Health Insurance for the Poor Through Community Schemes—Is It Viable?

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1. A Brief Situation Analysis

Some 1.3 billion poor people who live in low- and middle-income countries lack effective and affordable access to preventive and primary healthcare, drugs, surgery, and other measures (Preker et al., 2002).

This situation is all the more alarming, considering that the problem is, to a large extent, financial rather than medical. Global spending on health has reached more than US$2.56 trillion per year (WHO, 1997), yet only 11 per cent of this huge amount (US$ 280 billion) is directed to dealing with 93 per cent of the global burden of disease, shouldered by low- and middle-income countries; 89 per cent of global health expenditures are made in the industrialized member countries of the Organization for Economic Cooperation and Development (OECD), to deal with a mere 7-per cent total burden of disease.

As a consequence of this allocative disparity, innumerable cases of avoidable or treatable illnesses, disability, accidents or deaths occur in low-income countries, including

- The deaths of some 11 million children per year under the age of five. About 70 per cent of these deaths are caused by preventable diseases, including 2.2 million deaths from acute respiratory infections (associated with indoor air pollution, mostly from burning biomass fuels in confined spaces, lack of adequate heating, and other unsanitary living conditions); 1.3 million deaths from diarrhea (caused by unsafe water supply, inadequate sanitation, and poor hygiene), malaria, measles, or malnutrition.
- The infection of some 8.8 million people per year with active tuberculosis, of whom 1.7 million die of the disease. A staggering 99 per cent of all tuberculosis sufferers live in developing countries. Most are poor and are between 15 and 54 years of age. Nearly 1 billion additional people will be infected with tuberculosis between now and 2020. Of these, 200 million will become sick and 35 million will die from the disease, unless current preventive measures are greatly strengthened and expanded.
- The deaths of some 1 million people a year from malaria, over 70 per cent of them children under five. Almost 90 per cent of fatal malaria cases occur in sub-

Saharan Africa. It is estimated that malaria causes economic losses in excess of $12 billion a year in Africa.

- The deaths of between 5 and 6 million people each year in developing countries from water-borne diseases and air pollution.
- The infection of more than 60 million people with HIV/AIDS—the world's fourth largest killer—since the disease was first identified. At the end of 2001, it was estimated that 40 million people were living with the disease, with about 92 per cent of all cases in the developing world and about 33 per cent of the infected between the ages of 15 and 24 (WHO and UNICEF, 2002).

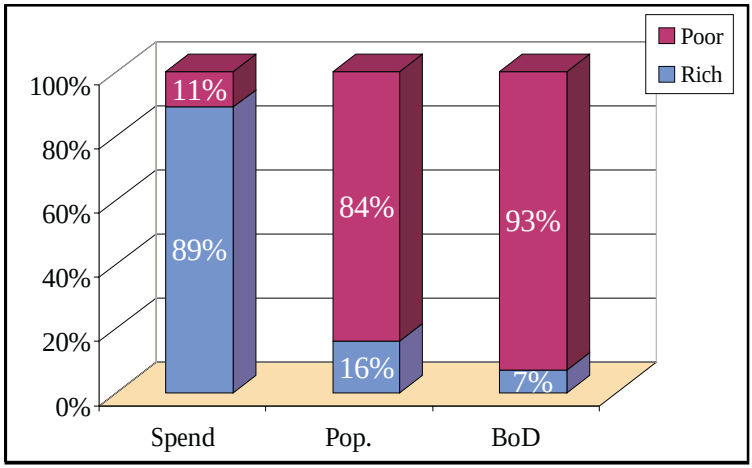
This partial list of problems points to two major predicaments: distributional inequity and insufficient absolute levels of health expenditure. Both have an impact on poverty or its alleviation.

The problem of equitable distribution of social spending among the various population segments within the countries in question has been researched for years. Much has been written on the links between growth and inequality, growth and poverty, and inequality and poverty. The *Asian Development Review* (2000) carries a recent overview of the research. For years it was assumed that the benefits of economic growth go to the rich first, but then trickle down to the poor. However, this idea is challenged by the reality of Asia, where both very high rates of growth and very high rates of poverty have been observed. If the trickle-down effect were an efficient anti-poverty regulator, there should be much less poverty in countries that have registered high growth rates, such as the People's Republic of China. More recent analysis suggests that growth trickles down to all segments of the population when it is accompanied by a reduction in inequality. Hence, it is counterproductive to assume that economic growth alone can resolve distributional equity at *any* level of overall spending. Easterly (2002) asserts that high inequality is independently a large and statistically significant barrier to developing the mechanisms by which prosperity is achieved. Kakwani, Prakash, and Son (2000) conclude that economic growth tends neither to increase inequality nor to decrease it, and that therefore simple reliance on trickle-down effects are not likely to reduce poverty as rapidly as deliberate pro-poor growth policies.

Subsidization is a well-known deliberate pro-poor policy to reduce inequality. However, it has been shown that in health care, subsidies that in theory are intended to target the poor more often reach the wealthier segments of the population. This distortion is not uniform for all countries, and there are indications that the share of subsidies reaching the poor is somewhat larger in Asia compared to Africa (Figure 1). Nevertheless, deliberate policies need to be greatly improved before they can truly offer adequate pro-poor solutions that reach the rural, informal economy and poor segments of the population in low-income countries.

