Health Financing for Poor People

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Resource Mobilization and Risk Sharing

Editors

Alexander S. Preker and **Guy Carrin**

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Foreword

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

This book is based on research undertaken for the Commission's Working Group 3. The mandate of Working Group 3 was to examine alternative approaches to domestic resources mobilization, risk protection against the cost of illness, and efficient use of resources by providers. 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 Botchwey (director of Africa Research and Programs at the Harvard Center for International Development) chaired the group.

Professor Jeffrey Sachs (then chairman of the Commission and director of the Harvard Center for International Development) presented the Commission's findings in a report submitted to the WHO on December 20, 2001—*Macroeconomics and Health: Investing in Health for Economic Development.*

The Summary Report from the Commission 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 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 both public sector failure and market failure, community involvement in the financing of health care provides a critical, *albeit* 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 Commission stressed that community-financing schemes are no panacea for the problems low-income countries face in resource mobilization. Instead, the Commission recommended that such community-based financing mechanisms be regarded as a complement to—not a substitute for—strong government involvement in health care financing and risk management related to the cost of illness.

The key conclusions on community financing from Working Group 3 of the Commission on Macroeconomics and Health summarized in this book make 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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Preface

One of the most urgent and vexing challenges faced by many low- and middle-income countries is how to provide health care for the more than 1.3 billion poor people who live in rural areas or work in the informal sector. As pointed out by Bill Hsiao from Harvard University in the chapter on the Asia region, this population is not a homogeneous group. Their occupations range from farmers, peddlers, day laborers, taxi drivers, and employees of the informal sector to shop owners and self-employed professionals. Yet this heterogeneous group shares the same lack of access to health care that is often due to inadequate health care financing. This book focuses on how to mobilize financial resources to pay for health care for such residents of rural communities in low-income countries. It also gives some attention to mobilizing health care financing for the urban poor.

Most countries try to serve their rural populations by directly operating public clinics in rural areas, but it is often difficult to get qualified practitioners to staff them. Those who accept such postings frequently work sporadically and provide poor quality services. The facilities themselves often lack drugs and supplies. When individuals become ill, they are frequently forced to rely first on self-treatment with home remedies provided by traditional healers and pharmacists. For serious illness episodes, the majority ultimately seek care from the few public and charity hospitals located in the rural areas.

Patients often have to pay a formal copayment or informal charge when treated in hospitals, even in the public sector. As a result, many patients have to choose between bankrupting their families and purchasing needed treatment. Studies have found that higher proportions of women and children than men have to forgo medical treatments. In addition, studies consistently have found that even when the government provides free or nearly free services, poor households pay a significant part of their income in informal charges. As much as 80 percent of total health care expenditure in low-income countries comes from direct out-of-pocket payment by patients. Studies in several countries found that large medical expenditure (such as for inpatient hospital services and costly outpatient drugs) is a major cause of poverty. These observations raise three serious sets of questions:

First, do countries spend enough on health care? In many countries the answer is no, particularly in the case of health care expenditure for the poor. However, it is not always certain that governments can spend more. Most low-income countries have narrow tax bases and ineffective tax collection systems. The total amount of money mobilized through taxes is therefore limited. Competing demands for the scarce general government resources that are available often leaves little public funding for basic health care for the poor rural and urban households.

Most developed countries use general revenues and social health insurance to pay for and provide health care for citizens working in rural areas and the informal sector. As will be seen in chapter one, the feasibility of these approaches may be weak in many low-income countries, as there are several factors that can hamper the move toward universal coverage. Private health insurance frequently is not affordable to the poor. User fees are inequitable and create a high barrier to access to health care by the poor. As for foreign aid, it is often small, even in low-income countries, compared with total spending on health care.

Second, do countries have a capacity to transform the little money available into effective services for the poor living in rural areas or working in the informal sector of urban centers? In many countries in which the government intends to fund and provide free, or nearly free, services for the rural residents and the poor, the target population is not utilizing the publicly provided health services. Why is this happening? Detailed studies in low-income countries have consistently found that governments are inefficient in their funding of primary care at the village and township levels. Public funds usually support the salaries of health workers regardless of whether they are delivering satisfactory services, while funds allocated to the purchase of drugs and supplies are inadequate. Consequently, this practice creates a public employment program rather than an effective health care delivery system. It thus turns out that the so-called free services may actually become expensive, as patients have to pay for drugs and medical consumables directly out-of-pocket. Furthermore, governments, in general, do not manage or monitor public services adequately at the local level. As a result, when the poor become ill they often choose to use their limited income to consult private practitioners and buy their own drugs.

Third, is the money spent directly by households used in an efficient and cost-effective way? We know that the answer to this question, too, is often no. Out-of-pocket payment for private sector providers has some serious drawbacks. Because these resources are not channeled through collective purchasing arrangements, individual households seeking health care are frequently in a weak bargaining position against providers who can extract above-market prices due to their monopoly power. This is exacerbated at the village level, where the small population size means that the presence of multiple providers competing with each other to keep prices low is particularly unlikely.

Throughout the world, community financing has been used to mobilize resources to fund and deliver health care for the poor in rural and urban communities, in settings where governments failed to fully meet this responsibility through the public sector. Some of these community-financing schemes have successfully addressed all three issues discussed above while others are primarily income-generating schemes for providers.

KEY FINDINGS

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 and the contribution to financial protection against the cost of illness for low-income rural and informal sector workers. The schemes' main weaknesses relate to both external and design factors. Often the level of revenues that can be mobilized from poor communities is low. As a result, without some form of subsidy the poorest of the poor are frequently excluded from participation in such schemes. The small size of the risk pool of many voluntary community schemes, the limited management capacity that exists in rural and low-income contexts, and the isolation of such schemes from formal health-financing mechanisms and provider networks are all major weaknesses that must be addressed. The review of the literature provided a number of insights into the policy and institutional capacity-building measures that can be used to address many of these issues.

The review of selected experiences in the Asia and Africa regions supported many of these conclusions. It emphasized the diversity of community-financing arrangements that exist there. Several of the schemes appear to improve financial protection against the cost of illness, allow better access by poor households to essential health care, and confer greater efficiency in the collection, pooling, management, and use of scarce health care resources.

The existence of risk-sharing arrangements, as well as trust and local community control over the schemes, appears to increase enrollment rates with such schemes. In particular, the literature emphasized that, although income is a key constraint to participation by the poorest of the poor, even they are often willing and able to participate if their contributions are subsidized by public or donor funds and if the benefits they receive provide access to quality services. Households were also more likely to enroll in these schemes when the households that would later use them were directly involved in their design and management. Other factors that increased the likelihood of enrollment included setting the contribution level based on an assessment of local ability and willingness to pay, and ensuring the availability of easy access to the health care providers who serve the members.

Members like broad coverage that includes basic health services for frequently encountered health problems as well as hospitalization for rarer and more expensive conditions. In the context of extreme resource constraints, this creates a tension or tradeoff between prepayment for basic services and the need for insurance coverage for more expensive, life-threatening events that may only happen once or twice in a lifetime. This observation is consistent with the experience in other areas of insurance, in which willingness to pay for rare catastrophic events (life insurance) is often significantly reduced compared with coverage for events more likely to happen at a greater frequency (crop insurance). This highlights an area of market failure relating to voluntary community involvement in health care financing that needs to be addressed by appropriate government policies, because it is precisely during hospital episodes that many of the poor become severely impoverished.

The review of selected experiences from the Asia and Africa regions also pointed to a number of measures governments could take to strengthen community financing. This included subsidizing the contributions for the poor, providing technical assistance to improve a scheme's management capacity, and establishing links with formal health care networks. Satisfaction with the scheme was often related to the nature of the direct community involvement in design and management. A critical factor was matching willingness and ability to pay with the expectation of benefits to be received at some later point. The review also highlighted areas of government actions that appear to have negative impacts on the function of community-financing schemes. Top-down interference with the design and management of the schemes appeared to have a particularly negative impact on function and sustainability.

The results of the microlevel household data analysis reinforced the conclusions from the survey of the literature and two regional reviews. Econometric analysis of household data from four countries indicated that prepayment and risk sharing through community involvement in health care financing—no matter how small—increases access by poor populations to basic health services and protects them to a limited extent against the impoverishing effects of illness. Community involvement alone is not sufficient in preventing social exclusion since the poorest of the poor often do not participate fully in these schemes. However, the analysis provided evidence that this constraint in reaching the poorest could be overcome through well-targeted design features and implementation arrangements.

Finally, the results of the macrolevel cross-country analysis presented in this book give empirical support to the hypothesis that broad risk sharing in health-financing matters in terms of impact on both the level and the distribution of health, financial fairness, and responsiveness indicators. The results even suggested that risk sharing corrects for, and may outweigh, the negative effect of overall income inequality, suggesting that financial protection against the cost of illness may be a more effective poverty alleviation strategy in some settings than direct income support.

CONCLUSIONS

The underlying causes of many of today's health problems in lower-income countries are often well known, and effective and affordable drugs, surgical procedures, and other interventions often exist. But because of a number of problems related to resource mobilization, risk sharing, and resource allocation and purchasing arrangements, as well as problems in the provision of goods and services to rural and low-income populations, potentially effective policies and programs frequently fail to reach the households and communities that need them the most.

The research on community financing undertaken for Working Group 3 of the Commission on Macroeconomics and Health emphasized the importance of general tax revenues and payroll tax-based social health insurance contributions to the financing of health care at higher income levels. These methods can be equitable and efficient in mobilizing and utilizing resources. However, most community-financing schemes have evolved in settings with severe economic constraints, political instability, lack of good public sector governance, and catastrophic out-of-pocket user charges that can lead to impoverishment. These conditions are very different from those enjoyed at higher income levels, in which public-financing instruments have been successful in financing health care.

For years, many low- and middle-income countries—with assistance from the international development community—have tried to jump from no organized financing instruments to full reliance on financing through general taxation, social health insurance, or both. In the context of large rural populations, low formal labor market participation rates, and the limited scope of the above-mentioned formal health financing methods, few have succeeded on this reform path.

This book highlights the fact that community financing provides a more incremental, first step in the transition toward improved financial protection against the cost of illness and better access to priority health services for the 1.3 billion poor people in low- and middle-income countries. Community financing is not presented as a panacea for financing health care for rural and low-income workers in the informal sector. Rather, it is one of several options that can be considered by low-income countries in expanding coverage for the poor.

The book highlights several concrete public policy measures that governments can introduce to strengthen and improve the effectiveness of community involvement in health care financing. These include (a) increased and well-targeted subsidies to pay for the contributions of low-income populations; (b) use of insurance to protect against health care costs and assessment of the feasibility 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.

Alexander S. Preker	Guy Carrin
World Bank	World Health Organization

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CHAPTER 1

Rich-Poor Differences in Health Care Financing

Alexander S. Preker, Guy Carrin, David Dror, Melitta Jakab, William C. Hsiao, and Dyna Arhin-Tenkorang

Abstract: Most community finance 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 financing health care provides a critical, though insufficient, first step in the long march toward improved health care access for the poor and social protection against the cost of illness. It should be regarded as a complement to—not a substitute for—strong government involvement in health care financing and risk management related to the cost of illness. Based on their extensive survey of the literature, the authors show that the main strengths of community-financing schemes are the extent of outreach penetration achieved through community participation, the contribution to financial protection against illness, and the increase in access to health care by low-income rural and informal sector workers. The schemes' main weaknesses are the low volume of revenues that can be mobilized from poor communities, the frequent exclusion of the very poorest from participation in such schemes without some form of subsidy, the small size of the risk pool, the limited management capacity existing in rural and low-income contexts, and the isolation from the more comprehensive benefits often available through more formal health-financing mechanisms and provider networks. The authors conclude by proposing concrete public policy measures that governments can introduce to strengthen and improve the effectiveness of community involvement in health care financing. These include: (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.

This century has witnessed greater gains in health outcomes than any other time in history. These gains are partly the result of improvements in income that have been accompanied by improvements in health-enhancing social policies (housing, clean water, sanitation systems, and nutrition) and greater gender equality in education. They are also the result of new knowledge about the causes, prevention, and treatment of disease and the introduction of policies, financing, and health services that make such interventions more equitably accessible. Improving ways to finance health care and protect populations against the cost of illness has been central to this success story (see Preker, Langenbrunner, and Jakab 2002; Preker and others 2002a, 2002b).

OVERVIEW AND CONTEXT

The share of the world's population protected against the catastrophic cost of illness rose significantly during the twentieth century, with global spending on health increasing from 3 percent to 8 percent of global gross domestic product (US$2.8 trillion), or 4 percent of the GDP of developing countries (US$250 billion). At the current global growth rate for GDP of 3.5 percent, spending on health-enhancing activities will increase annually by about $98 billion a year worldwide, or $8 billion a year in low- and middle-income countries.

