as ability to pay influences demand for prepayment. The results of the five studies neither confirmed nor disproved this hypothesis. Household income was a significant determinant of membership in a prepayment scheme in Senegal and Thailand but not significant in Rwanda and India.

- In the **Senegal** data set, the income variable was significant. Income was included in the model in three forms: as a continuous variable (significant at the 1 percent level) divided into tertiles (significant at the 10 percent level for the lower tertile and at the 5 percent level for

the upper tertile) and as a self-reported measure of being poor or non-poor (poor significant at 1 percent). In all cases, income had a positive impact on the probability of being a scheme member. This indicates that ability to pay does make a difference in the decision to join: lower income household and the self-reported poor were less likely to join a scheme than higher income households.

- ❑ In **Rwanda**, the income variable, divided into quartiles, was not a significant determinant of scheme membership. Of the two included asset variables, cattle and radio ownership, only radio ownership was significant and had a positive impact on the probability of membership. As further discussed in the discussion section, the strong impact of radio ownership is more likely to measure the success of the information campaign than the impact of assets on the decision. These results are robust in alternative models: in particular, the results do not change as variables collinear with income were excluded.
- ❑ Both household surveys in **India** had similar findings. SEWA membership was not strongly influenced by income or by household assets.
 - ❑ In the first survey, household income was included as quintiles. Only being in the highest income quintile had any impact on membership status. Being in the top quintile increased the probability of membership in SEWA by 1.87 percentage points as compared to the lowest quintile. There is some indication, however, that the income variable is measured with error and thus it does not pick up the true welfare characteristics of households. For example, large household size (six and more members) is a significant predictor of the probability of being a member. Households with more than six members are two to seven percentage points less likely to join than households with fewer than four members. Similarly, activity status is also a significant predictor of the probability of membership. Members of any trade are two to four percentage points more likely to be members of SEWA than non-workers. The insignificance of the income variable remains when activity status is excluded from the model for colinearity reasons. To the extent that household size and employment status is a proxy for income and welfare, there is reasonable doubt whether the income variable is measured with error.
 - ❑ In the second survey, an asset index was developed to measure household wealth. The asset index was not found to significantly influence the probability of being a SEWA member.

Other individual and household characteristics

Health status was included in the analysis of all five surveys. The hypothesis explored was that adverse selection was present: people with worse health status are more likely to join the prepayment scheme as their expected value from insurance is higher than those with better health status. The hypothesis was disproved in Senegal and Rwanda. In the other three studies, the hypothesis was confirmed.

- In the **Rwanda** survey, households with a pregnancy over the past year were marked as well as households with children below the age of 5. Neither variable was significant.

- In **Senegal**, two variables were introduced to capture health status: illness ratio, measuring reported illness in the previous six months, and hospitalization ratio, measuring the frequency of hospitalization in the previous two years. Both variables were found to have no influence on participation in a mutual.
- In the **India (1)** survey, three variables aimed to control for health status: whether the respondent had a chronic ailment, whether the respondent had been hospitalized over the recall period and whether respondent had given birth during previous two years. The significance of the variables varied in the alternative three models. Childbirth was significant in two of the models, and reported hospitalization was significant in one. When significant, both childbirth and reported hospitalization increased the likelihood of SEWA membership threefold.
- In the **India (2)** survey, the number of acute illness episodes reported over the previous 30 days was included to control for general level of health. The variable was significant at the 5 percent level. Those who reported illness over the previous 30 days were 68 percent more likely to be part of SEWA than those who did not.
- In **Thailand**, there were several control variables for health status: presence of illness in the household in the previous three months, the number of sick members with chronic illness in the family, economic problems during sickness of family members. Presence of illness was a significant determinant of purchasing a health card while the other two health status variables were not. (Collinearity). Those reporting illness in the previous three months are 57 percentage points more likely to have ever purchased a health card compared to those who reported no illness over the previous three months.