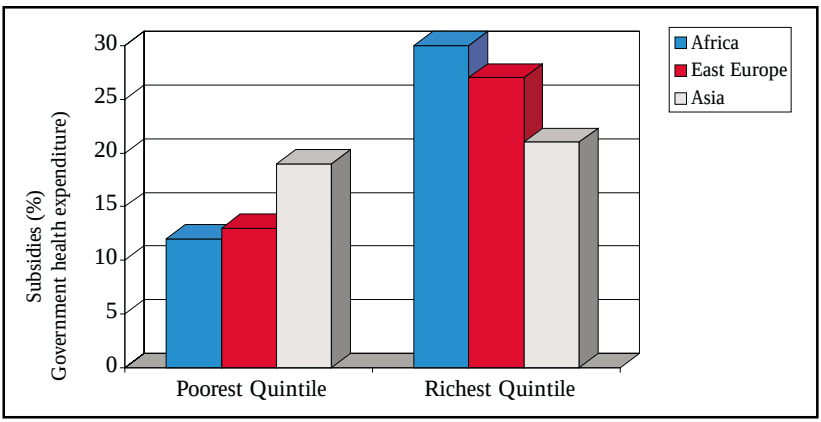
The second predicament is the level of total expenditure on health. In poor countries, both absolute and relative levels of health spending are significantly lower than in rich countries (Figure 2). If one were to look only at public financing, the difference between low- and high-income countries would be even more pronounced. Notwithstanding low resources, many countries hoped for years they could leapfrog the developmental process, by designing (and partially implementing) traditional public financing instruments, such as social insurance paid for from general revenues. The idea was to pool the resources of all and pay with that money for health services to all, with redistribution from rich to poor, from healthy to sick people, and from the gainfully

Figure 1. The Comparable Context



Source: World Health Report (2000).

Figure 2. Bad Targeting: the Rich Get More Government Health Subsidies Than the Poor



employed to the economically inactive. It is this pooling that shields people with high risk exposure or low income from the serious financial consequences of illness. But pooling works well only when the size of the pool is large and when all income levels participate. What happened in most developing countries is quite different: where pooling existed, it was often fragmented among income groups, professional categories, or regional groups (e.g., separate pools for workers and farmers in the same region), preventing effective cross-subsidies between income and risk groups. Failure was frequent.

The inadequate level of public expenditure on health care is undoubtedly one cause for the deplorable health situation in low-income countries. If one were to compare the amount spent on health care by low-income countries with the assessed amount needed to provide a minimum level of health care, as has been done by the Commission on Macroeconomics and Health (CMH) and by OECD, there is no escaping a conclusion that the shortfall is unbridgeable. CMH estimated the cost required to establish an acceptable minimum level of health care in all low-income countries through public financing mechanisms at US$ 25 billion per year for the next ten years (CMH, 2001); OECD's estimate is US$ 100 billion per year (OECD, 2001). Considering that the current level of all aid provider resources for health care worldwide stands at about US$ 5 billion, it seems highly improbable to expect a

huge multiplication of external financing for health care in low-income countries. And in the absence of adequate public funding, any plan to expand universal health insurance coverage to entire populations is impossible.

The two problems, inequitable distribution and insufficient public expenditure, lead to the need to explore ways to generate resources from within countries. This is where the role of communities needs to be recognized and assessed.

2. The Role of Communities

Several development practices have provided inspiration for community health financing initiatives. These include an increasing awareness of the links between social capital (including community networks), communal institutions, and a range of development outcomes. In particular, the role of microfinance institutions (MFIs) in poverty alleviation for low-income groups has received considerable attention in recent years (Preker, Langenbruner, and Jakab, 2002). The MFIs have disproved the assumption that people living on US$1 a day are "unbankable", i.e., neither willing nor able to save or engage in formal lending. Over the years, MFIs have developed many activities: targeted microcredits that help to improve immediate human, physical and social capital (e.g., small, short-term loans that help to pay for training, farm equipment, or access to social networks); general-purpose MFIs (e.g., savings to build up medium-term capital for such investments as education, down payments on land, and dowries for the marriage of daughters into good families), etc. (Balkenhol and Churchill, 2002).

In the last decade, MFIs have also expanded their activities to microinsurance. Often the insurance was required as a condition for loans, and its purpose was to provide alternative collateral to reduce the lender's risk in case the borrower defaulted on repayments. Life insurance, crop insurance, and theft insurance can all be operated in such a way that the principal (the individual who pays the premium) can sign the benefit over to the lender: as the lender is often also the insurance agent (the insurer who collects the premium and must pay the benefit), this kind of insurance arrangement implies a fundamental change in the classic model of the principal-agent relationship. Health microinsurance schemes have been rarer, notably because the principal-agent relationship cannot easily be modified, but also due to the technical complexity of this insurance. Yet there has been a growing recognition that health microinsurance is indispensable, because illness is the main reason for unexpected drops in income that can lead to situations of default in loan repayment, or to impoverishment. At the same time, most people are not only unable to pay for high and unexpected health costs, but they are also unable to access health insurance. A large share of the poor population ekes out a living in the informal economy. The irregular income typical of this sector means people cannot pay health insurance contributions regularly. Also, paying for insurance only makes sense if it can be relied upon to provide services when necessary. But many stories circulate of schemes, including public ones, defaulting on their obligations, or absent altogether from rural or slum areas, so that people's trust in insurance and their willingness to keep up their policies are eroded. The resulting low affiliation levels makes insurance unprofitable and inefficient. A vicious cycle ensues where people risk falling into the so-called "illness-poverty trap," where treatment depends on having a job to finance the crippling costs of their own health care, but getting or holding a job depends on being treated.