The Exclusion of Low-Income Rural Populations and Informal Workers

Today the populations in most industrial countries (except Mexico, Turkey, and the United States) enjoy universal access to a comprehensive range of health services that are financed through a combination of general tax revenues, social insurance, private insurance, and charges (Preker 1998).

A number of low-income countries (such as Costa Rica, Malaysia, Sri Lanka, and Zambia) have tried to follow a similar path, but the quest for financial protection against the cost of illness in low- and middle-income countries has been a bumpy ride. Many of the world's 1.3 billion poor still do not have access to effective and affordable drugs, surgeries, and other interventions because of weaknesses in the financing and delivery of health care (ILO 2000a; WHO 2000; World Bank 1993, 1997). See figure 1.1.

Although 84 percent of the world's poor shoulder 93 percent of the global burden of disease, only 11 percent of the $2.8 trillion spent on health care reaches the low- and middle-income countries. Vaccination strategies of modern health care systems have reached millions of poor. However, when ill, low-income households in rural areas continue to use home remedies, traditional healers, and local providers who are often outside the formal health system. The share of the population covered by risk-sharing arrangements is smaller at low-income levels (see figure 1.1). As a result, the rich and urban middle classes often have better access to the twenty-first century's health care advances.

Origins of Rich-Poor Differences in Financial Protection

The flow of funds through the health care system, and the public-private mix, is complex (see figure 1.2—modified from Schieber and Maeda 1997). It can be differentiated into three discrete functions: (a) collection of revenues (source of funds), (b) pooling of funds and spreading of risks across larger population groups, and (c) purchase of services from public and private providers of health services (allocation or use of funds) (see also WHO 2000). A combination of general taxation, social insurance, private health insurance, and limited out-of-pocket user charges has become the preferred health-financing instruments for

FIGURE 1.1 Less Pooling of Revenues in Low-Income Countries

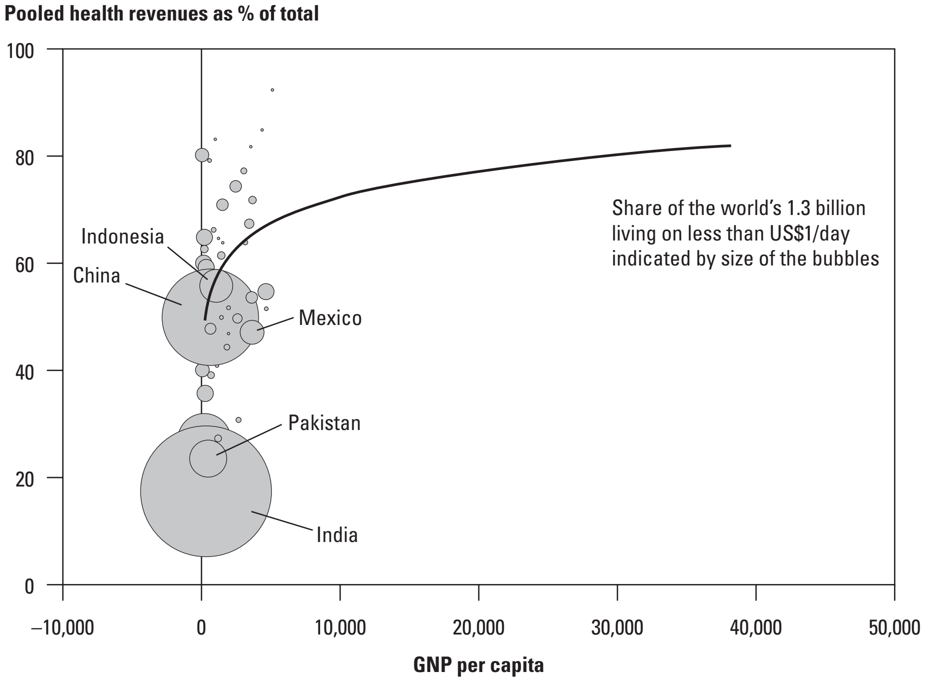
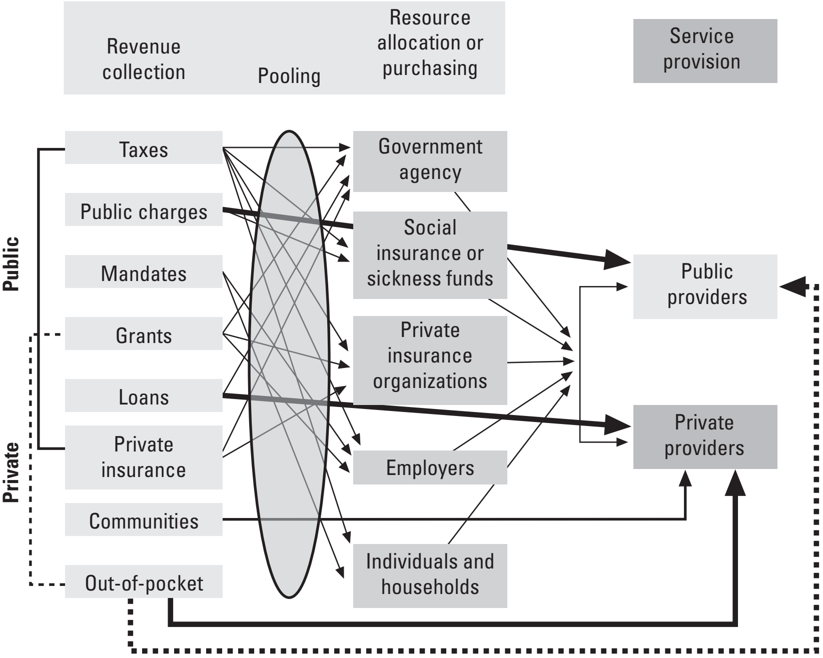


FIGURE 1.2 Flow of Funds through the System


Revenue collection
Pooling
Resource allocation or purchasing
Service provision
Public
Private
Taxes
Public charges
Mandates
Grants
Loans
Private insurance
Communities
Out-of-pocket
Government agency
Social insurance or sickness funds
Private insurance organizations
Employers
Individuals and households
Public providers
Private providers

middle- and higher income countries, where income is readily identifiable and taxes or premiums can be collected at the source.

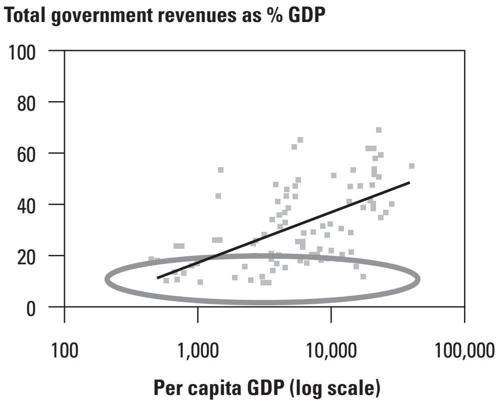
Different issues arise in the cases of public and private engagements in health care financing and service delivery. The need for collective arrangements and strong government action in health care financing is often confused with public production of services. The poor and other excluded populations frequently seek care from private providers because public services in rural and low-income urban areas are often scarce or plagued by understaffing, supply shortages, and low-quality care. Poor households and community-financing schemes therefore often turn to private providers for the care they need. Private provider engagement can still be pro-poor if there are mechanisms to exempt the poor or subsidize user fees (Preker, Harding, and Girishankar 2001) and if purchasing arrangements include coverage for the poor (Preker and others 2001).

Several factors make the policy options for financing health care at low-income levels different from financing those at higher income levels. Low-income countries often have large rural and informal sector populations, limiting the taxation capacity of their governments (see figure 1.3—modified from World Bank 1997). When a country's taxation capacity is as low as 10 percent of GDP or less, it would take 30 percent of government revenues to meet a target of 3 percent of GDP health expenditure through formal collective health care financing channels. In most countries, public expenditure on health care is much lower than this, often not surpassing 10 percent of public expenditure, which means that less than 1 percent of GDP of public resources is available for the health sector.

A related set of problems is faced during the pooling of financial resources at low-income levels. Pooling requires some transfer of resources from rich to poor, healthy to sick, and gainfully employed to inactive. In low-income countries, tax evasion by the rich and middle classes in the informal sector is widespread, allowing higher income groups to avoid contributing their share to the overall

FIGURE 1.3 Low-Income Countries Have Weak Capacity to Raise Revenues

- Governments in many countries often raise less than 20% of GDP in public revenues; and
- The tax structure in many low-income countries is often regressive.



revenue pool. Without such pooling of revenues and sharing of risks, low-income populations are exposed to serious financial hardship at times of illness (Diop, Yazbeck, and Bitran 1995). Figure 1.4 (Wagstaff, Watanabe, and van Doorslaer 2001) indicates households whose income drops below the poverty line (horizontal bar indicates poverty line) because of out-of-pocket expenditure on health care (vertical drop bars on the income distribution curve). Any pooling that does occur tends to be fragmented along income levels, preventing effective cross-subsidies between higher and lower income groups. In many poor countries, local community-financing schemes have emerged partially as an informal sector response to these shortcomings in revenue pooling at low-income levels.

Faced with overwhelming demand and very limited resources, many low-income countries use nonspecific broad expenditure caps that push rationing and resource allocation decisions to lower levels of the provider system. This often leads to serious drug shortages, equipment breakdowns, capital stock depreciation, and the lowering of hygiene standards. Such an environment also means politically and ethically difficult rationing decisions about the targeting of public expenditure to the poor. As a result of such difficulties, the rich often benefit more from public subsidies and public expenditures than the poor (figure 1.5—Peters and others 2001; see also Gwatkin 2001).

FIGURE 1.4 Out-of-Pocket (OOP) Expenditure and Poverty without Risk Sharing

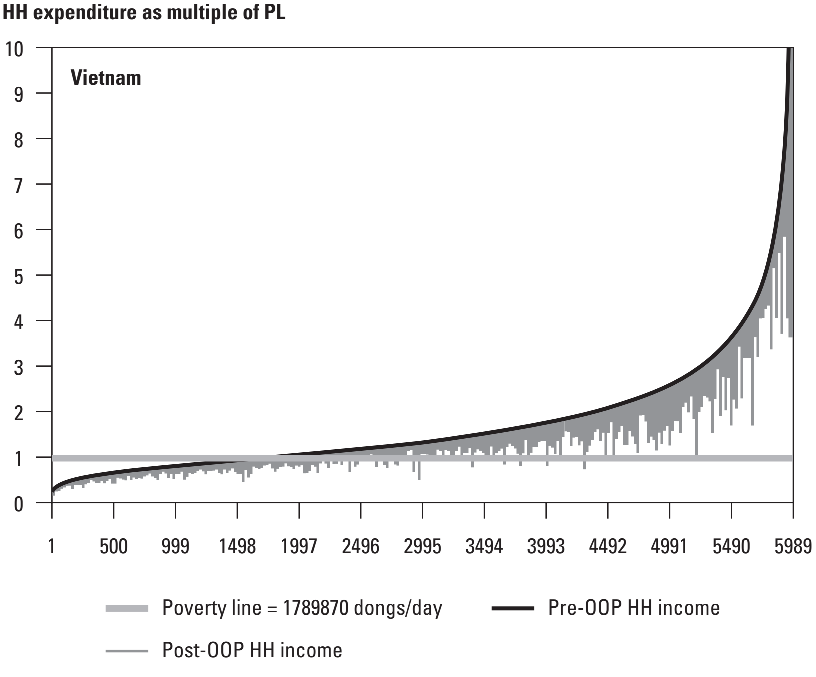
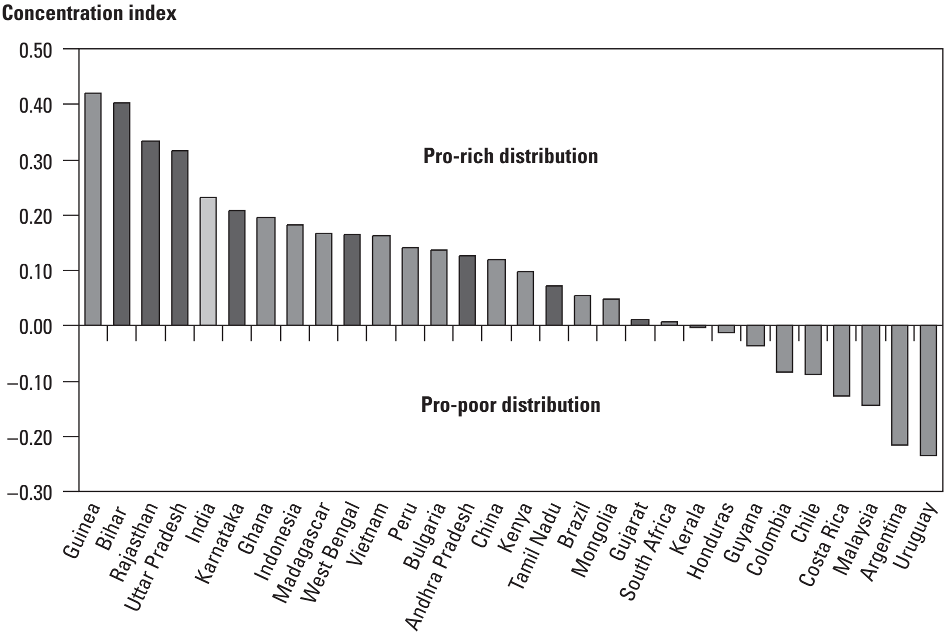


FIGURE 1.5 Pro-Rich Bias of Public Subsidies in Many Low-Income Countries



It has been less difficult for national policymakers to design effective health-financing schemes for individuals and households in formal employment whose income is readily identifiable and who can be taxed at the source. Unfortunately, the formal sector in most low-income countries is small in comparison with populations in rural areas and informal employment. In low-income countries, large segments of the population in informal employment remain without effective collective arrangements to pay for health care or to protect them from the costs of illness (Guhan 1994; Midgley and Tracey 1996; Van Ginneken 1999; World Bank 1995).