Community characteristics

To control for community characteristics and test the hypothesis whether community characteristics modified individual decision making, two models included a dummy variable to control for all the unobservable differences at the community level that may influence individual decision making. In both cases, the dummy variables were significant predictors of the probability of enrolling in the prepayment scheme.

- In **Rwanda**, three communities were surveyed, and the community dummies were found highly significant at the 1 percent level. Households from Kabgayi were 3.5 times as likely to purchase a prepayment plan and households from Byamba were 15.8 times as likely to purchase a prepayment plan as households from Kabutare.
- In **Senegal**, different model variations show that the inhabitants of the villages Sanghé and Mont Rolland have significantly lower probability of membership than people from Ngaye Ngaye and Fandène. These results indicate that the different type of health insurance provided—primary health care in Ngaye Ngaye and inpatient care in the other three mutuals—had no significant influence on the decision to participate. Instead, specific village factors such as the management of the mutual seem to play a role. The mutual of Sanghé has faced several financing and managerial difficulties that have led to a suspension of operations for some time. As a consequence, several people left the mutual. Efforts to reestablish the mutual have been successful and today the mutual is functioning again, but with a lower participation rate.

B. DETERMINANTS OF FINANCIAL PROTECTION IN COMMUNITY FINANCING

The results in terms of the determinants of financial protection through community financing are varied. Table 5 presents the determinants that were found statistically significant in four of the household surveys. The household survey conducted in Thailand does not permit to analysis of the determinants of out-of-pocket payments and was therefore excluded from the analysis.

Insurance effect

In three of the four household surveys, scheme membership was a significant determinant of the probability of using health care and the level of out-of-pocket payments. This confirms our original hypothesis that even small-scale prepayment and risk-pooling reduce financial barriers to health care.

- In **Rwanda**, scheme members are six times more likely to enter the modern health care system when sick than nonmembers. Scheme members who report any visit to a professional provider have lower out-of-pocket payments per illness episode than nonmembers.
- In **Senegal**, scheme members are two percentage points more likely to use hospital care than nonmembers (marginal effect). Their out-of-pocket payment for hospital care decreased by 50 percent in comparison to nonmembers, with all other factors constant.
- In **India**, the picture is mixed. Model one reports significant impact of SEWA-membership on the probability of using health care but finds no impact on the total annual cost of health care utilization. In contrast, model two finds that SEWA-membership has no impact on the likelihood of being admitted for hospital care but finds that membership reduces the total annual out-of-pocket payments for hospitalization.

Table 5. Summary findings: Statistically significant (at least at 10 percent) determinants of utilization and out-of-pocket expenditure patterns

	Rwanda		Senegal		India (1)		India (2)	
	Utilization	OOPs	Utilization	OOPs	Utilization	OOPs	Utilization	OOPs
<i>Model</i>	Logit	Log-linear conditional on (use>0)	Logit	Log-linear conditional on (use>0)	Logit	Log-linear conditional on (use>0)	Logit	Log-linear conditional on (use>0)
<i>Dependent variable</i>	Proportion of sample w/ at least one visit to professional health care provider	Total illness related out-of-pocket payment per episode of illness for the full episode	Proportion of sample w/ at least one hospitalization	Out-of-pocket spending of hospitalization	Proportion of sample reporting any health care use	Total annual direct and indirect cost of health care use	Proportion of sample w/ at least one hospitalization	Total annual out-of-pocket payment for use of hospital care
<i>Independent variables: Insurance effect</i>								
Scheme membership	Yes	Yes	Yes	Yes	Yes	No	No	Yes
<i>Independent variables: Individual & household characteristics</i>								
Income/assets	Yes	for poorest quartile	for richest tertile	Yes	No	Yes	for richest quintile for oldest group	Yes
Age	Yes	No	Yes	For <26 group	No	-	-	No
Education	No	No	No	No	No	-	No	Yes
Gender	No	Yes	Yes	No	No	-	-	-
Health status/severity of illness	Yes	No	No	No	for very severe	Yes	-	-
Household size	No	No	-	-	No	small hh size	No	Yes
Marital status	-	-	-	-	No	-	No	No
Religion	-	-	No	No	-	-	No	Yes
Distance of household from scheme provider	Yes	No	-	-	-	-	-	-

Note: other control variables were included in some of the studies but as they are not discussed in the paper, we did not include them in this table. OOPs out-of-pocket payments.