3. How Do the Poor Cope With Health Risk?

Most poor people pay for health services on the spot. However, cash payments require liquidity, something that the poor usually do not have. In cases where treatment is vital, a family may be obliged to sell its assets (crops, livestock, house, etc.) to raise cash. Insurance is the best way out of this illness-poverty trap, except that those who need insurance most are not only least likely to buy it, but also least likely to get a fair deal out of insurance. Instead, poor households rely on social relationships and seek help from the extended family, the community, and those in similar situations. Community self-help and mutual help are based on balanced reciprocity—the notion that today's giver might be tomorrow's receiver (Soriano et al., 2002). Given this reality, micro health-insurance units (MIUs) have emerged and bear witness to the fact that unity and a large network strengthens all. MIUs are often the only locally accessible safety nets with little red tape and an immediate response time. These risk-sharing bodies are also gradually extending through horizontal network links (between similar communities) and vertical ones (between different communities, such as ethnic groups, religious groups, class structures, the sexes). The institutional links through the political, legal, and cultural environments of communities are, for the time being, weak.

Jütting (2001) reports that in rural Senegal the local health "mutuelles" reach otherwise excluded populations, that members have a higher probability of using hospitalization services than nonmembers, and that members pay substantially less when they need care. Comparable findings were reported from the Philippines (Flavier, Soriano, and Nicolay, 2002). This set of findings is corroborated by a larger literature study: Preker et al. (2002) state that community financing arrangements, notwithstanding their shortcomings, make a positive contribution to the financing of health care at low income levels. Such arrangements improve people's access to drugs, primary care, and even hospital care. MIUs allow rural and low-income populations to raise more resources with which to pay for health care than would otherwise have been available. But there are great variations in the ability of such schemes to raise the money needed to pay for their benefit packages. The principal constraint is the low income of the contributing population. This is particularly true where most of the members of a community scheme are already below the poverty line.

Another literature survey is more reserved about the capacity of community health financing schemes. This study states that the majority are "entry point' schemes with low market exposure and significant dependence on larger schemes. While stating reservations about the dearth of data with which to conduct acceptable quality meta-analysis, the study concludes that there was no evidence in the literature that community-based health schemes, considered as an alternative to other means such as classic top-down public schcmes, positively impact health status, utilization of services, or financial protection of the poor. At the same time, however, this study notes that "the fact that the study found almost no evidence on impact in the published literature does not necessarility mean that community-based health organizations have no positive impact on members and/or society at large. Ite means that... the focus has been on describing the schemes and not on their effectiveness as a tool for extending social protection in health" (Universitas, ILO, 2002).

4. Two Questions on Micro Health Insurance Unit Efficacy

This debate on the impact of MIUs on access to health care and financial protection, based on analysis of the literature, may for the time being be inconclusive. However, most studies have ignored two fundamental questions. First, where governments and

the private sector have failed to reach low-income and low health-status segments of the population, people are left to find solutions on their own; in these circumstances, what is the relevant measure of the effect of MIUs? Measuring these schemes against benchmarks that are normally applied to adequately funded national systems or centers of excellence may be irrelevant. The second question is, what deliberate pro-poor policies can enhance the positive effects of MIUs? An understanding of the endemic problems of MIUs is necessary in order to seek solutions.

a. On What Basis Can Micro Health Insurance Units Be Assessed?

Exploring the impact of MIUs as organizations of social health insurance assumes that, in the long term, health insurance schemes positively improve health-related outcome indicators (see next section). The sustainability of this assumption underlies the role of all risk-pooling arrangements in mitigating financial and other risks (of individuals, communities, regions, whole countries, or even international groupings). Further, it is taken for granted that national health insurance systems (tax-based or contribution-based) cannot normally become insolvent. Private health insurance schemes do run the risk of bankruptcy, and are therefore required to maintain regulatory reserves. What about MIUs? MIUs do not normally enjoy deficit financing through guaranteed external funding, nor are they subject to regulatory requirements to maintain reserves relative to their risk exposure. Therefore their viability thus depends on their ability to adjust their financing according to their risk exposure. However, the longer the time frame, the more likely MIUs are to experience fluctuations in risk exposure, costs, and membership (which is voluntary, unlike most national schemes, which are mandatory). Achievement of long-term outcome indicators, is thus conditional on the long-term survival of MIUs, which can be guaranteed only if they can transfer risks to some other entity.

It therefore follows that the first step toward examination of the impact of MIUs as health insurers is to examine whether solvency is a limiting factor on their efficiency. It is assumed, and generally accepted, that the solvency of an insurance scheme determines its survival. Moreover, even before a system is declared bankrupt, a single or recurring state of insolvency will mean failure to pay debts to providers or benefits to clients; it is therefore assumed that insolvency therefore severely limits the efficiency of an MIU.