Role of Communities in Providing Financial Protection

Community initiatives have recently begun to bridge the large gap in social protection between people covered by formal schemes and those with no protection at all against the cost of illness who are exposed to the impoverishing effects of user charges. (Arhin-Tenkorang 1994, 1995, 2000; Atim 1998, 1999; Bennett, Creese, and Monasch 1998; Jakab and Krishnan 2001; Musau 1999; Ziemek and Jütting 2000).

In the literature, the term *community financing* has evolved into a generic expression used to cover a large variety of health-financing arrangements (Abel-

Smith 1988; Dror and Jacquier 1999; Foster 1982; Hsiao 2001; Navarro 1984). On one hand, different authors use the term *community financing* in different ways. On the other hand, similar—more specific—terms are often used to describe similar financing arrangements. *Microinsurance, community health funds, mutual health organizations, rural health insurance, revolving drug funds,* and *community involvement in user fee management* have all been referred to as community-based financing. Yet each of these risk-sharing arrangements has different objectives, policies, and management, organizational and institutional characteristics, and different strengths and weaknesses.

The *Oxford English Dictionary* defines community as (a) "joint or common, ownership, tenure or liability"; (b) "common character"; (c) "social fellowship"; (d) "life in association with others"; (e) "common or equal rights or rank"; and (f) "people organized into common political, municipal or social unity."

Community-based health care financing reflects most of these concepts. One common feature of the definitions is the *predominant role of collective action in raising, pooling, allocating or purchasing, and supervising the management* of health-financing arrangements, even when there is interface with government programs and services in terms of subsidies, supplemental insurance coverage, or access to public provider networks. Some community-financing schemes cover common geographic entities, while others are based on professional affiliations, religion, or some other joint activity. A second common feature relates to the beneficiaries of these schemes, who tend to be populations with no other financial protection or access to collective financing arrangement to cover the cost of health care. A third common feature is the voluntary nature of these schemes and the tradition of self-help and social mobilization embraced by the poor in many low-income countries.

CONCEPTUAL UNDERPINNINGS FOR COMMUNITY-BASED ACTION IN HEALTH CARE FINANCING

If both markets and governments fail to provide financial protection mechanisms for the poor, what is it about community-based initiatives that makes the poor turn to such arrangements? The growth of community-based health-financing arrangements rests on developments in three related areas (see table 1.1 and Dror, Preker, and Jakab 2002):

- Microfinance (microcredits, microsavings, microinsurance, financial intermediation)
- Social capital (community, network, institutional, and societal links)
- Mainstream theories (welfare of society, public finance, social policy, and health policy).

TABLE 1.1 Conceptual Underpinnings of Community-Financing Schemes

	Key conceptual underpinnings
Microfinance	**1. Microcredits** ☐ Risk taking (take advantage of opportunity, avoid overcautious behavior) ☐ Current liquidity management (smooth out consumption, increase choice) ☐ Short-term shocks (drought, famine) **2. Microsavings** ☐ Predictable life cycle events (education, marriage dowry, childbirth, death) ☐ Capital formation (purchase of equipment, down payment on land, growth) ☐ Future liquidity management (smooth consumption, increase choice) **3. Microinsurance** ☐ Long-term income support (life and disability insurance, pensions) ☐ Short-term income support (sick pay, unemployment insurance—not well developed) ☐ Unpredictable health expenditure (health insurance) ☐ Replacement of loss (fire and theft insurance) **4. Financial intermediation** ☐ Payment and money-transfer services (facilitate trade and investments)
Social capital	**1. Community links** ☐ Between extended families, local organizations, clubs, associations, civic groups **2. Network links** ☐ Between similar communities (horizontal) and different communities (vertical) **3. Institutional links** ☐ To communities' political, legal, and cultural environments **4. Societal links** ☐ Between governments and citizens through public-private partnerships and community participation
Mainstream theories	**1. Welfare of society** ☐ Income and growth **2. Public finance** ☐ Taxation and social insurance **3. Social policy** ☐ Social services and safety nets **4. Health policy** ☐ Public health priorities and health systems

Links to Existing Microfinance Organizations

The role of microfinance in poverty alleviation for low-income groups has become a prominent theme in recent years (ADB 2000; Brown and Churchill 2000; Otero and Rhyne 1994; Zeller and Sharma 2000). Poor and rich households are equally exposed to a range of events that put them at financial risk and are beyond their immediate control. Such events range from predictable life cycle events, such as marriage, childbirth, education, and death, to less predictable events, such as droughts, fire, floods, and catastrophic illness.

The difference between poor and nonpoor households is the availability of mechanisms to cope with the financial consequences of unpredictable events. Nonpoor households take advantage of a wide range of risk-protection mechanisms that are available even in the lowest income countries. This includes savings, access to credit, insurance, and other financial intermediation mechanisms.

Until recently, few risk-protection mechanisms were accessible to the poor. It was assumed that the poor—living on less than a dollar a day—were neither willing nor able to save or contribute to insurance against the risks they faced. In sum, the poor were thought to be "unbankable" and "uninsurable" (Zeller and Sharma 2000). This led to the growth of informal risk-protection mechanisms through families, friends, and community networks. However, the past decade has witnessed a steady expansion of successful initiatives to provide the poor with savings, credit, and insurance services. Growing experience with these mechanisms suggests that the poor can be creditworthy, can save, and can buy insurance.

In particular, four microfinance instruments have been developed to improve the productive needs of low-income households. They are (a) credits that help improve the immediate human, physical, and social capital of the poor (for example, small short-term loans to help pay for training, a piece of farm equipment, and access to social networks); (b) savings to be used to build up the medium-term capital of the poor, such as education, the down payment on a piece of land, and dowry for the marriage of a daughter into a good family; (c) insurance to stave off unpredictable expenses, such as theft, loss, and illness); and (d) financial intermediation (payment systems to facilitate trade and investments).

Life, casualty, and crop insurance is often used to secure loans for low-income populations. Microfinance instruments help the poor avoid having to invest in less cost-efficient means of saving, credit, and insurance such as jewelry, livestock, and staple food, or to resort to inefficient barter systems of payment (payment in-kind). These instruments also contribute to the early transformation of barter transactions into more formal economic exchange and formalization of property rights.

The extension of such techniques to the health sector is now being observed in many microfinance and development organizations in low-income countries, especially in the case of microinsurance (Brown and Churchill 2000; Dror and Jacquier 1999; ILO 2000b, 2001). Extending microinsurance techniques to health care presents a unique set of challenges under exploration. While life and crop insurance deals mainly with the financial cost of income loss, health insurance presents an additional set of issues related to financing tangible services for which the cost is neither fully predictable nor constant. This includes the range and severity of different illnesses, the range and scope of services provided, and the behavior of patients and providers (the latter influenced particularly by the payment mechanism due to moral hazard, adverse selection, and fraud, especially in the form of supplier-induced demand).

Links to Community-Level Social Capital

Why have microfinance organizations been able to reach low-income individuals and households while more formal national systems have failed to do so? Clues to the answer come from the social capital literature of the 1990s, which can be summed up as "it is not what you know, but whom you know" (Platteau 1994; Woolcock 1998; Woolcock and Narayan 2000). When hard times strike, it is often family and friends who constitute the ultimate safety net for low-income groups.

Evidence suggests that social capital has four dimensions with potentially positive and potentially negative impacts on development. The four dimensions include:

- Community links such as those between extended families, local organizations, clubs, associations, and civic groups—people in small communities helping each other (Dordick 1997)
- Network links between similar communities (horizontal) and between different communities (vertical), such as ethnic groups, religious groups, class structures, and genders (Granovetter 1973)
- Institutional links such as those between communities' political, legal, and cultural environments (North 1990)
- Societal links between governments and their citizens through complementarity and embeddedness, such as public-private partnerships and the legal framework that protects the rights of association (for example, chambers of commerce and business groups) and community participation in public organizations (for example, community members on city councils and hospital boards) (Evans 1992, 1995, 1996).

Low-income households are likely to have greater trust in microhealth insurance programs that are linked to the community credit, savings, and insurance organizations to which they already belong and over which they feel they have some control. The people often regard national systems as impersonal and distant and think they will never benefit from those programs. This view is reinforced when the national programs ration care to focus on "global" public health priorities that—although they may have large externalities and benefits to society as a whole—often do not respond to the poor's immediate day-to-day health care needs.

Such social capital has both benefits and costs. The downside of social capital occurs when communities and networks become isolated or parochial or work at cross-purposes to societal collective interests (for example, ghettos, gangs, cartels). Intercommunity ties or bridges are needed to overcome the tendency of communities and networks to pursue narrow, sectarian interests that may run counter to broader societal goals. (Narayan 1999) Community-financing schemes are vulnerable to a number of the shortcomings associated with social capital:

- Community-financing schemes that share risk only among the poor will deprive its members of much needed cross-subsides from higher income groups.
- Community-financing schemes that remain isolated and small deprive their members of the benefits of spreading risks across a broader population.
- Community-financing schemes that are disconnected from the broader referral system and health networks deprive their members of the more comprehensive range of care available through the formal health care system.

Links to Mainstream Public Economics

Community-financing schemes—in addition to their links to microfinance and social capital—benefit from interconnectivity to the overall welfare of the society in which they exist, the system of public financing (no matter how weak it may be), and the broader social policy underpinning the prevailing national health system. Schemes that build such connections at an early stage are better able to evolve in terms of expanding the number of members covered, level of resources mobilized, size of the risk pool, and range of benefits they can cover as the local community they serve grows and evolves. Their members have more to gain through such connectivity than they would through isolation.

Principal-agent problems also explain why community-based initiatives are expected to be more successful than purely market-based institutions at providing financial protection products. These problems can be overcome in two ways: by designing incentives that align the interest of the agent (insurer) with that of the principal (member), and by designing monitoring systems that allow the principal (member) to effectively observe the actions of the agent (insurer). The proximity of community schemes (agents) to their members (principals) allows effective monitoring, which is much more difficult at the national level.

Proponents of linkage between community involvement and public finance argue their case on philosophical and technical grounds. In most societies, care for the sick and disabled is considered an expression of humanitarian and philosophical aspirations. Proponents do not, however, have to resort to moral principles or arguments about the welfare state to justify collective intervention in health. The past century is rich in examples of the failure of the private sector and market forces alone to secure efficiency and equity in the health sector. There is ample justification for such an engagement on both theoretical and practical grounds.

In the case of *efficiency,* there is ample evidence of the significant market failure that exists in the health sector—information asymmetries, public goods, positive and negative externalities, distorting or monopolistic market power of many providers and producers, absence of functioning markets in some areas, and frequent occurrence of high transaction costs (Arrow 1963; Atkinson and Stiglitz 1980; Bator 1958; Evans 1984; Musgrave and Musgrave 1984). In the case of *equity,* there is equally good evidence that on a voluntary basis individuals and families often fail to protect themselves adequately against the risks of illness and disability (Barer, Getzen, and Stoddart 1998; van Doorslaer, Wagstaff, and Rutten 1993).

METHODOLOGY FOR ASSESSING IMPACT, STRENGTHS, AND WEAKNESSES

To assess the impact, strengths, and weaknesses of community-based involvement in health care financing, we will use a modified version of the World Bank's Poverty Reduction Strategy Paper (PRSP) framework (Claeson and others 2001). According to this framework, community financing can be seen as having three independent objectives: (a) mobilizing financial resources to promote better health and to diagnose, prevent, and treat known illnesses; (b) protecting individuals and households against direct financial cost of illness when channeled through risk-sharing mechanisms; and (c) giving the poor a voice in their own destinies and making them active participants in breaking out of the social exclusion in which they are often trapped. We will not deal with the indirect impact of illness on loss of income due to interruption of employment, although this is clearly another important dimension of financial protection against the cost of illness.