Socioeconomic determinants

Our second key hypothesis was that insurance coverage makes income a less significant determinant of health care utilization and out-of-pocket payments. This hypothesis is neither confirmed nor disproved by our findings, which are quite varied.

- In **Rwanda**, income continues to be a determinant of the likelihood of using health care as well of the average out-of-pocket payment for the poorest quintile, with all other variables constant.
- In **Senegal**, income is a determinant of using hospital care only for the richest third of the sample. Income is a significant determinant of the level of out-of-pocket spending on hospital care.
- In **India**, model one reports that income is not a significant determinant of use and a significant determinant of out-of-pocket payments only for the richest quintile. Model 2 confirms the finding that income is not a significant determinant of use and thereby confirms our original hypothesis. It also finds that income is a significant determinant of out-of-pocket expenditures for the richest quintile.

Other determinants

Where included, distance from the scheme provider was a significant determinant of the likelihood of using health care.

- In **Rwanda**, people who live close to the health facility are significantly more likely to seek care (61 percent) than those who live farther away. Patients in the lowest income quartile are far less likely to seek care than those in the highest income quartile. This means that while the prepayment scheme has significantly increased access to health care for members, including those who are poor, the impact at the district level in increased access to health care for the poor remains an issue. The solution is to find mechanisms to increase enrollment of poor households in the prepayment schemes.

V. DISCUSSION

A. DETERMINANTS OF SOCIAL INCLUSION IN COMMUNITY FINANCING

Socioeconomic determinants

We had hypothesized that household income is a significant determinant of membership in a prepayment scheme. Ability to pay would influence the demand for prepayment. Review of the literature suggested that this was the case for many schemes and that, for the very poorest, financial barriers to care remained even with the introduction of community financing.

The findings of this research suggest that financial barriers can be overcome by community financing schemes even in a very poor context (Rwanda, India). In the case of two schemes, income was found to be not a significant determinant of membership status suggesting that the poor were just as likely to be included in the schemes as the better-off community members.

This finding is no doubt due to the fact that, because all clients of community financing schemes are poor, there is no large variation in the income variable. But this is true in all four countries and does not explain why the schemes in Rwanda and India have achieved inclusion of the poor while those in Senegal and Thailand have not.

In our interpretation, assuming that this finding is not due to methodological error, it indicates that certain design and implementation features allow poor communities to overcome the inability to pay of their poorest residents. In other words, how schemes are designed and implemented makes a difference in terms of their success in targeting the very poor. Further analysis is required to compare the structural, managerial, organizational, and institutional characteristics of the surveyed schemes to determine precisely which features contribute to better targeting outcome.

Three design and implementation features of the Rwanda scheme stand out as potential explanatory factors that have allowed for the inclusion of the poorest: (i) participatory process, (ii) subsidies and facilitation of contribution payment for the poor, and (iii) effective information campaign. (See Box 1.)

First, participatory design and democratic management of the scheme led to sense of ownership and trust toward the health scheme. This has shaped the preferences and attitudes of households toward investment in their health. Participation was achieved through community-level meetings and allowing community members to vote. This finding is consistent with the social capital literature that suggests that voice leads to empowerment which in turn contributes to better sustainability.

Second, ability to pay of the poorest was given special consideration. Those who could not afford to pay a one-time enrollment fee were allowed to pay in installments. Further, the community and the churches collected money to contribute for the enrollment fee of the indigent, disabled, orphans, and other disadvantaged people. This finding is consistent with the literature that suggests that poorly designed contribution schemes are often in the way of expanding enrollment. Flexibility in scheme design makes a difference, for example, allowing cash contributions or timing collection time to coincide with cash-endowed periods.