If it is assumed that solvency is a limiting factor on the survival and efficiency of MIUs, it then follows that a deliberate policy improving solvency would also be pro-poor and would reduce inequality, because it would provide MIU members in the informal economy with access to a fairly priced health insurance. Other than deficit financing (which, as already mentioned, is unavailable), the mechanism that provides improved solvency is reinsurance. Such reinsurance of MIUs, referred to as "social re" (Dror and Preker, 2002), would serve as a link between existing but vulnerable survival strategies operated in the informal economy by and for the poor, and policy measures that are affordable even for low-income governments, and that are intended to reduce poverty more rapidly than simple reliance on trickle-down effects.

b. Enhancing the Positive Effects of Micro Health Insurance Units By Solving Endemic Problems

It should be recalled that the fundamental requirement for insurance is pooling of many loss exposures. Community health schemes that include no element of pooling (e.g., schemes covering only preventive care, such as annual checkups, prenatal visits, vaccinations) cannot

be considered insurance, even if they require prepayment. Similarly, a credit facility for health costs or a medical savings account does not qualify as insurance, because its provision does not offer any opportunity to average risk exposure and its cost over large populations.

As with other insurance schemes, MIUs link people through a mutual selection of risk-averse preferences, for which payment is determined as a function of the benefit package. By pooling individual risks, MIUs can offer an averaging of the risk and its cost, which would otherwise be too large for individual exposure. This activity, however, is limited to random and future risks, whose probability of occurring, as well as the probable cost, are known in advance. As MIUs must guarantee their own solvency throughout the reference period, they must ascertain that income for any given financial exercise is enough to cover the average cost of claims, and that some mechanism (either reserves, deficit financing, or reinsurance) is available to cover outlier risk ("worst case scenarios"). The probability and cost of worst case scenarios should also be assessed in advance.

Experience suggests that MIUs may be sharing risks, but they rarely have reliable information on the probability and expected cost of their claim exposure. Furthermore, they usually do not have a mechanism to deal with worst case scenarios.

Elaborating possible solutions to these predicaments requires an analysis of the possible causes of insolvency of MIUs. This is the topic of the sections that follow.

4. What Causes Financial Instability of MIUs?[1]

The financial viability of MIUs is threatened by two major causes: income-side instability and expenditure-side instability.

a. Income-side Instability

Where the income of MIUs comes mainly from contributions, this income depends, first, on an accurate calculation of contributions, and second, on a satisfactory compliance rate. Income has to cover at least the average cost of the benefit package, plus administrative costs (assuming that mechanisms are available to provide reserves for worst case scenarios, discussed below). The average cost is calculated on the basis of the cost and probability of the claimed benefit. Large health schemes in high-income countries usually calculate their budgets on the basis of historical expenditure patterns. MIUs cannot emulate this practice, owing to their lack of reliable long-term utilization and cost records. Personal observations by the author during field missions to Uganda (April 2000) and the Philippines (seven missions between October 2000 and July 2002) suggest that in reality, contribution levels have been set not by estimating costs or probabilities of events, but by referring to external issues, such as the fee of an outpatient visit (as in Uganda) or the cost of other insurance schemes (as with PhilHealth, Philippines).

Regardless of the method by which contributions are fixed, when actual contribution income falls short of the expected amount, there is a "compliance gap." This gap may reflect deficient managerial skills at the level of the MIU. Maintaining a high compliance rate is complicated by the unstable and cyclical earning patterns of members.

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[1] This section draws on a more elaborate discussion of this topic published by Dror (2001).

For rural work, irregular income patterns are usually linked to crop cycles and reliance on a single crop. Temporal fluctuations in environmental conditions, such as droughts, floods, typhoons, and other random events may aggravate income instability.

Many other types of work in the informal economy have similar characteristics, including seasonal work such as tourism, migrant work, and work exposed to political risk, such as public works and activities dependent on government subsidies.

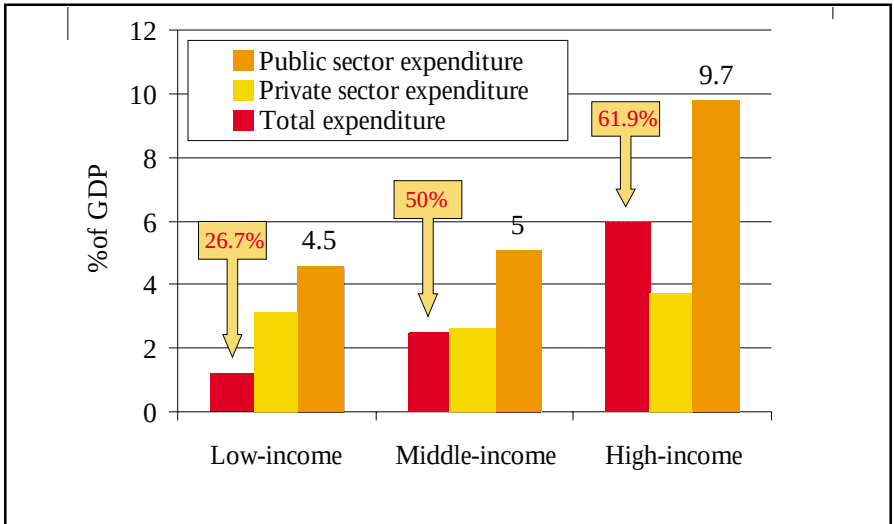
Fluctuations in the number of members also influence contribution income. The challenge for MIUs is both to attract members and to retain them over long periods during which they consume no or few services. In their effort to enhance outreach, MIUs may be tempted to offer a benefit package that they cannot afford. Underfunded outreach at the expense of sustainability is an additional risk for MIUs.

b. Expenditure-side Instability

Random statistical fluctuations in the number of claims will be significant when the number of expected claims is small; this results in expenditure-side instability. It can occur either when the membership is small, as is often the case with MIUs, or when the claim probability is very low (even if the group size is not very small). The linkage between group size and occurrence distribution explains why the statistical profile of large schemes is different from that of MIUs, with the self-explanatory financial consequences (Figure 3).