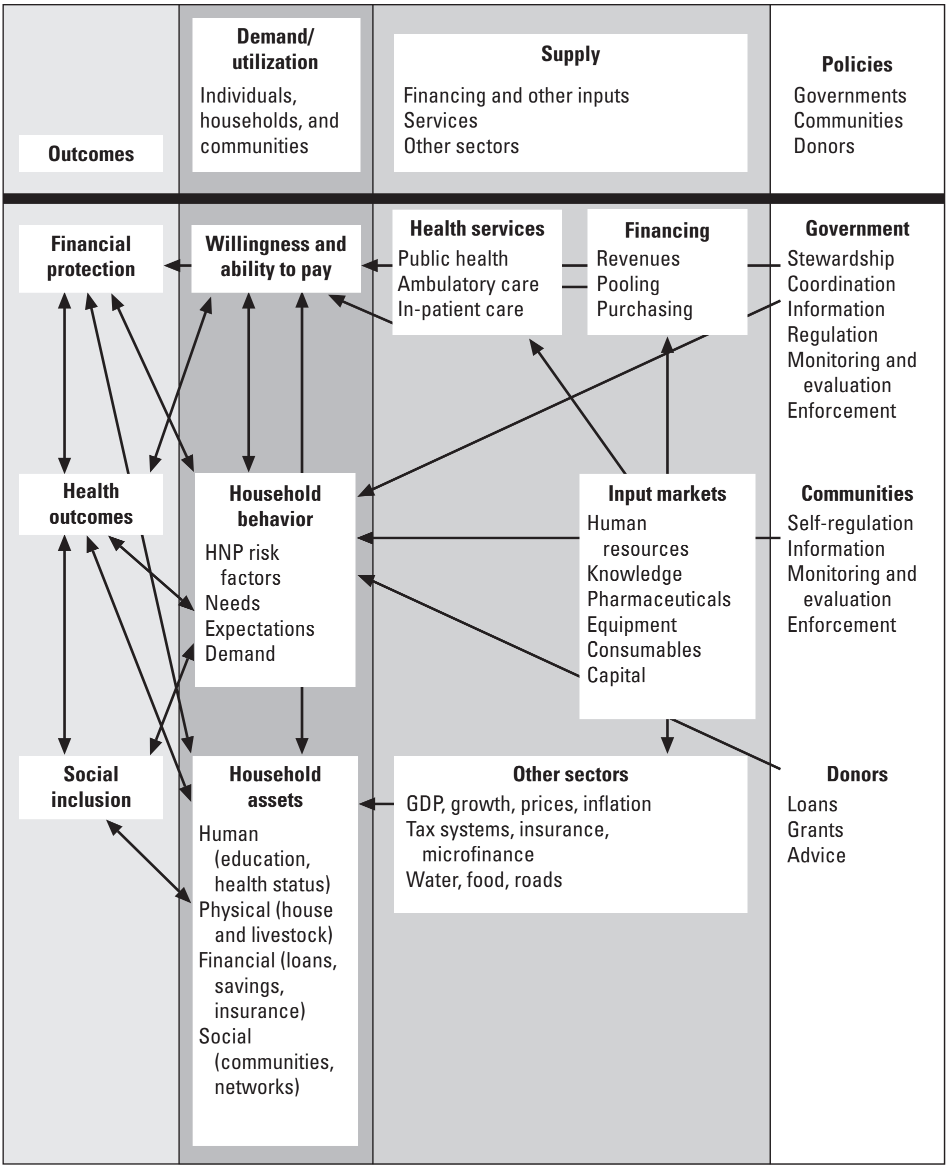
This framework is consistent with the three goals of health systems emphasized by the *World Health Report 2000* (WHO 2000): financial fairness (an indicator that measures inequality of the financial contribution for health across households), disability-adjusted life expectancy (DALE, an indicator that combines life expectancy and disability measures), and responsiveness (a consumer-satisfaction indicator that combines ethical and consumer quality dimensions). This framework is also consistent with the International Development Goals (IDGs) relating to achievement of better health and protection against impoverishment by the year 2015.

The determinants of financial protection, improved health, and social inclusion are complex (see figure 1.6). The PRSP framework emphasizes the following causal links: (a) close tracking of key outcome measures relating to improved financial protection, health, and social inclusion; (b) demand and utilization patterns; (c) supply in the health system and related sectors; and (d) policy actions by governments, civil society, the private sector, and donors.

Outcome indicators. Much work is still needed to develop a meaningful set of indicators for improving health and protection against impoverishment and combating social exclusion. For this report, we have used both the financial fairness, DALE, and responsiveness indicators recommended by the World Health Organization (WHO) and several intermediate indicators (see next section for details).

Demand and utilization in influencing financial protection. There is a complex interplay between household assets (human, physical, financial, and social),

FIGURE 1.6 Determinants of Financial Protection, Health, and Social Inclusions


Outcomes
Demand/ utilization
Individuals, households, and communities
Supply
Financing and other inputs
Services
Other sectors
Policies
Governments
Communities
Donors
Financial protection
Willingness and ability to pay
Health services
Public health
Ambulatory care
In-patient care
Financing
Revenues
Pooling
Purchasing
Government
Stewardship
Coordination
Information
Regulation
Monitoring and evaluation
Enforcement
Health outcomes
Household behavior
HNP risk factors
Needs
Expectations
Demand
Input markets
Human resources
Knowledge
Pharmaceuticals
Equipment
Consumables
Capital
Communities
Self-regulation
Information
Monitoring and evaluation
Enforcement
Social inclusion
Household assets
Human (education, health status)
Physical (house and livestock)
Financial (loans, savings, insurance)
Social (communities, networks)
Other sectors
GDP, growth, prices, inflation
Tax systems, insurance, microfinance
Water, food, roads
Donors
Loans
Grants
Advice

household behavior (risk factors, needs, expectations, and demands for services), ability and willingness to pay, and the availability of insurance or subsidies (Soucat and others 1997). This part of the analysis emphasizes the importance of household and community behavior in improving health and reducing the financial risks.

Supply in health system and related sectors. There is a hierarchy of interest from nonhealth sector factors in improving financial protection—such as GDP, prices, inflation, availability of insurance markets, effective tax systems, credit, and savings programs—to more traditional parts of the health system (a) preventive and curative health services, (b) health financing, (c) input markets, and (d) access to effective and quality health services (preventive, ambulatory, and in-patient). In respect to the latter, organizational and institutional factors contribute to the incentive environment of health-financing and service delivery systems in addition to the more commonly examined determinants such as management, input, throughput, and output factors (Harding and Preker 2001).

Policy actions by governments, civil society, and the private sector. Finally, through their stewardship function, governments have a variety of policy instruments that can be used to strengthen the health system, the financing of services, and the regulatory environment within which the system functions (Saltman and Ferroussier-Davis 2000). This includes regulation, contracting, subsidies, direct public production, and ensuring that information is available. In countries with weak government capacity, civil society and donors can be encouraged to play a similar role.

Four levels of analysis were used to assess the impact, strengths, and weaknesses of community involvement in financial protection against the cost of illness and improved health. They include (a) a survey of the literature on the impact, strengths, and weaknesses of different types of community involvement in health financing; (b) macrolevel cross-country analysis of the impact of different health care financing mechanisms on national health systems' performance indicators—health, financial fairness, and responsiveness; (c) microlevel household data analysis of the specific impact of community-financing schemes on overall welfare of the poor—financial protection and access to health services for the poor; and (d) regional reviews of the Asia and Africa experience of community involvement in health care financing, including different public policy options such as subsidies, reinsurance, linkages to formal public financing systems, and management-capacity building.

Methodology for Survey of Literature on Community Financing

Despite the recent growth in research on community-based health care financing, there is a paucity of systematic evidence regarding the performance of these schemes in terms of their impact on broad outcome goals such as improving health and protection against impoverishment and combating social exclusion. In particular, little is known about their effectiveness in mobilizing resources and improving access to effective and quality health care; their role in sharing risks across population groups; and their impact on addressing the problems associated with social exclusion. Despite progress made by the time the *World Health Report 2000* was published, experts are still debating which indicators best capture progress toward achieving these goals.

TABLE 1.2 Summary Statistics of the Literature Reviewed, by Publication Type

	Peer-reviewed journal articles	*Published reports*	*Internal documents of international organizations or academic institutions*	*Conference proceedings*
Number of studies	20	15	4	4

The review looked at any past studies whose main focus had been to examine community involvement in health care financing. Based on this broad criterion, the review comprised 43 studies. The selected papers included articles published in peer-reviewed journals, reports published in formal publication series of international organizations (such as WHO, International Labour Organisation, United Nations Children's Fund), internal unpublished documents of international organizations and academic institutions, and conference proceedings. Table 1.2 presents the breakdown of the reviewed studies, by publication type.

Of these 43 studies, 5 were conceptual papers, 7 were large-scale comparative papers (analyzing five or more community-based health financing schemes) and the remaining 31 were case studies. The regional breakdown of the case studies was 15 in Africa, 11 in Asia, and 4 in Latin America. Language barriers and time constraints created a certain selection bias—Spanish literature was not included in our search while French literature was (Jakab and Krishnan 2001).

Assessment of Performance

Since past research of community-financing schemes varies considerably in the issues examined and methodologies used, a standard set of questions were asked relating to both the review of impact assessments and the review of determinants (key strengths and weaknesses of various types of schemes). The following three questions relating to the impact of community involvement on health, financial protection, and social inclusion were asked:

Question 1: What and how robust was the evidence on the amount of resources that could be mobilized through community involvement to pay for health care and the sustainability of this source of financing?

Question 2: What and how robust was the evidence on the effectiveness of community involvement in protecting individuals against the impoverishing effects of illness?

Question 3: What and how robust was the evidence on the role that community involvement played in combating social exclusion by allowing low-income groups to have a more direct role in the financing of their health care needs and protecting them against the financial burden of illness?

A number of studies offered conclusions on resource mobilization, financial protection, and social exclusion based on the experience of authors or review of other studies but did not provide actual evidence in support of their conclusions. Our review excluded studies of performance assessments from the analysis. It also excluded studies that did not use controls from the performance evaluation. This approach yielded 11 studies for the performance assessment of the review.

Assessment of Institutional Determinants of Performance

The direct and indirect determinants of improved health, financial protection against the cost of illness, and social inclusion are complex. As described earlier by the PRSP framework, policy actions by governments, civil society, and the private sector are mediated through supply and demand factors related to both the health sector and other sectors that affect the outcome measures being examined. This would include indicators of the service delivery system (product markets), input generation (factor markets), the stewardship or government oversight function (policymaking, coordination, regulation, monitoring, evaluation), and market pressures. The current body of literature on community financing is not comprehensive so the report looked only at factors directly related to health care financing.

Table 1.3 provides a list of the core technical design, management, organizational, and institutional characteristics related to health care financing in general. Based on this framework, the study reviewed 43 assessments of community-financing schemes for their impacts, strengths, and weaknesses.

Methodology for Regional Reviews of Selected Asia and Africa Experiences

The main objective of the reviews of selected Asia and Africa experiences was to provide additional insights about several key issues from the perspective of the two regions of the world that carry the heaviest burden of mortality and morbidity, have the weakest risk-sharing arrangements to protect their populations against the impoverishing effects of illness, and have the greatest number of poor living in absolute poverty and social exclusion (Arhin-Tenkorang 2001; Hsiao 2001). In addition to contributing to an understanding about the current roles of community involvement in health care financing, the regional reviews also focused on future policy options. Key questions asked include the following:

- Using the same framework described under the survey of the literature, what are the main characteristics of existing community involvement in financing health care in the Africa and Asia regions in terms of impacts, strengths, and weaknesses of existing schemes (describe successful and unsuccessful features)?
- To what extent do community-financing schemes serve the objective of securing adequate, equitable, and sustainable financing for the low-income and rural populations served (impact on the poor)?
- What are the main challenges and obstacles to improving community arrangements to provide adequate, equitable, and sustainable financing?

TABLE 1.3 Core Characteristics of the Community-Based Financing Schemes

	Key policy questions
Technical design characteristics	1. **Revenue-collection mechanisms** ☐ Level of prepayment compared with direct out-of-pocket spending ☐ Extent to which contributions are compulsory compared with voluntary ☐ Degree of progressivity of contributions ☐ Subsidies for the poor and buffer against external shocks 2. **Arrangements for pooling revenues and sharing risks** ☐ Size ☐ Number ☐ Redistribution from rich to poor, healthy to sick, and gainfully employed to inactive 3. **Purchasing and resource allocation** ☐ Demand (for whom to buy) ☐ Supply (what to buy and in which form, and what to exclude) ☐ Prices and incentive regime (at what price and how to pay)
Management characteristics	1. **Staff** ☐ Leadership ☐ Capacity (management skills) 2. **Culture** ☐ Management style (top down or consensual) ☐ Structure (flat or hierarchical) 3. **Access to information** (financial, resources, health information, behavior)
Organizational characteristics	1. **Organizational forms** (extent of economies of scale and scope, and contractual relationships) 2. **Incentive regime** (extent of decision rights, market exposure, financial responsibility, accountability, and coverage of social functions) 3. **Linkages** (extent of horizontal and vertical integration or fragmentation)
Institutional characteristics	1. **Stewardship** (who controls strategic and operational decisions and regulations) 2. **Governance** (what are the ownership arrangements) 3. **Insurance markets** (rules on revenue collection, pooling, and transfer of funds) 4. **Factor and product markets** (from whom to buy, at what price, and how much)
	↓ ↓ ↓
Outcome Indicators	Health Outcomes Financial Protection Social Inclusion

- Are there other viable alternatives to community financing in the country settings where they exist today?
- In the context of these study findings, what role could the international donor community play to improve financing for rural and other low-income population groups?