Box 1. Financial Accessibility to Health Care in Rwanda

“The findings from the first model respond to the question, who enrolls in CBHI. Households living in Byumba and Kabgayi, who number five and more individuals, whose household head attended school, who live in the vicinity of a health center, and who own a radio appear to be more likely to buy insurance.

“Other important factors also influence households’ probability of enrolling such as their risk aversion, their exposure to effective information campaigns on prepayment schemes, as well as trust in the scheme management, which is related to households’ willingness to see CBHI as an investment, and which supports the argument that enrollment in health insurance is not necessarily driven by economic conditions such as household income. The following reasons were identified in different surveys (focus group, household and patient exit interview survey) to be important in households’ enrollment decisions:

- Both districts Byumba and Kabgayi, had intensive awareness and information campaigns on PPS during the first year, supported by the district authorities and prepayment federation, resulting in steady monthly enrollment increases.
- The prepayment schemes’ features, including benefit package, premium level, enrollment categories, copayments, and waiting period, were designed, discussed, and agreed upon (by voting) in a series of about 30 workshops in the three districts. These workshops were attended by the local population. As a result, the health insurance schemes were “tailored” as desired by, and in response to, the needs of the local people.
- The main determinant of PPS participation is trust, which might be captured by the time variable. People living near the facilities are more likely to enroll, because they know the health center personnel, as well as the prepayment scheme management team, and have been exposed to regular information campaigns on prepayment.
- The participatory approach and the democratic management of PPS lead to sentiments of “ownership” and increased trust among the poor, which are basic conditions for poor households to engage in any investment.
- Households that did not have the 2,500 francs (about US\$8) to pay the one-year PPS enrollment fee have joined a “tontine.” During five weeks, each tontine household paid 500 francs as an installment toward the 2500 francs total fee to the “tontine-caisse.” Households are enrolled as full members once they had contributed 2,500 francs.
- Local initiatives (churches and members who attended the PPS general assemblies) helped to pay enrollment fees for indigents, widows, orphans, and poor high-risk patients such as HIV positive individuals.

“This shows that poor households will enroll in well-designed health insurance schemes that improve their access to health care. At the same time, these solidarity groups contribute to positive social capital in a society that is recovering from a civil war. Therefore, community-based health insurance becomes a form of social cohesion and provides a link between the poor and the health facilities.

The findings from the first model respond to the question, who enrolls in CBHI. Households living in Byumba and Kabgayi, who number five and more individuals, whose household head attended school, who live in the vicinity of a health center, and who own a radio appear to be more likely to buy insurance.”

Excerpt from Schneider and Diop (September 2001)

Third, information campaigns were conducted through 30 workshops in the three pilot districts. The information campaign in the two districts of Byumba and Kabgayi was more intensive. This may explain why the coefficient of the two variables marking these districts was a strong determinant of the likelihood of participation. Households in these two regions were 3.5 and 15.8 percentage points more likely to be members of the prepayment scheme than the inhabitants of the control Kabutare region.

An interesting question is whether the Rwanda scheme can maintain this high level of inclusion as the scheme ages and matures. A significant difference between the Senegal and Rwanda schemes is that the surveyed schemes in Senegal have been in existence for 10 years. In contrast, the Rwanda scheme is recent. As the years go by, will the Rwanda scheme become subject to the often-reported issues of adverse selection?

In the case of SEWA in India, successful targeting of the poor can potentially be attributed to the linkages that the prepayment scheme has to other social protection mechanisms SEWA has in place. The fact that SEWA Social Security Scheme is nested within a larger development organization has undoubtedly been an important factor in ensuring inclusion of the poor. Other factors that have facilitated inclusion of the poor include: affordable premium, village-level representatives who are themselves poor, self-employed women, efforts to serve geographically isolated villages.

An interesting question that requires further exploration is to what extent better social inclusion is due to explicit subsidies for the poor (through churches, government, or donors) versus participatory social structures. In other words, to what extent can income deprivation be overcome through giving voice to the poor? Participatory structures have their weaknesses as well. Because the rich always have the financial incentive to opt out of income-pooling arrangements if they can, achieving a high level of participation may be costly, and especially so for the poor.