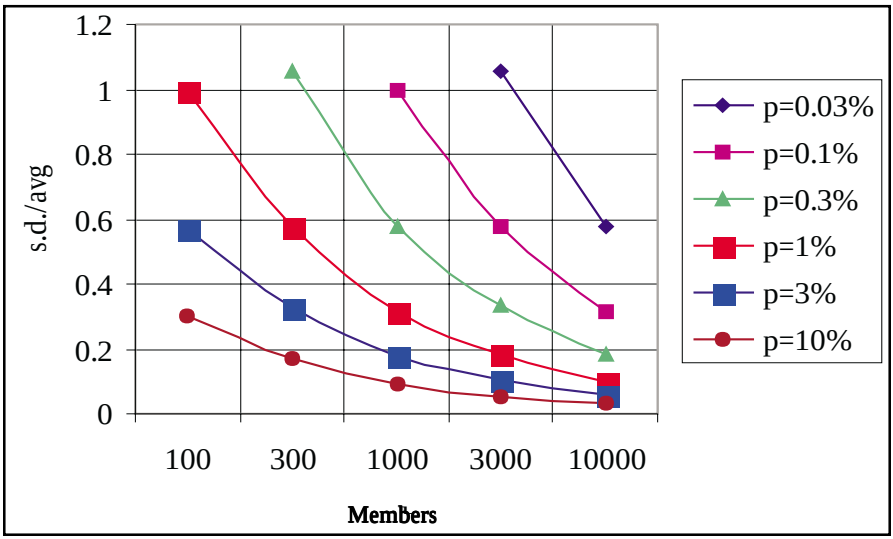
Variance in the unit cost of benefits is an additional potential source of financial instability. Provider payment systems such as capitation or flat rates have become common remedies for unit-cost fluctuations. However, reaching such a favorable negotiated deal requires a strong bargaining position, which single MIUs may not always have. When unit-cost variation cannot be averaged out or transferred to the provider, the cost of single episodes of care is likely to vary significantly: for instance, a prescription for a simple pain killer will be cheaper than an antibiotic; or the costs of one incident involving hospitalization can vary depending on the length of stay.

Figure 3. But... Public Expenditure is Low in Low-Income Countries



A third type of expenditure-side instability is the occurrence of catastrophes, random events of low probability that are too costly for most individuals to absorb even once. MIUs might be exposed to two categories of health catastrophes. The first is "predictable" catastrophes, which include idiosyncratic events with low probability and high cost. Data from Kisiizi, Uganda, showed that a single case of surgery could bankrupt an entire MIU for a full financial exercise (Figure 4). This example would suggest that the smaller the MIU, and the smaller the financial volume, the more likely it is for a normal health event that can easily be absorbed in a large pool to reach catastrophic dimensions for a single MIU. Insuring this risk could be one of the attraction-poles of MIUs. The second type, "unpredictable" catastrophes, involves covariant events that result from natural disasters such as flooding, contamination of water sources, epidemics and the like. These can cause a large and unpredicted increase in the number of claims. Clearly, a risk that affects an entire village cannot be insured solely within that village, but could be covered if pooling includes areas not exposed to that risk (Figure 5).

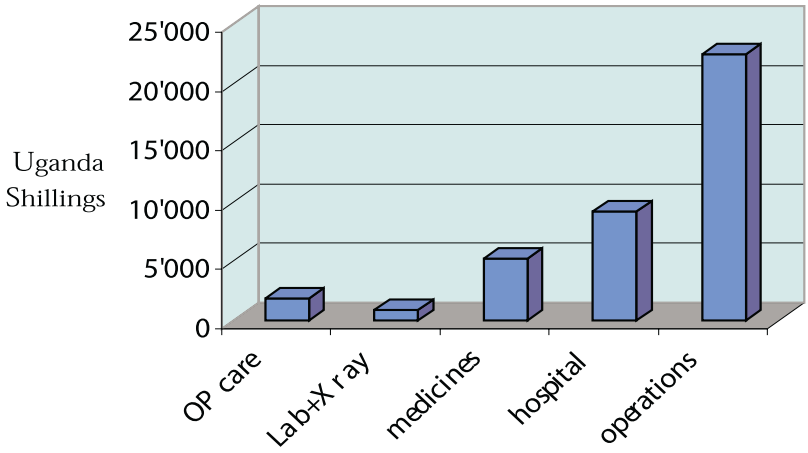
Figure 4. Claim Loads Vary Less when Groups Are Large and the Probability High