TABLE 1.4 Characteristics of 5 Survey Instruments

	Name of scheme	*Year of data collection*	*Sample size (households)*	*Organization associated with the survey*
Rwanda	54 prepayment schemes in 3 districts of Byumba, Kabgayi, and Kabutare	2000	2,518	Partnerships for Health Reform (PHR) in collaboration with National Population Office
Senegal	3 Mutual Health Insurance Schemes (Thiés Region)	2000	346	Institute of Health and Development, Dakar in collaboration with ILO
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)	1997	1,200	London School of Hygiene and Tropical Medicine
Thailand	Voluntary Health Card Scheme (HCP)	1994–95	1,005	National Statistics Office

Methodology for Microlevel Household Survey Analysis

The aim of the microlevel household survey analysis was to shed light on two questions (Jakab and others 2001): What characteristics affect the decision of households to join community-based prepayment schemes? Do community health-financing schemes provide financial protection for their members against the cost of illness?

Eleven household budget surveys, four Living Standard Measurement Surveys (LSMS), and nine Demographic and Health Surveys (DHS) were screened for community-financing data. Most of these surveys did not allow an identification of households with access to community-based health financing. Of the 11 smaller scale nonstandardized surveys that matched the requirements for the core list of variables, 5 were available for further analysis and were included in this report. Table 1.4 summarizes the key characteristics of these surveys. The remaining 6 were either not accessible for further analysis (4), data collection was incomplete (1), or authors were not available to collaborate (1).

The five household surveys identified and accessible for analysis for the purposes of this report represent nonstandardized, relatively small-scale data-collection efforts with a sample size of 346 to 1,200 households. The surveys were not nationally representative; they were a random sample of the local population. With the exception of Thailand's, all surveys are very recent.

Determinants of Inclusion

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: individual and household characteristics, and community characteristics. Individual and household characteristics influence the cost and the benefit calculation of the rational individual decision maker.

This choice is moderated, however, through certain social characteristics of the community. The individual rational choice model of weighting costs and benefits of joining a prepayment scheme is altered by the social values and ethics of the local culture. For example, two individuals with similar individual and household characteristics (such as income, household size, assets, education level, health status) may decide differently about joining a prepayment scheme depending, for example, on encouragement from community leaders, availability of information, and ease of maneuvering unknown processes.

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:

$$\text{Prob (membership} > 0) = X_1\beta_1 + X_2\beta_2 + \varepsilon \tag{1.1}$$

The independent variable takes on a value of 1 if the individual belongs to a community-financing scheme and 0 if he or she does not. X_1 represents a set of independent variables for characteristics of the individual and the household, such as income, gender, age, and marker on chronic illness or disability. X_2 represents a set of independent variables that approximate the social values in the communities: religion and 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 (measure of social inclusion) and a marker for community factors (dummy variable). Control variables 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 (for example, age, health status, and 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 included control for the different individual and household attitudes toward investment in health at a time when illness is not necessarily present (for example, gender and religion). Literature has shown that the distance to the hospitals and local health centers and existence of outreach programs influence the decision to purchase membership to the scheme.

Determinants of Financial Protection

To empirically assess the impact of scheme membership on financial protection, a two-part model was used.[1] 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 capture of the lack of financial protection for people 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. Many nonspenders 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 nonnormality, the study restricted 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 nonnormality, a log-linear model specification is used.

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

$$\text{Prob (visit} > 0) = X\beta + \varepsilon. \tag{1.2}$$

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:

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

where X represents a set of individual and household characteristics 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. Other control variables were also included in the estimation model to control for the differences in need for health care (for example, age and gender), differences in preferences toward seeking health care (for example, gender and religion), and differences in the cost (direct and indirect) of seeking health care (for example, distance).

Methodology for Macrolevel Cross-Country Analysis

For the dependent variables of the macrolevel country analysis, the study used the standard indicators proposed by WHO for health systems performance (WHO 2000). These are the disability-adjusted life expectancy (DALE), the index of level of responsiveness (IR), the index of fairness of financial contribution (IFFC), the index of distribution of responsiveness (IRD), and the index of equality of child survival (IECS). Only the observed data for these indicators were included in the analysis.

For the independent variables of the macrolevel analysis, countries were divided into three groups based on the extent of their risk-sharing arrangements.

We assign countries to the first category, *advanced risk sharing,* when they have either a social health insurance scheme or a health-financing scheme based on general taxation, and when these two schemes are associated with the principle of universal coverage. Countries with no explicit reference to overall coverage of the population, who usually have mixed health-financing systems, with some part of the population partially covered via general taxation and specific population groups covered by health insurance schemes, are associated with the second category, *medium risk sharing.* Finally, countries with general taxation systems that incompletely cover the population are associated with the third category, *low risk sharing.* This classification system allows us to define the two main organizational dummy variables: DARS = 1 when a country belongs to the set of advanced risk-sharing systems and 0 otherwise; DMRS = 1 when a country belongs to the set of medium risk-sharing systems and 0 otherwise.

The methodology for this analysis is described by Carrin and others (2001). The objective of the analysis is to examine the degree to which risk sharing has a beneficial impact on the five indicators of health systems performance.

The analysis used the following specification for the impact of risk sharing on the level of health:

$$(1.3) \qquad \text{Ln } (80 - \text{DALE}) = a_1 + b_1 \text{ Ln HEC} + c_1 \text{ Ln EDU} + d_1 \text{ DARS}.$$

HEC refers to the health expenditure per capita (in U.S. dollars). EDU refers to the educational attainment in society and is measured by the primary enrollment. The dependent variable is the logarithm of the difference between the observed DALE and a maximum. Several alternative models were also tested. The hypothesis is that advanced risk sharing (among indirect determinants such as education) is associated with a better definition of the benefit package of health services to which citizens are entitled, which translates into an increased overall level of health.

The analysis used two alternative functional forms to assess the impact of risk sharing on responsiveness:

$$(1.4a) \qquad \text{Ln } (\text{IR}/[1 - \text{IR}]) = a_{21} + b_{21} \text{ HEC} + c_{21} \text{ EDU} + d_{21} \text{ DARS}$$

and

$$(1.4b) \qquad \text{Ln } (1 - \text{IR}) = a_{22} + b_{22} \text{ LnHEC} + c_{22} \text{ Ln EDU} + d_{22} \text{ DARS}.$$

The hypothesis to be tested is that advanced risk-sharing systems are associated with a larger degree of stewardship. The latter, in turn, is likely to positively influence the mechanisms and incentives that entail a greater responsiveness.

The analysis used three measures for distributional impact. This included an IECS, an IFFC, and an IRD.

Several models were tested. A model was developed that examined the impact of the dummy variable (DARS) on the distributional variables for health, fairness, and responsiveness. We have adopted the same functional forms as in equations (1.4a and 1.4b):

(1.5a) $\text{Ln}\,(I_j/[1 - I_j]) = a_{31} + b_{31}\,\text{DARS}$

and

(1.5b) $\text{Ln}\,(1 - I_j) = a_{32} + b_{32}\,\text{DARS}$,

where I_j ($j = 1,\ldots,3$) refers to the three above-mentioned indexes, respectively.

The effect of DARS on the indicator of *fair financing* is expected to be positive when using the logit form of the equation. The hypothesis to be tested is that in countries with advanced risk sharing, more so than in other systems, people make financial contributions according to their capacity to pay. This would be associated with a higher IFFC. In addition, systems with universal coverage generally pay more attention to the objective of equal treatment for equal need. It is therefore assumed that such systems also respond to people's expectations as to the nonmedical aspects of health care in a more equal way. Hence the effect of DARS on the distribution of *responsiveness* is anticipated to be positive as well. Finally, it is assumed that universal coverage systems are more likely to provide people with a similar benefit package than other systems, irrespective of their socioeconomic background, with a resulting positive impact on the distributional aspects of *child health*.

DISCUSSION OF MAIN FINDINGS FROM BACKGROUND REVIEWS

Based on a review of the 43 papers discussing community-based health financing, the first and foremost conclusion is that there is a paucity of systematic empirical work regarding the performance of these financing mechanisms or the determinants of good outcomes in achieving good health (Jakab and others 2001).

Discussion of Survey of Existing Literature on Community Health Financing

Although several authors have tired to create a typology for community-based schemes (Atim 1998; Bennett, Creese, and Monasch 1998; Criel, van der Stuyft, and van Lerberghe 1999; Hsiao 2001), the possibilities for variations is almost limitless, given the great diversity in objectives, design, context, and implementation arrangements. Nevertheless, the review revealed four commonly encountered and well-identifiable types of schemes. In the first type, resource mobilization relies mainly on out-of-pocket payments at the point of contact with providers, but the community is actively involved in designing these fees and managing the collection, pooling, and allocation of the funds mobilized in this way (*community cost-sharing*). In the second type, the community collects payments in advance of treatment (*prepayment*) and then manages these resources in paying for providers (*community prepayment or mutual health organization*). In the third type, providers serving a particular community collect the prepayments themselves (*community provider-based health insurance*). In the fourth type, the community acts as "agent" to reach rural and excluded populations on behalf of the formal government or social health insurance system (*government or social insurance*) via contracts or agreements.

TABLE 1.5 Types of Community-Based Financing

		Four community-based finance modalities				
Type of scheme	Government schemes: social-insurance and tax-based	**Type 4**	**Type 3**	**Type 2**	**Type 1**	Direct user fees (spot market)
		Linked community health fund, revolving fund, or prepayment	Community provider-based health insurance	Community-based prepayment schemes	Community-managed user fees	

Table 1.5 summarizes these four types of community-based financing schemes based on their core design features and management, organizational, and institutional characteristics.

Assessment of Impact

Following the framework presented in table 1.3, the survey of the literature looked at three indicators of performance of community-based financing schemes (Jakab and others 2001): (a) their effectiveness in mobilizing resources and improving access to effective and quality health care; (b) their role in sharing risks across population groups; and (c) their impact on addressing the problems associated with social exclusion (see table 1.6). This is followed by a discussion on the key conclusions from the performance review of the literature.

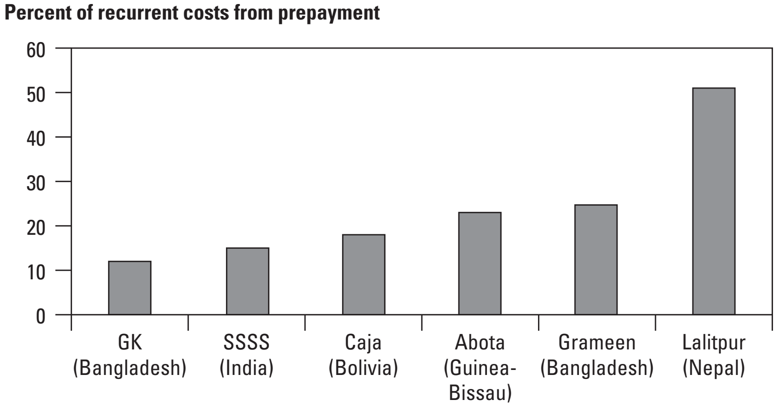
Resource Mobilization. There is good evidence from the literature that community-financing arrangements make a positive contribution to the financing of health care at low-income levels, thereby improving access to drugs, primary care, and even more advanced hospital care (Dave 1991). Such community involvement allowed rural and low-income populations to mobilize more resources to pay for health care than would have been available without this involvement (Diop, Yazbeck, and Bitran 1995; McPake, Hanson, and Mills 1993; Soucat and others 1997). But there are great variations in the volume of resources that can be mobilized this way, constrained largely by the low income of the contributing population (Atim 1998; Bennett, Creese, and Monasch 1998; Hsiao 2001; Jütting 2000—see box 1.1). This is particularly true when most members of the community

TABLE 1.6 Number of Studies that Examined Core Health-Financing Subfunctions

Financing function	*Revenue collection*	*Pooling of revenues*	*Resource allocation or purchasing*
Type 1	5	2	3
Type 2	6	4	9
Type 3	2	2	3
Type 4	3	3	2
Multiple	10	2	3

BOX 1.1 REVENUE MOBILIZATION

Based on data from Bennett, Creese, and Monasch (1998), this graph shows the cost recovery from prepayment of six Modality II schemes. The range is from 12 percent to 51 percent of recurrent expenditure. This shows that, for these schemes, the resources collected contribute significantly to the full recurrent costs but do not fully cover them, thereby necessitating other sources of funding, such as out-of-pocket spending, government subsidies, and donor grants.



schemes are already below the poverty line. None of the studies reviewed reported the share of aggregate national resources that were mobilized through community-financing arrangements. There is an urgent need to strengthen the evidence base of community-financing arrangements through more rigorous registration, monitoring, and evaluation of the resource mobilization capacity of these schemes.