In sum, further assessment is required to identify the factors that contribute to better social inclusion and which of them can be influenced at the household, community, and government levels.

Community determinants

We found significant results for community variables. Individuals living in different villages/districts have a different likelihood of joining a prepayment scheme, holding all other facts constant. Our original intention was to attribute some of the variation in of the community dummies to the variation in social values and collective attitudes to risk, health, and solidarity. Upon further reflection, however, many other factors differ across these communities that other variables do not control for.

Thus, the community variables may measure some other aspects of the design and implementation of community financing. For example, the strength of the advertising campaign as in the case of Rwanda

- In the **Rwanda** case, there was a considerable difference in terms of the advertisement campaign and the involvement of the local leaders in the three districts. It is likely that this is what is picked up by the variables.
- In the case of **Senegal**, people in Fandene and Ngaye-Ngaye tend to enroll proportionately more than people living in the village of Mont Roland and Sanghe. For Fandene, this is not surprising: it is the oldest mutual, it functions quite well, and it is closest to the hospital. For Ngaye-Ngaye, the interpretation is more difficult, as people have stated that they were not satisfied with the mutual's functioning. The scheme in Ngaye-Ngaye covers primary care and not hospitalization. Hence, this result could also be interpreted as there is also a demand for ensuring high-frequency, low-cost risks.

This suggests that, community variables as they are crudely constructed, pick up variations in the design and implementation of community financing schemes that directly influence the value people get from being enrolled. This suggests that while community appears to be a significant determinant of enrollment, better measures are needed to assess which community characteristics encourage social inclusion and which characteristics tend to be more exclusive. Variables that better capture values, attitudes toward health, social cohesion, and solidarity would enable delineation of the community characteristics that create a fostering environment for community financing and which ones do not.

From a policy perspective, this would contribute to our understanding about which characteristics can be influenced and which ones cannot and therefore need to be taken into consideration as a constraint when designing community financing schemes. For example, attitudes toward health can be shifted through health education campaigns and information while social cohesion, or the lack thereof, is hard to foster if not present at the onset.

B. DETERMINANTS OF FINANCIAL PROTECTION IN COMMUNITY FINANCING

The results confirm our initial hypothesis that community financing through prepayment and risk sharing reduces financial barriers to health care, as demonstrated by higher utilization but lower out-of-pocket expenditure of scheme members.

At the same time, income still influences use and expenditure, although its influence is more pronounced for higher income groups than for lower income groups. This suggests that community financing has been particularly successful in reducing the financial barrier to access for the lower income groups in the surveyed population.

These findings confirm that risk pooling and prepayment, no matter how small scale, improve financial protection for the population they serve. The policy implication of this finding is that it is critical to move away from resource-mobilization instruments that are based on point-of-service payments. If prepayment and risk sharing can be encouraged, it is likely to have an immediate poverty impact--directly, by preventing impoverishment due to catastrophic health expenditures or indirectly, by ensuring access to health, thereby improving health and allowing the individual to take advantage of economic and social opportunities.

In this, the critical question becomes what form of community financing is better able to provide financial protection for its members. Those that include hospital care? Those that include primary care? Those that are based on some common professional characteristics? Those that have strong government support? Provider-based ones? Assessing what scheme characteristics will encourage financial protection is the next important research step.

VI. CONCLUDING REMARKS

This study aimed to present initial findings from five household surveys regarding the social inclusion and financial protection impact of community financing schemes. While the findings are preliminary, a number of common performance patterns have emerged.

First, successful inclusion of the poorest is not an automatic outcome of community structures. Community involvement can be exclusionary as well as inclusionary. This suggests that certain community characteristics as well as scheme design and implementation features are important determinants to achieve pro-poor targeting outcome. These determinants and the direct causality are not well explored with regard to health financing, and further investigation is warranted.