5. How Can the Financing of Micro Health Insurance Units Be Stabilized?

Experience with single MIUs and lessons from microfinance schemes suggest that MIUs seek, and sometimes rely on, outside resources. Such MIUs tend to operate in isolation from other MIUs, in order to improve their competitive edge for external funding. Those who fail to secure external subsidies risk folding. It is altogether rare for MIUs to be affiliated with established and well defined mechanisms to pool risks across many MIUs. Fragmentation of risk is one of the problems that must be remedied. Another issue is access to sufficient capital to cover outlier costs. Reliance on reserves is no solution, because MIUs need to be solvent from inception, but do not normally have significant reserves when they start operations. Third, pooling, desirable as it is, may be insufficient to cover composite outlier risks either. For these reasons, MIUs need an option to guarantee their solvency by ceding their risk to another entity. Last, the relationship with a reinsurer is based on defining in advance the division of responsibility of each party; this requires sophisticated risk management infrastructure, which is too costly for single MIUs. In short, operating health insurance at the level of communities

Figure 5. Covering Worst Cases



- A single episode of a low-risk/high cost event (operation) can costs half an entire household's annual income and move it from poverty to total destititution.
- Insurance must be able to cover any number of such cases

Source: Dror and Duru (2000).

requires new solutions to problems that have been much better defined and understood only in the last few years.

The solution for this triple paradigm is reinsurance. The concept is that just as MIUs assume risks that are too large for individual exposure, reinsurance can assume risks that exceed the capacity of a single MIU. Simply defined, reinsurance is the transfer of liability from an MIU acting as primary insurer to another insurance company (the reinsurer). The transfer of risks to a reinsurer is called cession. Reinsurance activity offers five main activities:

- Calculating and accumulating the necessary surplus (*financing*),
- Determining the size of a single type of risk the MIU can accumulate *(capacity*),
- Reducing the year-to-year fluctuations in risk (or loss) exposure (*stabilizing*),
- Insuring against a loss that may endanger the insurer's very existence (*Catastrophe protection*), and
- Sharing information and statistical and managerial expertise that can improve performance and would normally be unaffordable by single MIUs (*underwriting and managerial assistance*) (Outreville, 2002).

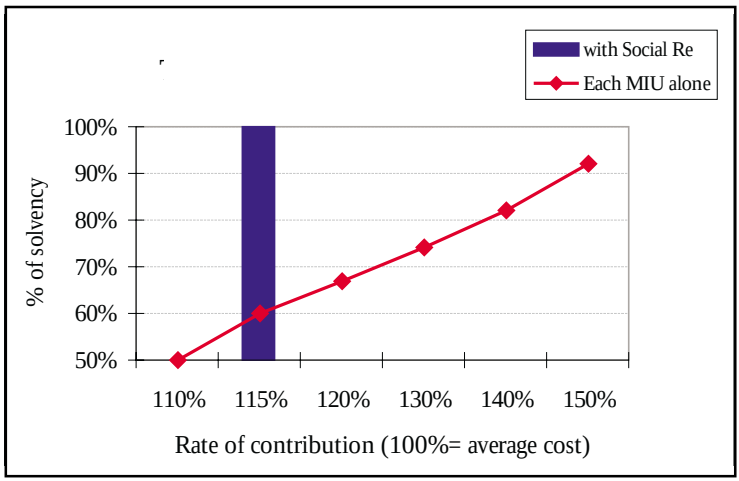
The approach espoused here, which would guarantee the financial viability of MIUs from inception through risk management tools, represents a paradigm shift compared to the school of thought that views the creation of subsidy-based MIUs as the main challenge.

6. How Does Reinsurance For Micro Health Insurance Units Work?

At present there is no reported experience with reinsurance of MIUs. Hence, the only source of information allowing an extrapolation of how reinsurance can guarantee the solvency of MIUs is a theoretical analysis of this problem, presented

initially by Dror & Duru (2000) and in greater detail by Bonnevay et al. (2002). The question explored was how long MIUs with a uniform size (100 members) and the same risk profile (P = 10 percent) could remain solvent without reinsurance, when contribution rates were calculated to cover the expected average cost of the package (the "original rate"). The reply was derived through Monte Carlo simulations, assuming that the pool included 90 MIUs. The results are shown in Figure 6. As can be seen in the figure, most MIUs did not survive very long, even though surpluses were carried forward across years. The original contribution rate was therefore increased at intervals of 10 percent (from 110 percent to 150 percent). As could be expected, survival rates increased with increasing contribution rates, but at 110 percent contributions, only 50 percent of the MIUs survived a 10-year period. Only those MIUs that could secure an income of 150 percent of the original rate for the entire 10-year period were almost safe from insolvency.