Financial Protection. Where household survey data have been analyzed, a consistent observation was that community-based health financing has been effective in reaching more low-income populations who would otherwise have no financial protection against the cost of illness (Litvack and Bodart 1992). Improved financial protection is achieved through reducing the members' out-of-pocket spending while increasing their utilization of health care services (Atim 1998; Criel, van der Stuyft, and van Lerberghe 1999; Desmet, Chowdhury, and Islam 1999, Gumber and Kulkarni 2000; Jütting 2000; Supakakunti 1997). At the same time, some of the research suggested that the poorest and socially excluded groups are often not included in community-based health-financing initiatives (Arhin-Tenkorang 1994; Criel, van der Stuyft, and van Lerberghe 1999; Jütting 2000). Those studies that compared the level of financial protection of scheme members with that of nonmembers found that belonging to some form of prepayment scheme reduced the financial burden of seeking health care (Arhin-Tenkorang 1994; Diop, Yazbeck, and Bitran 1995; DeRoeck and others 1996;

TABLE 1.7 Studies that Looked at Ways to Prevent Impoverishment

Studies that confirmed key hypothesis being tested	*Utilization of members relative to nonmembers*		*Level of out-of-pocket expenditures of members relative to nonmembers*	
	Increase	*Decrease*	*Increase*	*Decrease*
Type 1 Community user fees	3	1	0	1
Type 2 Community prepayment	4	≅2	0	6
Type 3 Provider prepayment	3	0	0	0
Type 4 Linked to formal system	3	0	0	2

TABLE 1.8 Studies that Looked at Ways to Combat Social Exclusion

Studies that confirmed key hypothesis being tested	*Scheme reaches the poor*	*Poorest not covered*	*Inability to pay, main reason for not being covered*	*Rich do not participate*	*Distance gradient to scheme provider*
Type 1 Community user fees	3	1	1	0	0
Type 2 Community prepayment	5	1	2	1	1
Type 3 Provider prepayment	2	2	1	1	1
Type 4 Linked to formal system	3	1	2	1	1

Gumber and Kulkarni 2000; see table 1.7). Two studies indicated that community financing does not eliminate the need for broader coverage in the case of catastrophic health care expenditures (Pradhan and Prescott 2000; Xing-Yuan 2000).

Combating Social Exclusion. Community-based health-financing schemes appear to extend coverage to many rural and low-income populations who would otherwise be excluded from collective arrangements to pay for health care and protect them against the cost of illness. However, the poorest are often excluded even from community-financing arrangements, and higher income groups often do not belong, thereby segmenting the revenue pool by income group (see table 1.8).

Identification of Determinants

The survey of the literature also looked at factors that would contribute to strengths and weaknesses of the schemes (Jakab and others 2001) in the following four areas: (a) technical design characteristics, (b) management characteristics, (c) organizational characteristics, and (d) institutional characteristics. The key advantages and disadvantages of community-based schemes lie in their ability to fill the policy, management, organizational, and institutional void left by extreme government failure to secure more organized financing arrangements for the poor. In this context, a number of strengths (see box 1.2) and weaknesses (see box 1.3) of community-financing schemes have been identified by various authors.

BOX 1.2 STRENGTHS OF COMMUNITY-FINANCING SCHEMES

Technical Design Characteristics

Revenue Collection Mechanisms

- Shift away from point-of-service payment to increasing prepayment and risk sharing
- Flat-rate premium, which facilitates revenue collection, reduces the scope for manipulation, and contributes to low transaction costs
- Contribution payment that accommodates the income-generating patterns of households employed in agriculture and the informal sector (irregular, often noncash)
- Modest degree of household-level affiliation
- Pro-poor orientation even at low-income levels through exemptions of premiums and subsidies, despite flat-rate contribution rate
- Some buffering against external shocks though accumulation of reserves and links to formal financing schemes

Arrangements for Pooling Revenues and Sharing Risks

- Some transfers from rich to poor, healthy to sick, and gainfully employed to inactive through some pooling of revenues and sharing of risk within community groups

Purchasing and Resource Allocation

- Most community schemes make a collective decision about who is covered through scheme, based on affiliation and direct family kinship (for whom to buy).
- Many community schemes define the benefit package to be covered in advance (what to buy, in what form, and what to exclude).
- Some community schemes engage in collective negotiations about price and payment mechanisms.

Management

- Most community schemes are established and managed by community leaders. Community involvement in management allows social controls over the behavior of members and providers that mitigates moral hazard, adverse selection, and induced demand.
- Many schemes seek external assistance in strengthening management capacity.
- The management culture tends to be consensual (high degree of democratic participation).
- Most schemes have good access to local utilization and behavior patterns.

BOX 1.2 ***continued***

Organizational Structure

- Most community schemes are distributed organizational configurations that reach deep into the rural and informal sectors.
- Incentive regimes include: (a) extensive decision rights, (b) strong internal accountability arrangements to membership or parent community organization, (c) ability to accumulate limited reserves if successful but unsuccessful schemes often ask governments for bailouts, (d) mainly factor-market exposure since few overlapping schemes compete with each other in the product market, and (e) some limited coverage of indigent populations through community or government subsidies.
- Vertical integration may lead to increased efficiency and quality services. Schemes that have a durable partnership arrangement or contractual arrangement with providers able to negotiate preferential rates for their members. This in turn increases the attractiveness of the scheme to the population and contributes to sustainable membership levels.
- Better organized schemes use horizontal referral networks and vertical links to formal sector.

Institutional Environment

- Stewardship function is almost always controlled by local community, not central government or national health insurance system, which is apt to make the schemes responsive to local contexts.
- Ownership and governance arrangements (management boards or committees) are almost always directly linked to parent community schemes; freestanding health insurance schemes are rare.
- There is little competition in the product market.
- Competition is limited in factor markets and through consumer choice.

Discussion of Main Findings from Asia Regional Review

The review of selected Asia experiences emphasized the heterogeneity of community-financing schemes and the fact that their performance is highly dependent on the nature of their technical design and management, organizational, and institutional characteristics. For the purpose of this review, Hsiao (2001) classified community involvement in health care financing into five types: (a) direct subsidy to individuals (Thai Health Card and Tanzania Community Health Fund), (b) cooperative health care (Jiangsu Province and Tibet), (c) community-based third-party insurance (Rand Experiment in Sichuan Province and Dana Sehat), (d) provider sponsored insurance (Dkaha Community Hospital, Gonoshasthya and Bwamanda), and (e) producer-consumer cooperative (Grameen).

BOX 1.3 WEAKNESSES OF COMMUNITY-FINANCING SCHEMES

Technical Design Characteristics

Revenue Collection Mechanisms

- Without subsidies, resource mobilization is limited when everyone in the pool is poor.
- Many of the poorest do not join since they cannot afford premiums.
- Pro-poor orientation is undermined by regressive flat-rate contributions and by a lack of subsidies or premium exemption, which create a financial barrier for the poor.
- Community-based voluntary prepayment schemes are also prone to adverse selection.
- Few schemes have reinsurance or other mechanisms to buffer against large external shocks.

Revenue-Pooling and Risk-Sharing Arrangements

- The scope for transfers within very small pools is limited (often fewer than 1,000 members per scheme).

Purchasing and Resource Allocation

- Without subsidies, the poorest are often left out (for whom to buy).
- The benefit package is often very restricted (what to buy, in what form, and what to exclude).
- Providers can often exert monopoly power during price and payment negotiations.

Management

- Community leaders are as vulnerable to adverse incentives and corruption as national bureaucrats.
- Even with external assistance, absorptive capacity in management training is limited.
- Extensive community consultation is time consuming and can lead to conflicting advice.
- Most schemes do not use modern information management systems.

Organizational Structure

- Even widely distributed organizational configurations may have difficulty reaching deep into the rural and informal sectors.
- There are often conflicting incentives, especially among extensive decision rights, soft budget constraints at time of deficits (bailouts by governments and external sources of funding such as nongovernmental organizations), limited competitive pressures in the product markets, and lack of financing to cover the poorest population groups.
- The less-organized schemes are often cut off from formal sector networks.

BOX 1.3 *continued*

Institutional Environment

- Government stewardship and oversight function are often very weak, leading to a poor regulatory environment and lack of remedies in the case of fraud and abuse.
- Ownership and governance arrangements are often driven by nonhealth and financial protection objectives.
- Choice in strategic purchasing is limited by small number of providers in rural areas.
- True consumer choice is often limited by lack of a full insurance and product market, leading to (a) adverse selection (signing on only the better-off, working age, and healthy), (b) moral hazard (members making unnecessary claims because they have insurance coverage), (c) free-rider effect (households waiting until they think they will be sick before joining), and (d) information asymmetry (for example, concealing preexisting conditions).

Sources: Bennett, Creese, and Monasch (1998); Carrin, Desmet, and Basaza (2001).

Based on this typology, the Asia review ranked the community-financing schemes examined according to their potential impacts on several intermediate outcome indicators (coverage, equity in financing, efficiency and cost containment in service delivery, access, quality, and degree of risk sharing). The results are summarized in table 1.9.

Based on this framework, the review made the following observations:

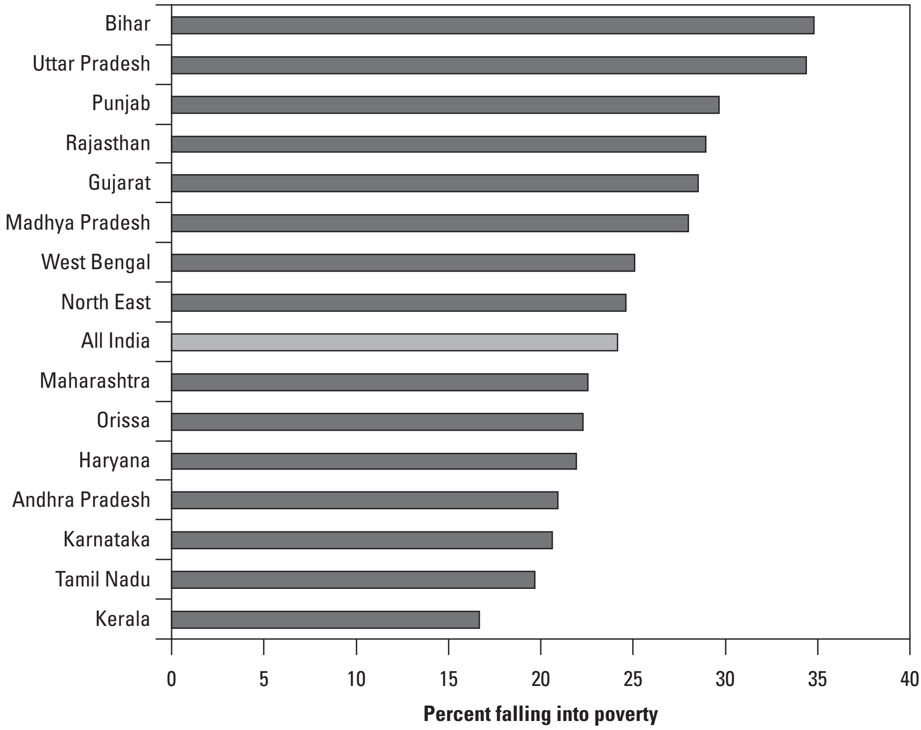
- Rural households and urban poor households are willing to prepay a portion of their health services. The resources that can be raised in this manner depend on both economic and social factors.
- Since the membership of many community-financing schemes consists of poor households, their ability to raise significant resources to pay for health care is limited by the community's overall income, exposure to out-of-pocket payment when not enrolled, availability and size of subsidies, and satisfaction with the services provided. The poor and near poor are more motivated to prepay if their contributions are supplemented by government or donor subsidies. For the poorest households, this subsidy has to be a large share of the total payment.
- The social factors that influence membership rates include a sense of kinship, mutual community concern, and trust and confidence in the management of the scheme.