In particular, the role of external financial support (such as government subsidies, donor funding, reinsurance) in encouraging social inclusion needs further exploration. So, too, does the role of participation, providing the poor with a voice.

Second, community financing reduces financial barriers to health care, as demonstrated by higher utilization but lower out-of-pocket expenditure of scheme members relative to nonmembers. This suggests that prepayment and risk sharing—even on a small scale--lower financial barriers to health care.

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VIII. APPENDIX A . LIST OF REVIEWED SURVEY INSTRUMENTS

An extensive search of available research instruments was undertaken during the months of January–March 2001. The objective of the search was to identify household surveys that would allow us to test the impact of community-based health financing on social inclusion and household level financial protection.

Twenty-one countries were identified as likely candidates where we had prior knowledge of some kind of community financing initiatives. In these countries, four survey instruments were reviewed.

- Living Standards Monitoring Surveys (LSMS)
- Demographic and Health Surveys (DHS)
- Household budget surveys
- Other non-standard surveys

The following set of variables was defined as minimum criteria for the survey to be useful for our project.

- **Key independent variable.** Identifier for the type of prepayment scheme that covers the household. Of these, we looked for those where we could separate households that are covered by community-based health financing from those that are either not covered or are covered by formal (general tax, social insurance) mechanisms.
- **Control (independent) variables.** Socioeconomic status, religion, age, gender, income level, chronic illness/disability.
- **Outcome (dependent) variables of interest.** Health outcomes, financial protection (i.e., some sense of out-of-pocket spending AND household income level), consumer satisfaction.

Having initially reviewed four LSMS, nine DHS surveys, and six household budget surveys, we concluded that they did not allow us to identify households with access to community-based health financing. Even where the survey included health financing questions, coverage through community financing could not be separated from other health financing instruments such as private insurance or social insurance. As a result, not all available LSMS and DHS survey questionnaires were reviewed for the selected countries, and instead we focused on identifying small-scale non-standardized surveys.

Eleven smaller scale non-standardised surveys were identified that matched the requirements for the core list of variables. Five were available for further analysis and included in this report. The other six either could not be accessed for further analysis (four), data collection was incomplete (one), or authors were not available to collaborate within the short time frame of the project (one).

Table A1. Reviewed surveys for 21 countries

COUNTRY	LSMS		DHS		HH BUDGET SURVEY		OTHER SURVEYS			STATUS OF DATA
	Search	Useful	Search	Useful	Search	Useful	Search	Useful	Holder of data	
ASIA										
INDIA							✓	Yes	NCAER, India Anil Gumber	✓
BANGLADESH							✓	Yes	M. Desmet, Belgian Administration for Development	Could not contact
PHILIPPINES							✓	No		
CHINA							✓	Yes	Harvard HSPH	Data collection is still in progress
CAMBODIA							✓	No		
THAILAND							✓	Yes	Center for Health Economics Chulalongkorn University, Thailand S.Supakankunti	✓
NEPAL	✓	No	✓	No						
AFRICA										
SENEGAL			✓	No	✓	No	✓	Yes	Center for Development Research, Bonn Johannes Jütting	✓
NIGER	✓	No			✓	No	✓	Yes	PHR	Data set not accessible for further analysis
RWANDA							✓	Yes	PHR	✓
GHANA	✓	No	✓	No			✓	Yes	PHR	Data set not accessible for further analysis
TANZANIA	✓	No	✓	No						
MALI					✓	No	✓	No	PHR	
UGANDA					✓	No				
ZAMBIA			✓	No			✓	No		
NIGERIA			✓	No	✓	No				
BENIN			✓	No	✓	No	✓	Yes	UNICEF CREDESA	Data set not accessible for further analysis
GUINEA							✓	Yes	UNICEF CREDESA	Data set not accessible for further analysis
LATIN AMERICA										
BOLIVIA			✓	No						
ECUADOR	✓	No					✓	Yes	PHR	Data set not accessible for further analysis
GUATEMALA			✓	No						

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