Figure 6. The Cost of Securing Solvency

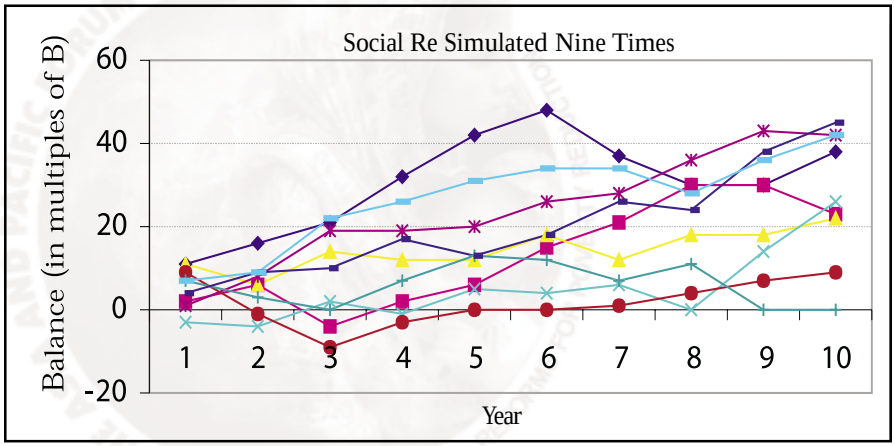


These results were compared to reinsurance, with a premium assumed to be 15 percent of the original rate. Reinsurance secured a higher survival rate than all alternatives described above (including the 150-percent option), and was cheaper than all but the 110-percent alternative. Under this model of reinsurance, the reinsurer was assumed to pay all costs above the average. The conclusion seems compelling: for MIUs, reinsurance is the only option to secure insolvency from inception, and its cost is more affordable than factoring into the contribution rates a reserve (that would need to be higher than 15 percent).

It goes without saying that the reinsurer must also survive financially. Hence, the same simulation was extended to examine how long the reinsurer could survive. In fact, reinsurer survival was examined with the assumption that only 10 MIUs would be pooled, seeing that it seems improbable to expect the reinsurer to have more clients at inception (the other simulations, which were concerned with MIU survival, assumed a pool of 90 MIUs). According to the simulated results, during the first five years the reinsurer can encounter episodes of deficit, although these are not very likely. After five years, all nine runs of the simulation showed positive results for the reinsurer (Figure 7).

This simulation strongly suggests that reinsurance can operate on a cost-neutral basis over the long term, provided it starts operations with sufficient financial resources to cover possible deficits during the first few years of operations. Further simulations, not

Figure 7. Can Social Re Survive?



shown here, reveal that a larger pool of MIUs improves the results of the reinsurer, and reduces the period needed for cost neutrality.

7. Long-term Outcome Indicators

Measuring the capacity of MIUs to improve the situation of their members must recognize long-term impacts (which occur only when MIUs operate for a long time and with a large membership outreach) and short-term impacts (which are discussed in the next section). MIUs can of course be measured in terms of outcome indicators that apply to all health systems; in addition they need to be measured in terms of their social and economic impact. More detail is provided below:

a. Health Outcomes

Do MIUs improve health outcomes? Clearly, some outcome indicators require a long time series and a large membership (e.g., improved life expectancy). Others could perhaps have an impact in the short term, (e.g., within 1–3 years of intervention), such as infant mortality rates, under-five mortality rates, maternal mortality rates, proportion of one-year-old children immunized against measles, proportion of births attended by skilled health personnel, HIV prevalence among 15-to-24-year-old pregnant women, number of children orphaned by HIV/AIDS, prevalence and death rates associated with malaria, prevalence and death rates associated with tuberculosis, proportion of tuberculosis cases detected and cured under directly observed treatment short course, and micronutrient deficiencies.

b. Exposure to Impoverishment

Do MIUs improve financial protection against the direct cost associated with treating illness? The outcome is not easily measurable, as it is derived from an analytical calculation of income and expenditure flows, for which data are not always available. This measurement also requires longer time series. For one, it is necessary to define the term "impoverishment." Considering that every household can be required to pay something for health care, we assume the acceptable level to be about 5 percent of household income. This expenditure should normally include household expenditure on health in the form of contributions to an insurance scheme (including but not limited to MIUs), user fees, and other out-of-

pocket private spending for care not covered by the health insurance.[2] Expenditure above this percentage can cause hardship, but we define "impoverishment" as a situation whereby the household is required to pay an amount exceeding two months of the household's annual income (upward of 16.7 percent of annual household income). Measuring the expenditure is also complicated, and its simplification, by defining some proxies for the outcome, may be necessary.

Impoverishment needs to be measured within a defined time period, during which the household might be exposed to a single catastrophic event, or to a series of several events (each of which is not impoverishing) occurring concurrently or sequentially.

c. Social Inclusion

This parameter is relevant because of the links that have been perceived between inclusion and ability to access social services, better health, and improved socioeconomic status. In its larger connotation, this parameter is not easily quantifiable. Some (Criel, 2002) have suggested that a good indicator might be a changing model of the balance of power between clients and providers in the local health market. Others have stressed responsiveness to client needs by the health system that MIU members access (including treating clients with due dignity). Inclusion is also conditioned by the attitude of individuals toward joining MIUs, as well as the attitudes of MIU members toward admitting new persons.

d. Capacity to Engage in Economic Activity:

Does stable health insurance improve the individual's capacity to engage in economic activity? A comprehensive analysis of parameters defining the capacity to engage in gainful economic activity among informal-economy workers is very complex. The closest attempt to record this indicator is limited to a survey of perceived/self-assessed impact.

8. Short-term Output Indicators

In the short term, the impact of MIUs can be measured by their success in

- Increasing membership (an indication that individuals trust they can improve their utility),
- Decreasing turnover of members (due to more utility and more trust in the scheme) and
- Expanding the benefit package (an indication that members are willing to pay more).

An assessment of the impact of MIUs also requires a causal explanation as to why improvements occur.

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[2] This definition implies that household spending on medically unnecessary treatment is also included in the total figure; this assumption seems plausible in view of patients' negative information asymmetry and the dampening eeffect of cost on the purchase of services.