TABLE 1.9 Potential Value Added by Types of Community-Financing Schemes

Type of community-financing scheme	*Who controls use of fund*	*Population to be covered and raise funds*	*Equity in financing*	*Increase efficiency and reduce cost*	*Improve access*	*Improve quality*	*Greater risk pooling*
Prepay user fees	Government	Low	Low	None	Low	Low	Low
	Individual households	Modest	Low	None	Modest	Low	Low
Cooperative health care	Local community and special purpose NGO	High	Low	High	High	High	Modest unless w/ gov't subsidy
Community-based third-party insurance	Community	Cover higher income families	Low	Low	High for those insured	Low	High
Provider-sponsored insurance	Hospitals	Cover higher income families	Low	Low	High for those insured	Low	High
Provider or consumer cooperative	Cooperatives	Cover member	Low	High	High	High	Medium

Source: Hsiao (2001).

FIGURE 1.7 Hospitalization and Impoverishment



Source: Peters and others (2001).

- A major additional value of well-performing community-financing schemes is expanded access to quality services, improved efficiency of management and service delivery, and cost containment.
- Governmental and nongovernmental organizations (NGOs) often catalyzed the startup of the community-financing schemes in question and contributed to its management and sustainability.
- Finally, members appear to prefer coverage for both primary care and more expensive hospital care. Since many schemes do not mobilize sufficient resources to pay for both, a number of communities opt for primary care coverage, which they will use regularly for their basic health care needs, rather than insurance coverage for rarer and more expensive events that may only happen once or twice in a lifetime and whose concept is often poorly understood. This creates a tension or trade-off between individual needs and demands for basic care and household and community needs for financial protection (see figure 1.7).

Discussion of Main Findings from Africa Regional Review

The review of selected Africa experiences (Arhin-Tenkorang 2001) emphasized that a common feature of many of the reforms introduced during the past two decades have consisted of copayments to influence utilization patterns and direct out-of-pocket user charges to mobilize much-needed additional resources (Vogel 1990). Most of the population currently does not benefit from formal insurance coverage, and government expenditures often do not meet the basic health needs of the poor, let alone the entire population (Abel-Smith and Rawal 1994). These user charges add significantly to the financial hardship of poor households, often fully exposed to the financial risks associated with illness. This has been especially true during recent years, due to the rising incidence and prevalence of HIV/AIDS, tuberculosis, and other communicable diseases.

A central premise of the Africa review is that individuals in the informal sector of poor countries cannot access appropriate health care—particularly curative care—at the time of need partially because of lack of adequate insurance coverage (Arhin-Tenkorang 2001). Although preventive measures may have long-term payoffs in improving the overall welfare and productivity of the population, the income shock associated with seeking access to curative and palliative care has become such a great financial burden for the poor that some form of insurance coverage has to be considered an essential part of any serious poverty alleviation strategy.

The first section of the chapter conceptualizes how the interaction between several design features and institutional factors influences scheme performance in terms of risk protection and resource mobilization. In the absence of risk protection, several African studies demonstrated that poor households often deferred visits to formal health facilities until their illnesses became quite severe or used ineffective self-medication sometimes injurious to their health, leading to more severe health and financial consequences than would have been the case had care been sought earlier.

Key design features included the methodology, nature, and quality of the data used to determine contribution levels, benefit packages, and subsidy levels. The argument is that appropriate specifications require (a) data on the target population's willingness-to-pay (WTP) and ability-to-pay, often not collected or available, (b) data on projected costs of the benefits to be consumed, and (c) operational modalities that facilitate interaction between individuals in an informal environment and in a range of formal organizations. The review concludes that in an informal environment, decisions cannot rely on such written information because the needed data are usually not available in this form. To be effective and affordable, activities undertaken by community-financing schemes must be based on simple and directly observable behavior patterns with low transaction costs.

Key institutional features included the degree of congruence between the scheme's operating rules and the participating population's normal behavior patterns. They also included the degree of participating health care providers' past experience with third-party payments and contractual arrangements. The review found that these institutional factors had a significant influence on the nature and extent of community participation in any given scheme, as well as the quality of its management and monitoring of performance. The review did not examine other institutional factors, such as government regulations and laws governing insurance and health care provision.

The second part of the chapter proposes the design features of several potential “high population schemes” for Africa’s informal sector and assesses their performances with respect to risk protection and resource mobilization. Potential “high population” schemes examined include the Abota Village Insurance Scheme (Guinea-Bissau); Bwamanda Hospital Insurance Scheme (Democratic Republic of Congo); Carte d’Assurance Maladie, or CAM, program (Burundi); Dangme West Health Insurance Scheme (Ghana); Nkoranza Community Financing Health Insurance Scheme (Ghana); and Community Health Fund, or CHF, (Tanzania). These schemes had large target populations and provided a comprehensive range of benefits and geographically accessible care to its members. Key factors influencing enrollment appeared to include a matching of the premium to the willingness and ability to pay, availability of government subsidies for the poor who cannot afford the basic premium; and ready access to basic care for common health problems and emergency care—both geographic proximity and availability of range of basic services appeared to significantly affect enrollment.

The final part of the chapter presents a set of policy measures that national and international health policymakers may consider implementing to increase the level of risk protection provided for informal sector populations. The financial risk protection and resource mobilization that can be achieved by any given scheme appears to be influenced by the compatibility between the way it is designed and operated and the behavior of the individuals and households from the informal sector that enroll in the schemes. The enrollment rate of a given population with such schemes appears to reflect the target population’s WTP, in turn, closely related to its ATP. In most cases, some central government support in the form of fiscal transfers, budget allocations, or both is necessary, given the small volume of resources available at low-income levels in poor communities. Schemes that are operated as solidarity-based partnerships with service providers appear to create additional incentives to increase efficiency and accountability. The authors conclude that national government policies, a legal framework, and financial support for these organizations are likely to be a good investment of scarce government resources. The authors emphasize that, in the absence of established practices in the design of community-financing schemes, donor funding, procedures, and regulations supporting community financing through communities, local governments and local NGOs need further pilot testing to identify the elements that would be needed to expand the schemes or to go to scale with them.

Discussion of Main Findings from Microlevel Household Survey Analysis

Determinants of Social Inclusion in Community Financing

In terms of the determinants of social inclusion through community financing, the results from the microlevel household survey analysis are varied. Table 1.10

TABLE 1.10 Statistically Significant Determinants of Inclusion in Community Financing

	Rwanda	*Senegal*	*India (1)*	*India (2)*	*Thailand*
Model					
	Logit	Probit	Logit	Logit	Logit
Dependent variable					
Dependent variable	Proportion of population enrolled in 1 of 66 schemes	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 that purchased new health card, continued, dropped out, never purchased
Independent variables: individual & household characteristics					
Income/assets	No	**Yes**	No	No	**Yes**
Age	No	No	**Yes**	**Yes**	No
Education	**Yes**	No	No	No	**Yes**
Gender	No	No	—	—	No
Health status	No	—	**Yes**	**Yes**	**Yes**
Household size	**Yes**	No	**Yes**	No	—
Marital status		**Yes**	No	No	No
Religion	—	**Yes**	—	No	—
Distance of household from scheme provider	**Yes**	—	—	—	—
Independent variables: community characteristics					
Community marker for unobservable characteristics	**Yes**	**Yes**	—	—	—
Solidarity	N/A	**Yes**	N/A	N/A	N/A

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

presents the determinants that were found statistically significant in the five household surveys (Gumber 2001; Jütting 2001; Ranson 2001; Schneider and Diop 2001; Supakankunti 2001).

- *Income and other socioeconomic determinants*. In Senegal and Thailand, household income was a significant determinant of being member of a prepayment scheme; in Rwanda and India income was not significant.
- *Other individual and household characteristics*. Health status was included in the analysis of the Rwanda, Thailand, and both India surveys. In all four surveys, the analysis confirmed the presence of the adverse selection that characterizes

voluntary prepayment schemes. Patients with recent illness episodes or with chronic illnesses are more likely to purchase a prepayment plan. Distance of the household from the provider of the scheme was included in the Rwanda analysis. Households less than 30 minutes from the health facility of the scheme were four times more likely to belong to the prepayment scheme than households living farther away.

- *Community characteristics*. Dummy variables for community characteristics were significant predictors of the probability of enrolling in the prepayment scheme (Senegal and Rwanda).

Determinants of Financial Protection in Community Financing

The results are varied in terms of the determinants of financial protection through community financing. Table 1.11 presents the determinants found statistically significant in four of the household surveys. The household survey conducted in Thailand did not permit analysis of the determinants of out-of-pocket payments and was therefore excluded. The key findings from this part of the study include:

- *Insurance effect*. In three of the five household surveys, membership in a community-financing scheme was a significant determinant of the probability of using health care and in reducing out-of-pocket payments. This confirms our original hypothesis that even small-scale prepayment and risk pooling reduce financial barriers to health care (Rwanda, Senegal, and India).
- *Socioeconomic determinants*. The analysis indicated that even with insurance, low income remains a significant constraint to health care utilization and ability to pay out-of-pocket payments (Rwanda, Senegal, and India).
- *Other determinants*. Distance from scheme provider was a significant determinant of the likelihood of using health care (Rwanda and Senegal).

Discussion of Main Findings from Macrolevel Cross-Country Analysis

A first observation was that most routine national statistical sources do not include data on the share of overall financing channeled through either community-based or private health insurance schemes (Carrin and others 2001). The analysis therefore had to focus on the extent of collective risk sharing provided at low-income levels through different combinations of general tax revenues and social insurance.

The equations have been estimated with the ordinary least squares method, using data for the explanatory variables HEC, EDU, and PHE percents that pertain to the year 1997. The Gini index pertains to specific years, depending upon the country, in 1986–99. In this synthesis chapter, we present only the "best" regressions[2] in summary tables 1.12 and 1.13 in the appendix. Except for the functional form of the regression for DALE, we present only the results of the logit specification. The estimation results for the *basic model* presented in summary table 1.12 are discussed next.

TABLE 1.11 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*	*OO Ps*	*Utilization*	*OOPs*
Model								
	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)
Dependent variable								
Dependent variable	Proportion of sample w/ at least one visit to professional health care provider	Total illness-related to out-of-pocket payment per episode of illness for the full episode	Proportion of sample w/ at least one hospitalization	Out-of-pocket spending for 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
Independent variables: Insurance effect								
Scheme membership	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	**Yes**
Independent variables: Individual and household characteristics								
Income/assets	**Yes**	**Only for poorest quartile**	**Only for richest terzile**	**Yes**	No	**Yes**	**Only for richest quintile**	**Only for richest quintile**
Age	**Yes**	No	No	**Yes**	No	—	**Only for oldest group**	**Only for oldest group**
Education	No	No	No	No	No	—	No	**Yes**
Gender	No	**Yes**	**Yes**	No	No	—	—	—
Health status/severity of illness	**Yes**	No	—	**Yes**	**Only for very severe**	**Yes**	**Yes**	**Yes**
Household size	No	No	—	—	No	**Only small hh size**	No	**Yes**
Marital status	—	—	—	—	No	—	No	No
Religion	—	—	—	—	—	—	**Yes**	**Yes**
Distance of household from scheme provider	**Yes**	No	**Yes**	No	—	—	—	—

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

First, concerning the *level of health (DALE),* the effects of DARS, HEC, and EDU are as expected and are statistically significant at the 1 percent significance level.

Second, from the equation for the *level of responsiveness (IR),* we see that HEC and EDU do not have a statistically significant impact. One major reason is likely to be that the index of responsiveness contains elements of both respect for persons and client orientation and that both are influenced differently by HEC and EDU. For instance, HEC may be important in explaining client orientation, but it may not be when explaining respect for persons. Therefore, when analyzing the determinants of the overall index of responsiveness, the effect of HEC may disappear. Notice, however, that both the coefficients of DARS and DMRS have the expected sign and are statistically significant.

Third, the explanatory power of the regression for the *index of fair financing (IFFC)* is minimal; DARS does not have a statistically significant impact on the IFFC. We submit that the major reason for this unsatisfactory result is the relatively small sample size. Moreover, the sample did not include sufficient data on countries with advanced and low risk sharing. For instance, the (full sample) data on advanced risk sharing are those of Bulgaria, Jamaica, Kyrgyz Republic, Romania, and Russia and do inadequately reflect the experience of high-income countries with either social health insurance or general taxation financing.

Fourth, in the equation for the *distribution of responsiveness (IRD),* the coefficient of DARS is statistically significant. The impact of DSHI is statistically insignificant. Fifth, the results for the *index of equality of child survival (IECS)* show that both DARS and DMRS have statistically significant impacts.

We next present the estimation results for the *enlarged model* with the Gini index as an explanatory variable in the equations for the distributional measures. The results are presented in table 1.13 (appendix 1A). In the *fair financing equation (IFFC),* which has very low explanatory power, the coefficient of the Gini index has the anticipated sign but is not statistically significant. The coefficient of DARS is also not statistically significant.

Related to the *distribution of responsiveness (IRD),* the result shows significant impacts of both DARS and DMRS, as well as of the Gini index. All coefficients have the expected sign. One can conclude that these risk-sharing arrangements are efficient in counterbalancing the overall effect of income inequality. A threshold for the Gini indexes can be computed, indicating the value above which risk sharing is no longer able to counteract the effect of overall income inequality. In the case of a country with an advanced risk-sharing scheme, the threshold value is 57.9. In the case of medium risk-sharing schemes, the threshold is 26.3. From these estimates we can infer that advanced risk-sharing schemes are more effective in counteracting the effects of overall income inequality in society. For example, let us assume that a country has a Gini coefficient of 35. If this country has an advanced risk-sharing scheme, its effect will outweigh the impact of income equality: the combined effect will be +0.8588. However, if the country has a medium risk-sharing arrangement, the combined effect will be –0.3252.

In the regression result related to the *inequality of child survival (IECS),* the sign of the Gini coefficients is against our expectations. Surprisingly, the Gini coefficient is also statistically significant at the 10 percent level. The coefficient of DARS has the anticipated sign, however, and is statistically significant at the 1 percent level.

Inclusion of the *interaction variables* with PHE percent in the equations did not result in a general improvement of the estimation results. For instance, in a number of cases, the coefficients of DARS have the correct sign but are statistically insignificant. In other instances, the coefficient of DARS has a negative sign. Further estimations were done with *transformed* interaction variables. In the case of the interaction between DARS and PHE percents, the variable constructed was DARS*(PHE percent – 0.5). The coefficient associated with this variable reveals the impact of the difference between the PHE percent and a threshold of 50 percent. The results for IR, IFFC, IRD, and IECS are not satisfactory: the coefficient of the new interaction variable has the wrong sign, is not statistically significant, or both. Only in the case of DALE did we obtain a satisfactory result: both the coefficients of DARS and the interaction variable have the expected sign and are statistically significant. This result is presented in table 1.13 (appendix 1A). In other words, for advanced risk-sharing systems with a PHE percent above 50, the level of the PHE percent reinforces the "average" effect of DARS. For instance, in the case of Oman with a PHE percent of 63.31, the combined impact of DARS and DARS*(PHE percent – 0.5) becomes –0.2694. For countries with a PHE percent below 50 (Chile, Republic of Korea, Brunei Darussalam, and United Arab Emirates), the initial effect of DARS is weakened. For instance, for Chile with a PHE percent of 40.1, the combined effect of DARS and DARS*(PHE percent – 0.5) on the dependent variable becomes –0.1637.

Key conclusions can be drawn from the various estimates. A first conclusion is that the extent of advanced risk sharing, as measured by the dummy variable DARS, is significant in the equations for four of the five goal measurements. No effect could be found in the case of the index of fair financing, but we submit this is due to the small sample size. In addition, in at least two of these measurements (level of responsiveness and distribution of health), the variable DMRS also has been shown to have a statistically significant impact.

Second, when enlarging the set of explanatory variables in the models for the distributional measures with the Gini index, DARS remains statistically significant in the equations for IRD and IECS. In addition, DMRS has a statistically significant impact in the equations for IRD. An additional interpretation emerges from the results, namely that risk sharing corrects for, or may even outweigh, the negative effect of overall income inequality on the fair financing index and the index of distribution of responsiveness.

Third, using interaction terms with PHE percent leads to plausible results for DALE only: the level of PHE percent reinforces the average positive effect of advanced risk sharing.

An analysis with preliminary updated data was also undertaken; since publication of the *World Health Report 2000,* WHO has developed updated estimates for the level (HEC) and share of public health expenditure in total health expenditure (PHE percent). When using updated data for HEC in the equations for DALE and IR, similar results to those presented here are obtained (in terms of explanatory power, sign, and statistical significance of coefficients). The use of the updated PHE percent does not significantly change the estimates for the equations with the interaction terms. Estimates of the index of fair financing (IFFC) were also obtained for an additional 30 countries. Reestimation of the equations, using an enlarged sample of 50, now leads to two interesting results: the advanced risk-sharing dummy variable DARS exerts a statistically significant effect on the fair financing index; and the Gini index has a statistically significant impact on IFFC but is counterbalanced by a health-financing system characterized by advanced risk sharing. These preliminary results prove to be more in line with those obtained for the other distributional measures.

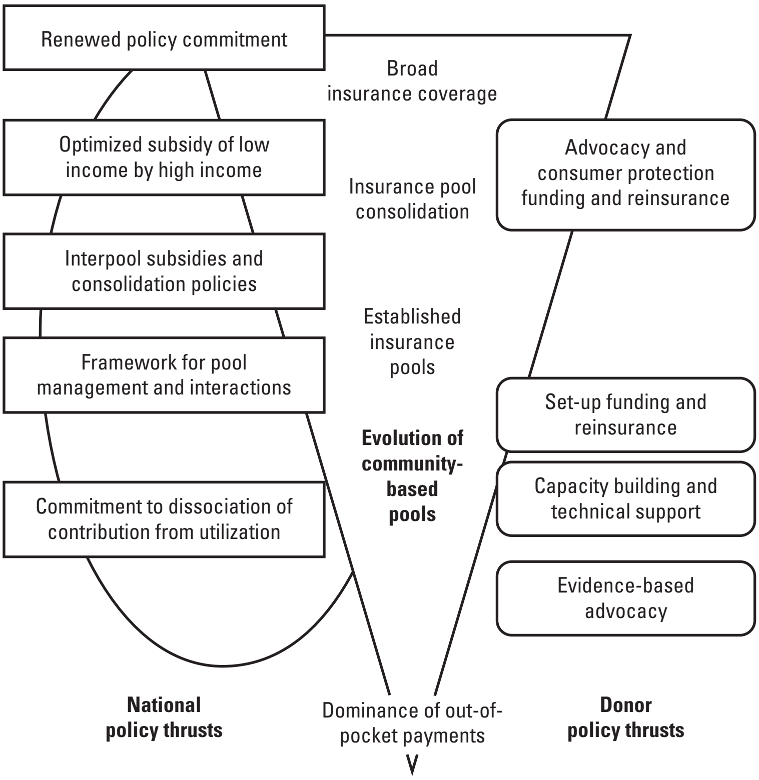
CONCLUSIONS AND RECOMMENDATIONS

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, though insufficient, first step in the long march toward improved access to health care for the poor and social protection against the cost of illness. It 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 isolation from the more comprehensive benefits often available through more formal health-financing mechanisms and provider networks.

The results of the macrolevel cross-country analysis presented in this report give empirical support to the hypothesis that risk sharing in health financing matters in terms of its impact on both the level and distribution of health, financial fairness, and responsiveness indicators. The results even suggest that risk sharing corrects for, and may outweigh, the negative effect of overall income inequality, suggesting that financial protection against the cost of illness may be a more effective poverty alleviation strategy in some settings than direct income support.

FIGURE 1.8 Stages of Financial Protection


Renewed policy commitment
Broad insurance coverage
Optimized subsidy of low income by high income
Insurance pool consolidation
Advocacy and consumer protection funding and reinsurance
Interpool subsidies and consolidation policies
Established insurance pools
Framework for pool management and interactions
Evolution of community-based pools
Set-up funding and reinsurance
Capacity building and technical support
Commitment to dissociation of contribution from utilization
Evidence-based advocacy
National policy thrusts
Dominance of out-of-pocket payments
Donor policy thrusts

Source: Adapted from Arhin-Tenkorang (2001).

The results of the microlevel household data analysis indicate that prepayment and risk sharing through community involvement in health care financing—no matter how small—increases access by poor populations to basic health services and protects them to a limited extent against the impoverishing effects of illness. Community involvement alone is not sufficient in preventing social exclusion since the very poorest often do not participate fully in these schemes. However, the study provides evidence that this constraint in reaching the poorest could be overcome through well-targeted design features and implementation arrangements.

The Asia regional review supports many of these conclusions. In particular, the review emphasizes that, although income is a key constraint to participation by the very poorest, even they are often willing to participate if their contributions are supplemented by a government subsidy and if the benefits they receive provide access to quality services that address their most frequent health problems. In the context of extreme resource constraints, this creates a tension or trade-off between prepayment for basic services and the need for insurance coverage for rarer, more expensive, and life-threatening events that may only happen once or twice in a lifetime. This highlights an area of market failure relating to voluntary community involvement in health care financing that needs to be addressed by appropriate government policies since it is precisely during hospitalization that many of the poor become even more impoverished.

More rigorous research is still needed on understanding the institutional strengths and weaknesses of community involvement in health care financing, and in monitoring and evaluating their impacts on financial protection, increasing access to needed health care, and combating social exclusion of the poor. Yet the research for this report points to five key policies available to governments for improving the effectiveness and sustainability of community financing: (1) increased and well-targeted subsidies to pay the premiums of low-income populations, (2) insurance to protect against expenditure fluctuations and reinsurance to enlarge the effective size of small risk pools, (3) effective prevention and case-management techniques to limit expenditure fluctuations, (4) technical support to strengthen the management capacity of local schemes, and (5) establishment and strengthening of links with the formal financing and provider networks.

See page 46 for acknowledgments, notes, and references.

APPENDIX 1A. STATISTICAL DATA (SUMMARY TABLES)

TABLE 1.12 Estimation Results[a] for the Basic Models

Explanatory variables	DALE[b] IR[c] IFFC[b] IRD[d] IECS[e]
	Ln (80– DALE) (Logit) (Logit) (Logit) (Logit)
Constant	4.9423 –0.4896 2.2874 1.6327 0.2798
	(0.3328) (0.2160) (0.2786) (0.4507) (0.2038)
	(14.8493) (–2.2663) (8.2099) (3.6228) (1.3329)
HEC	–0.1919 0.0000
	(0.0197) (0.0003)
	(–9.7498) (0.1150)
EDU	–0.2141 0.0032
	(0.0834) (0.0026)
	(–2.5684) (1.2540)
DARS	–0.2963 0.7244 –0.1146 4.2257 0.6269
	(0.0654) (0.2244) (0.6072) (0.8228) (0.3868)
	(–4.5321) (3.2275) (–0.1888) (5.1355) (17.1343)
DSHI	–0.2521 –1.4049
	(0.1987) (0.9107)
	(–1.2688) (–1.5427)
DMRS	0.2673 0.7217 0.6203
	(0.1148) (0.5355) (0.2497)
	(2.3294) (1.3478) (2.4845)
DMRS1	–0.1079
	(0.4607)
	(–0.2343)
DMRS2	–0.6458
	(0.3995)
	(–1.6165)
R–squared	0.7874 0.5678 0.0021 0.5749 0.8778
Adjusted R–squared	0.7821 0.4597 –0.0566 0.5276 0.8671
S.E. of regression	0.2639 0.2134 1.0791 1.1924 0.7350
Ak. Info criterion	0.2049 –0.0525 3.0894 3.3097 2.3149
Sample size	124 26 19 31 51

a. The first and second coefficients in the parentheses refer to the standard error and t-statistic, respectively.

b. Restricted samples.

c. Bulgaria is excluded from the sample.

d. Chile and Poland are excluded from the full sample.

e. Uzbekistan is excluded from the restricted sample.

TABLE 1.13 Estimation Results[a] for the Enlarged Models

Explanatory variables	IFFC[b] IRD IECS[b] DALE[b] (Logit) (Logit) Logit) Ln(80– DALE))
Constant	2.8260 3.0610 –0.7471 4.9446 (1.3698) (0.7956) (0.9164) (0.3306) (2.0630) (3.8539) (–0.8153) (14.9580)
Gini	–0.0119 –0.0375 0.0355 (0.0296) (0.0180) (0.0206) (–0.4020) (–2.0853) (–0.8153)
DARS	–0.2568 2.1713 5.3537 –0.2088 (0.7162) (0.5222) (0.5531) (0.0843) (–0.3586) (4.1577) (9.6789) (–2.4774)
DARS*[PHE percent– 0.5]	–0.4556 (0.2798) (–1.6284)
DMRS	0.9873 (0.4637) (2.1291)
HEC	–0.1898 (0.0196) (14.9580)
EDU	–0.2166 (0.0828) (–2.6155)
R–squared	0.0121 0.5191 0.7053 0.7920
Adjusted R–squared	–0.1114 0.4590 0.6906 0.7850
S.E. of regression	1.1067 0.9320 1.1912 0.2621
Ak. Info criterion	3.1846 2.8286 3.2550 0.1990
Sample size	19 28 43 124

a. The first and second coefficients in the parentheses refer to the standard error and t-statistic, respectively.

b. Restricted samples.

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NOTES

1. 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 (Duan and others 1982; Manning and others 1987). For a recent application of the model that analyzes the access impact of school health insurance in Egypt, see Yip and Berman 2001.
2. “Best” according to the adjusted R-squared and/or the Akaike criterion, as well as the theoretical consistency of the model. In addition, we present only the results using restricted samples where data points have been deleted from the “full” samples because of uncertainty in the risk-sharing classification, or restricted samples with additional deletion of influential data.

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