9. Conclusions

The main insight gained from this study is that community-based health schemes can be helped to function as micro health insurance units (MIUs), which can reduce the exposure of poor population segments, living and working in the informal economy and the rural sector, to health-related financial risk. However, MIUs cannot succeed if they operate as isolated entities. Their efficiency and survival can be greatly improved by pooling the risks of many such schemes. Furthermore, pooling poor schemes only with other poor schemes may not produce the desired positive effects unless such a pool enjoys some measure of corrective deficit financing through subsidies. In the absence of guaranteed deficit financing, reinsurance seems the only viable option. The social reinsurer, introducing risk management technology and information-based risk assessment and control of the flow of funds, can offer to limit the financial responsibility of MIUs (and consequently their members) to the average cost of the benefit package; this benefit package can be designed to meet the level of members' ability to pay.

The main advantages that the reinsurer can provide to MIUs are

- Fnancing of surplus needed to cover worst case outlier situations;
- Determining the capacity of MIUs to accumulate risk;
- Reducing year-to-year fluctuations in risk/loss exposure;
- Insuring against catastrophic loss that can endanger the MIU's very existence; and
- Providing underwriting and managerial assistance.

These services can allow MIUs to better design their benefit package; operate a system to register, analyze, and transfer data on their utilization and cost experience; and improve their social marketing to their catchment population as well as their negotiating capacity vis-à-vis providers of care

References

Balkenhol, Bernd, and Craig Churchill. 2002. From Microfinance to Micro Health Insurance. Chapter 4 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: World Bank and International Labour Organisation.

Bonnevay, Stephane, David M. Dror, Gerard Duru, and Michel Lamure. 2002. A Model of Microinsurance and Reinsurance. Chapter 7 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: World Bank and International Labour Organisation.

Bruno, Meesen, Bart Criel, and Guy Kegels. 2002. Formal pooling of health risks in sub-Saharan Africa: Reflections on the obstacles encountered. *International Social Security Review* 55 (2): 1–13.

CMH (Commission on Macroeconomics and Health). 2001. *Macroeconomics and Health: Investing in Health for Economic Development*. Geneva: World Health Organisation.

Dror, David. 2001. Reinsurance of Health Insurance for the Informal Sector. *Bulletin of the World Health Organisation* 79 (7): 672–678.

Dror, David M., and Gerard Duru. 2000. Financing micro-insurance: perspective and prospective. In *Proceedings of the 7th International Conference on System Science in Health Care, Volume 1*, pp. 30–40. Conference organized by ISSCHC and Semmelweis University, Budapest, 29 May–2 June 2000.

Dror, D. M., and Alexander Preker (eds.). *Social Reinsurance: A New Approach to Sustainable Community Health Financing*. Washington, D.C.: World Bank and International Labour Organisation.

Easterly, William. 2002. *Inequality* Does *Cause Underdevelopment: New evidence*. Working paper No. 1. Washington: Center for Global Development, Institute for International Economics. January.

Flavier, Jonathan, Elmer S. Soriano, and Anne Nicolay. 2002. Social Health Insurance in the Philippines: A Review of the Context. Chapter 17 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: World Bank and International Labour Organisation.

Jütting, Johannes. 2001. *The Impact of Health Insurance on the Access to Health Care and Financial Protection in Rural Developing Countries: The Example of Senegal*. World Bank Health Nutrition and Population Discussion Paper. Washington, D.C.: World Bank. September.

Kakwani, Nanak, Brahm Prakash, and Hyon Son. 2000: Growth, Inequality and Poverty: an Introduction. In *Asian Development Review* 18 (2): 1–21.

OECD (Organization for Economic Cooperation and Development). Health Data 2001. Paris. On-line: http://www.oecd.org.

Outreville, J. Francois. 2002 Introduction to Insurance and Reinsurance Coverage. Chapter 3 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: Workd Bank and International Labour Organisation.

Preker, A. S., JackLangenbrunner, and Jakab Melitta. 2002. Rich-Poor Differences in Health Financing. Chapter 1 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: World Bank and International Labour Organisation.

Preker, Alexander S., Guy Carrin, David Dror, Melitta Jakab, William Hsiao, and Dyna Arhin-Tenkorang. 2002. Effectiveness of community health financing in meeting the cost of illness. *Bulletin of the World Health Organisation 2002* (80):143–150. Online: http://www.who.int/bulletin/pdf/20902/bul-2-E-2002/80 2) 143–150.pdf.

Soriano, Elmer S., David M. Dror, Erwin Alampay, and Yolanda Bayugo. 2002. Attitudes Toward Solidarity, Risk, and Insurance in the Rural Philippines. Chapter 19 in *Social Reinsurance: A New Approach to Sustainable Community Health Financing*, edited by D. M. Dror and A. S. Preker. Washington, D.C.: World Bank and International Labour Organisation.

Universitas, ILO (International Labour Organisation). 2002. *Extending Social Proteection in Health Through Community Based Health Organizations: Evidence and Challenges*. Discussion paper. Geneva.

WHO (World Health Organization). 1997. World Health Report 2000. Geneva.

World Summit on Sustainable Development, held in Johannesburg, South Africa, August 2002. On-line: www.johannesburgsummit.org or www.un-rio+10.org.